CRYSTAL RUIZ, MAYOR
CLARISA SANCHEZ, MAYOR PRO TEM
PHIL AYALA, COUNCILMEMBER
ALONSO LEDEZMA, COUNCILMEMBER
VALERIE VANDEVER, COUNCILMEMBER

REGULAR MEETING AGENDA
CITY COUNCIL OF THE CITY OF SAN JACINTO
Tuesday, June 2, 2026
5:00 PM CLOSED SESSION
5:30 BUDGET WORKSHOP
6:30 PM OPEN SESSION

COMMUNITY CENTER
625 S. PICO AVENUE
SAN JACINTO, CA 92583
951-487-7330

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the office of the City Clerk at 951-487-7330 ext. 339. Notification 48 hours prior to a meeting will enable the City to make reasonable arrangements to ensure accessibility to that meeting [28 CFR 35.102.35.104 ADA Title II].

The City Council meeting may be observed either virtually by accessing the City's website at https://horizon.agendalink.app/engage-v2/sanjacintoca/agendas and selecting the 'Watch' option for the applicable meeting, or in person at the San Jacinto Community Center.

Public Comments will only be accepted in person during the meeting or in writing to the City Clerk no later than 3:00 PM on the day of the meeting. Participants viewing the Livestream will not have a comment option.

Written public comments *may only be submitted via email* to comments@sanjacintoca.gov or by hard copy to the Office of the City Clerk at 595 S. San Jacinto Ave., San Jacinto, CA 92583, no later than 3:00 p.m. on the day of the meeting. Comments via text and social media (Facebook, Twitter, etc.) will not be accepted. Please identify the agenda item number and "PUBLIC COMMENT" in the subject line of the email or hard copy document. All written correspondence received by the 3:00 p.m. deadline will be distributed to the legislative body prior to the meeting and retained with the official meeting record. All email comments shall be subject to the same rules as would otherwise govern in-person speaker comments at the Council meeting.

Reading of Public Comments: The City Clerk will read all email comments, provided that the reading shall not exceed three (3) minutes or such other time as the Council may provide, consistent with the time limit for speakers at a Council meeting. The email comments submitted shall become part of the record of the Council meeting.

1. ORGANIZATION

1.1 Public Comments on Closed Session Items

1.2 Closed Session

1.21. PUBLIC EMPLOYMENT
Title: City Manager

1.2.2. PUBLIC EMPLOYMENT APPOINTMENT
Title: City Manager

1.3 Closed Session Report

1.4 Budget Workshop

1.5 Roll Call

1.6 Invocation

1.7 Pledge of Allegiance

1.8 Special Presentation(s)

— National Police Week Proclamation

— Recognition of Military Explorers for Community Volunteerism

1.9 Mayor/Council Member Reports

1.10 Late Items

2. PUBLIC COMMENTS

3. CONSENT CALENDAR

A. City Council

A1. Waiver of Full Reading of Ordinace(s), and Reading by Title Only

A2. Minutes of the Regular City Council Meeting of May 5, 2026

RECOMMENDATION:

Staff recommends that the City Council approve the City Council Regular Meeting Minutes of May 7, 2026.

A3. Resolution Adding Limited Term Position and Approving Second Amendment to Employment Agreement with Robert A. Johnson

RECOMMENDATION:

Staff recommends that the City Council:

— 1. Adopt a Resolution No. 4126 Adding the Limited Term Position of Executive Director of San Jacinto Power and Special Advisor to the City Council to the Citywide Salary Schedule.

— 2. Approve the Second Amendment to the Employment Agreement with Robert A. Johnson and authorize the Mayor to execute the Second Amendment in substantially the form presented, subject to any minor, non-substantive revisions approved by the City Attorney.

A4. Annual Proceedings for Landscaping, Lighting, and Park District No. 1 (LLPD No. 1) – Initiation and Intent to Levy Assessments for Fiscal Year 2026–2027

RECOMMENDATION:

Staff recommends that the City Council take the following actions:

— 1) Adopt Resolution 4125 initiating proceedings and ordering the Assessment District Engineer to prepare and file the Engineer's Report for LLPD No. 1 for Fiscal Year 2026–2027, pursuant to Streets and Highways Code §22622

— 2)Adopt Resolution 4126 declaring the City's intent to levy and collect assessments within LLPD No. 1 for Fiscal Year 2026–2027, accepting the Engineer's Report, and setting June 16, 2026, as the date of the public hearing to consider the annual levy.

A5. Annual Proceedings for Landscaping, Lighting and Park District No. 2 (LLPD No. 2) – Initiation and Intent to Levy Assessments for FY 2026–2027

RECOMMENDATION:

Staff recommends that the City Council take the following actions:

— 1) Adopt Resolution 4127 to initiate proceedings and direct the Assessment District Engineer to prepare and file the Engineer's Report for LLPD No. 2 for FY 2026–2027, pursuant to Streets and Highways Code §22622

— 2) Adopt Resolution 4128 to accept the Engineer's Report, declare the City's intent to levy and collect assessments for FY 2026–2027, and set June 16, 2026, as the date of the public hearing

A6. The Thomsen Company, Inc. Professional Services Agreement EWA 13 for San Jacinto MDP Line E-2 Storm Drain Improvement Project (CIP# 15-003)

RECOMMENDATION:

Staff recommends the City Council take the following actions:

— 1. APPROVE the professional services agreement to The Thomsen Company, Inc. for the sum of $19,675;

— 2. AUTHORIZE the City Manager to execute the professional services agreement.

A7. Tri-Party Cooperative Agreement Between Riverside County Transportation Commission, County of Riverside, and City of San Jacinto for Ramona Expressway Reconstruction Project Between Warren Road and Sanderson Avenue (CIP# 26-007)

RECOMMENDATION:

Staff recommends the City Council take the following actions:

— 1. APPROVE as to form Cooperative Agreement No. 26-31-001-00;

— 2. AUTHORIZE the City Manager to execute the cooperative tri-party agreement between Riverside County Transportation Commission, County of Riverside, and the City of San Jacinto (Agreement No. 26-31-001-00) upon further review by City Attorney.

A8. Cooperative Agreement Between Riverside County Transportation Commission and the City of San Jacinto for Construction of Mid County Parkway Project - Construction Contract 3

RECOMMENDATION:

Staff recommends the City Council take the following actions:

— 1. APPROVE as to form Cooperative Agreement No. 25-31-094-00;

— 2. AUTHORIZE the City Manager to execute the cooperative agreement between Riverside County Transportation Commission and the City of San Jacinto (Agreement No. 25-31-094-00) upon further review by City Attorney.

A9. Professional Services Agreement for a Comprehensive Update to the City’s Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards

Staff recommends that the City Council:

1. APPROPRIATE an additional $100,000 from the City’s unallocated General Fund balance for the preparation of updated Citywide Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards;
2. AUTHORIZE the transfer of the previously budgeted $80,000 for Landscape Design Guideline updates in the Planning Division FY 2025/2026 budget, together with the additional appropriation, into CIP Project No. 26-013, Fund 199-9999-425.40-01;
3. AWARD a Professional Services Agreement to Community Works Design Group in the amount of $159,615.00 for professional consulting services associated with the preparation of the updated standards;
4. REJECT all other proposals; and
5. AUTHORIZE the City Manager to execute the Professional Services Agreement and all related contract documents.

A10. City Net PSA Renewal for Street Outreach and Emergency Shelter

City Net PSA Renewal for Street Outreach and Emergency Shelter

— 1. Approve the FY 2026-2027 Professional Services Agreement with City Net to provide comprehensive street outreach and emergency hotel services, and

— 2. Authorize the City Manager or their designee to sign the agreement.

4. PUBLIC HEARING

4.1 Sixth Amendment to the CR&R Solid Waste Franchise Agreement and Annual Rate Adjustment

Staff recommends that the City Council :

— 1. Conduct a public hearing to receive public comment and accept any protests.

— 2. Adopt Resolution No. 4129 - Approving the Sixth Amendment to the Franchise Agreement between the City of San Jacinto and CR&R Incorporated.

5. DISCUSSION ITEMS

A. City Council

A1. FY 26/27 Capital Improvement Program Engineering Update

RECOMMENDATION:

Staff recommends that the City Council receive and file an update of the City's Capital Improvement Program for FY 26/27.

A2. Revision to Line E of the San Jacinto Valley Master Drainage Plan

RECOMMENDATION:

Staff recommends the City Council take the following actions:

— 1. DETERMINE that, in accordance with CEQA Guidelines Sections 15162 and 15164, that the proposed Addendum to the previously adopted Environmental Impact Report for the San Jacinto Valley Master Drainage Plan (MDP) adequately addresses the Revision to Line E of the MDP, and that no subsequent or supplemental environmental review is required because the revision to Line E would not result in new or more significant environmental impacts than those previously analyzed and no substantial changes in circumstances have occurred that would create new or more significant environmental impacts.

— 2. APPROVE the revision to Line E of the San Jacinto Valley Master Drainage Plan, in conformance with the Preliminary Design Report.

— 3. 3. Direct Staff to revise the San Jacinto Valley Master Drainage Plan Map to reflect the modifications in the Preliminary Design Report.

6. CITY MANAGER UPDATE

7. FUTURE REQUESTS FROM CITY COUNCIL TO CITY MANAGER

8. CLOSED SESSION

8.1 Closed Session

9.1.1 CONFERENCE WITH LEGAL COUNSEL—ANTICIPATED LITIGATION

Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Section 54956.9: 1 Case – Wright Construction Engineering Corp. v. City of San Jacinto, Government Code Claim dated March 23, 2026.

9. ADJOURNMENT

DOCUMENTS RELATED TO OPEN SESSION AGENDAS (SB343) - Any public record, relating to an open session agenda item, that is distributed within 72 hours prior to the meeting is available for public inspection at the public counter located in the Administration Building of City Hall, 595 S. San Jacinto Avenue, San Jacinto, CA 92583.

I, Julia Espinoza, City Clerk of the City of San Jacinto, do hereby certify that I caused to be posted the foregoing agenda this May 28, 2026 as requested by law.

_____

Julia Espinoza, City Clerk

Date Posted: May 28, 2026

Proclamation

Of The City of San Jacinto

National Police Week
May 10 – 16, 2026

WHEREAS, *National Police Week provides an opportunity for communities across the nation to recognize and honor the dedicated men and women of law enforcement who courageously serve and protect their communities each day; and*

WHEREAS, *peace officers play a vital role in preserving public safety, protecting life and property, and upholding the laws and constitutional rights of all citizens; and*

WHEREAS, *law enforcement officers demonstrate courage, professionalism, integrity, and an unwavering commitment to public service, often placing themselves in harm's way in service to others; and*

WHEREAS, *Congress and the President of the United States have designated May 10 through May 16, 2026, as National Police Week, and May 15, 2026, as Peace Officers Memorial Day; and*

WHEREAS, *Peace Officers Memorial Day honors those officers who have made the ultimate sacrifice in the line of duty and recognizes the families, friends, and colleagues they leave behind; and*

WHEREAS, *the City of San Jacinto recognizes and appreciates the dedication and sacrifice of all law enforcement personnel who faithfully serve the community; and*

WHEREAS, *the City of San Jacinto is committed to honoring the service and sacrifices of law enforcement officers and remembering those who have lost their lives in the line of duty.*

NOW, THEREFORE, BE IT RESOLVED, *that the City of San Jacinto hereby recognizes May 10 through May 16, 2026, as "National Police Week" and May 15, 2026, as "Peace Officers Memorial Day" in honor of the dedicated service, courage, and sacrifice of law enforcement officers throughout the nation.*

_____
Crystal Ruiz, Mayor

_____
Clarisa Sanchez, Mayor Pro Tem

_____
Phil Ayala, Councilmember

_____
Valerie Vandever, Councilmember

_____
Alonso Ledezma, Councilmember

June 2, 2026

TO:	City Council
REQUESTED BY:	Jill Theriot, Deputy City Clerk
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Minutes of the Regular City Council Meeting of May 5, 2026

RECOMMENDATION:

Staff recommends that the City Council approve the City Council Regular Meeting Minutes of May 5, 2026.

Attachments

May_5_2026_City_Council_Regular_Meeting_Minutes.pdf

CRYSTAL RUIZ, MAYOR
CLARISA SANCHEZ, MAYOR PRO TEM
PHIL AYALA, COUNCILMEMBER
VALERIE VANDEVER, COUNCILMEMBER
ALONSO LEDEZMA, COUNCILMEMBER

ACTION MINUTES
REGULAR MEETING OF THE SAN JACINTO CITY COUNCIL
TUESDAY, MAY 5, 2026
5:00 PM CLOSED SESSION
5:30 PM AGENDALINK TRAINING WORKSHOP
6:30 PM OPEN SESSION
LIVE STREAM LINK: https://vimeo.com/user115670369

COMMUNITY CENTER
625 S. PICO AVENUE
SAN JACINTO, CA 92583
951-487-7330

1. ORGANIZATION

Mayor Crystal Ruiz called the meeting to order at 6:30 p.m.

1.1. Public Comments on Closed Session

1.2. Closed Session

1.2.1. PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Title: City Manager

1.2.2. CONFERENCE WITH LABOR NEGOTIATORS
Agency designated representatives: Craig Hayes, City Attorney
Unrepresented employee: City Manager

1.3. Closed Session Report

City Attorney Craig Hayes indicated that there was no reportable action from the Closed Session.

1.4. AgendaLink Training Workshop

IT Supervisor Jessica Mendez conducted an AgendaLink agenda management software training workshop for the City Council.

1.5. Roll Call

Deputy City Clerk Jill Theriot conducted the roll call:

Present: Mayor Crystal Ruiz, Mayor Pro Tem Clarisa Sanchez, Councilmember Phil Ayala, Councilmember Valerie Vandever

Absent: Councilmember Alonso Ledezma

M/S/C (Ayala/Sanchez) to approve the absence of Councilmember Ledezma. Motion carried 4/0.

Ayes:	**Vandever, Ayala, Sanchez, Ruiz**
Nays:	**None**
Absent:	**Ledezma**
Abstain:	**None**

1.6. Invocation

Councilmember Vandever gave the invocation.

1.7. Pledge of Allegiance

Councilmember Ayala led the Pledge of Allegiance.

1.8. Special Presentations

1.8.1. Employee of the Month Recognition for April

1.8.2. Nominator of the Month Recognition for April

1.8.3. Recognition SJHS Lady Tigers Girls Soccer Team - CIF SS & CIF State Finalists

1.8.4. National Public Works Week Proclamation

1.8.5. Mental Health Awareness Month Proclamation

1.9. Mayor/Council Member Reports

Councilmembers provided their reports.

1.10. Late Items

There were no late items.

2. PUBLIC COMMENTS

There were three (3) public comments:

- Marianne
- Lynn Peterson
- Greg Langworthy

3. CONSENT CALENDAR

3.A. Consent Calendar - City Council

3.A.1. Waiver of Full Reading of Ordinance(s), and Reading by Title Only

3.A.2. Minutes of the Regular City Council Meeting of April 7, 2026/City Clerk/Approved

3.A.3. Treasurer's Report at January 31, 2026/Finance/Approved

3.A.4. Treasurer's Report at February 28, 2026/Finance/Approved

3.A.5. Treasurer's Report at March 31, 2026/Finance/Approved

3.A.6. Report - Use of ARPA Funds CY 26 Q1/Finance/Approved

3.A.7. Notice of Intent to Conduct a Public Hearing Regarding Proposed Water and Wastewater Rate Adjustments/Finance/Approved

3.A.8. SB1 – Resolution No. 4120 Adopting Fiscal Year 2026/27 Road Maintenance and Rehabilitation Account (RMRA) Projects/Engineering/Approved

3.A.9. Inland Foundation Engineering Professional Services Agreement for Esplanade Avenue Widening, Phase 1 Warren Road to Sanderson Avenue (CIP# 06-145)/Engineering/Approved

3.A.10. Cooperative Agreement Between City of Hemet and City of San Jacinto for Esplanade Avenue Widening Phase 1 Warren Road to Sanderson Avenue (CIP#06-145)/Engineering/Approved

3.A.11. Road Closures for the Construction of Esplanade Avenue Widening Phase 1, Warren Road to Sanderson Avenue (CIP# 06-145)/Engineering/Approved

3.A.12. CSA 152 – Adoption of Resolution No. 4114, Maintaining BAU for FY2026-2027 and FY2027-28/Storm/Approved

3.A.13. Fifth Amendment to City Attorney Legal Services Agreement/City Manager/Approved

3.A.14. Resolution No. 4117, in Support of Preserving and Conserving the Juan Bautista de Anza National Historic Trail/City Manager/Approved

M/S/C (Vandever/Sanchez) moved to approve the consent calendar. Motion carried 4/0.

Ayes:	Ayala, Sanchez, Vandever, Ruiz
Nays:	None
Absent:	Ledezma
Abstain:	None

4. DISCUSSION ITEMS

4.1. Annual Financial Report, SAS 114 Report, and GAS Report for the Fiscal Year Ended June 30, 2025

Finance Director Kimberly Ganimian presented the staff report.

City Council received and filed the Annual Financial Report, SAS 114 Report, and GAS Report for the Fiscal Year Ended June 30, 2025.

4.2. Community Facilities District No. 2002-1 (Rancho San Jacinto, Phase 2) Special Tax Bonds Refunding

Deputy City Manager Tom Prill presented the staff report.

M/S/C (Ruiz/Ayala) made a motion to adopt Resolution No. 4119, approving the issuance of the City of San Jacinto Community Facilities District No. 2002-1 (Rancho San Jacinto, Phase 2) 2026 Special Tax Refunding Bonds (the "Refunding Bonds"). Motion carried 4/0.

Ayes:	**Vandever, Sanchez, Ayala, Ruiz**
Nays:	**None**
Absent:	**Ledezma**
Abstain:	**None**

4.3. Approval of Resolution Adopting SB 707 Disruption of Telephonic of Internet Service Policy

City Attorney Craig Hayes presented the staff report.

M/S/C (Ayala/Vandever) made a motion to adopt Resolution No. 4121, approving SB 707 Disruption of Telephonic or Internet Service Policy. Motion carried 4/0.

Ayes:	**Vandever, Sanchez, Ayala, Ruiz**
Nays:	**None**
Absent:	**Ledezma**
Abstain:	**None**

5. FUTURE REQUESTS FROM CITY COUNCIL TO CITY MANAGER

6. ADJOURNMENT

With no further business before the City Council, Mayor Ruiz adjourned the meeting at 7:57 p.m.

CITY OF SAN JACINTO:

_____
Crystal Ruiz, Mayor

ATTEST:

_____
Jill Theriot, Deputy City Clerk

Approved as read:
Approved as amended:

June 2, 2026

TO:	City Council
REQUESTED BY:	Craig Hayes, City Attorney
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Resolution Adding Limited Term Position and Approving Second Amendment to Employment Agreement with Robert A. Johnson

RECOMMENDATION:

Staff recommends that the City Council:

1. Adopt **Resolution No. 4124** - Adding the Limited Term Position of Executive Director of San Jacinto Power and Special Advisor to the City Council to the Citywide Salary Schedule.
2. Approve the Second Amendment to the Employment Agreement with Robert A. Johnson and authorize the Mayor to execute the Second Amendment in substantially the form presented, subject to any minor, non-substantive revisions approved by the City Attorney.

DISCUSSION:

Resolution No. 4124 would add the limited-term position of Executive Director of San Jacinto Power and Special Advisor to the City Council to the Citywide Salary Schedule at a fixed monthly pay rate. The position is a limited term, at will, unrepresented, City Council appointed position outside the competitive service, subject to the applicable employment agreement approved by the City Council. The City classifies the position as exempt under the Fair Labor Standards Act, subject to applicable law. California Code of Regulations, title 2, section 570.5 requires CalPERS reportable pay rate to be listed on a publicly available pay schedule approved by the governing body, identifying the position title, pay rate, time base, effective date, revision date, and other required information.

In 2017, the City hired Robert A. Johnson to serve as City Manager under an employment agreement. On July 1, 2024, the City entered into a new employment agreement with Robert A. Johnson to continue to serve as City Manager through June 30, 2028 (“Employment Agreement”).

The Employment Agreement sets forth the City Manager’s duties, compensation, benefits, term, termination provisions, and other terms and conditions of employment. Mr. Johnson has notified the City Council of his desire to retire from his position as City Manager and, for a limited transition period, continue serving the City in an executive and advisory capacity. The proposed Second Amendment would memorialize that transition and provide for Mr. Johnson’s employment as Executive Director of San Jacinto Power and Special Advisor to the City Council upon the City Council appointing an interim City Manager and through December 31, 2026.

The duties of the Executive Director of San Jacinto Power and Special Advisor to the City Council are set forth in Exhibit “A” to the Second Amendment. In general, those duties include assisting with San Jacinto Power operations and related energy programs, assisting with transition-related matters, and continuing to support certain economic development and City property development efforts.

The Second Amendment provides that Mr. Johnson would not be entitled to any cost-of-living adjustment, annual salary adjustment, merit increase, market adjustment, or other increase in base salary during the transition period unless expressly approved by the City Council in a subsequent written amendment. During the transition period, Mr. Johnson's base salary would remain Twenty-Seven Thousand Five Hundred Twenty-Eight Dollars and Fifty Cents ($27,528.50) per month.

The Executive Director of San Jacinto Power and Special Advisor to the City Council is established by Resolution No. 4124, the compensation set forth in the Second Amendment matches the rate adopted in the Salary Schedule, and the City Council finds the consideration the City is receiving is commensurate with the compensation.

The Brown Act requires that prior to taking final action, the City Council shall orally report a summary of a recommendation for executive salary. The City Attorney will therefore provide an oral report of the proposed adjustment at the meeting.

FISCAL IMPACT:

During the transition period, Mr. Johnson's base salary would remain $27,528.50 per month, and his compensation and benefits would remain as provided in the Employment Agreement, as amended. The City also receives compensation in the amount of $12,000.00 per month from CalChoice for Mr. Johnson's work with CalChoice. This will partially offset Mr. Johnson's salary.

Attachments

Resolution No. 4124 - Resolution Establishing Position and Salary Schedule.pdf
2024 City Manager Employment Agreement (Robert Johnson).pdf
1st Amendment to City Manager Contract (July 2025)-c1.pdf
2nd_Amendment_to_City_Manager_Contract-c1.pdf

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE)ss
CITY OF SAN JACINTO)

RESOLUTION NO. 4123

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JACINTO, CALIFORNIA, ADDING THE LIMITED TERM POSITION OF EXECUTIVE DIRECTOR OF SAN JACINTO POWER AND SPECIAL ADVISOR TO THE CITY COUNCIL TO THE CITYWIDE SALARY SCHEDULE

WHEREAS, the City of San Jacinto is a general law city organized under the laws of the State of California;

WHEREAS, the City Council has approved or is considering approval of a second amendment to the City Manager Employment Agreement providing for a limited transition services period during which the incumbent will serve in the position of Executive Director of San Jacinto Power and Special Advisor to the City Council;

WHEREAS, the City Council desires to add that limited term position to the Citywide Salary Schedule at a fixed monthly pay rate;

WHEREAS, California Code of Regulations, title 2, section 570.5 requires CalPERS reportable pay rate to be listed on a publicly available pay schedule approved by the governing body, identifying the position title, pay rate, time base, effective date, revision date, and other required information;

WHEREAS, before taking final action, the City Council will orally report a summary of the recommended final action on the salary, salary schedule, and any fringe benefits for the position as required by Government Code section 54953, subdivision (d)(3); and

WHEREAS, the City Council finds that the position, compensation, and related transition services serve a legitimate public purpose and are in the best interests of the City and its residents.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of San Jacinto as follows:

Section 1. Recitals. The recitals above are true and correct and are incorporated into this Resolution as findings of the City Council.

Section 2. Salary Schedule Amendment. The Citywide Salary Schedule is amended to add the limited term position of Executive Director of San Jacinto Power and Special Advisor to the City Council at the pay rate and time base shown in Exhibit A. The amendment is effective as of the date of adoption of this Resolution, unless Exhibit A states a later effective date.

Section 3. Position Status. The position is a limited term, at will, unrepresented, Council appointed position outside the competitive service, subject to the applicable employment agreement approved by the City Council. The City classifies the position as exempt under the Fair Labor Standards Act, subject to applicable law. Nothing in this Resolution authorizes the incumbent to exercise City Manager authority after the transition date, or authorizes any individual City Council member to direct City staff except as permitted by law.

Section 4. Term. The position is authorized through December 31, 2026, unless earlier ended or later extended by subsequent City Council action in open session and reflected in the applicable employment agreement or other City records.

Section 5. CalPERS Reporting. The City Manager or Interim City Manager, Finance Director, and other appropriate City staff are directed to report compensation paid for the position to CalPERS only to the extent permitted by the Public Employees Retirement Law, CalPERS regulations, and other applicable law. Nothing in this Resolution characterizes as compensation earnable, pensionable compensation, or reportable compensation any amount that does not qualify under applicable law.

Section 6. Posting and Retention. The City Clerk is directed to post the amended Citywide Salary Schedule on the City website, make it available for public review during normal business hours, and retain it with all required revision records for not less than five years.

Section 7. Public Purpose. The City Council finds that the position and compensation serve a legitimate public purpose, are commensurate with the duties to be performed, and do not constitute a gift of public funds under Article XVI, section 6 of the California Constitution.

Section 8. CEQA. This Resolution is an administrative personnel action and is not a project under CEQA Guidelines section 15378, subdivision (b)(5). To the extent it is a project, it is exempt under CEQA Guidelines section 15061, subdivision (b)(3).

Section 9. Effective Date. This Resolution shall take effect immediately upon adoption.

PASSED, APPROVED, AND ADOPTED this 2nd day of June 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

CITY OF SAN JACINTO:

_____
Crystal Ruiz, Mayor

ATTEST:

_____
Julia Espinoza, City Clerk

APPROVED AS TO FORM:
Best, Best & Krieger LLP

_____
Craig Hayes, City Attorney

EXHIBIT A

CITY OF SAN JACINTO
CITYWIDE SALARY SCHEDULE AMENDMENT

Adopted Pursuant to Resolution No. 4124

This Salary Schedule Amendment is intended to satisfy California Code of Regulations, title 2, section 570.5. The City Clerk shall insert the actual date of adoption before posting the final Citywide Salary Schedule.

Position Title	Executive Director of San Jacinto Power and Special Advisor to the City Council
Classification Status	Limited term; at will; Council appointed; outside competitive service; unrepresented
FLSA Status	Exempt, subject to applicable law
Pay Rate	$27,528.50 per month, fixed rate
Time Base	Monthly, payable on the City regular payroll cycle
Annualized Rate	$330,342.00, for reference only
Effective Date	June 2, 2026
Date of Revision	Initial adoption
Adopting Authority	City Council Resolution No. 2026-____
Authorized Term	Through December 31, 2026, unless extended by City Council action

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EMPLOYMENT AGREEMENT
CITY MANAGER

THIS EMPLOYMENT AGREEMENT ("Agreement") is entered into as of July 1, 2024 (the "Effective Date"), between the **City of San Jacinto**, a municipal organization organized under the laws of the State of California ("City") and **Robert A. Johnson** ("City Manager" or "Employee"). City and City Manager are sometimes individually referred to as "Party" and collectively as "Parties."

RECITALS

A. City and Employee entered into an Employment Agreement dated July 1, 2019, where Employee agreed to serve as City Manager of City, which was amended four times and terminates June 30, 2025 (collectively, the "Original Agreement").

B. City and Employee now desire to enter into this Agreement, which shall terminate the Original Agreement on the Effective Date of this Agreement and supersede the Original Agreement.

I. TERM

The City hereby employs the Employee as City Manager commencing on July 1, 2024, and continuing through June 30, 2028 ("Term"). Upon expiration of this Term, this Agreement shall automatically renew for a period of one (1) year unless written notice expressing one Party's intention to terminate this Agreement is provided to the other Party by June 30, 2027. Following this initial automatic renewal period, this Agreement shall be automatically renewed for additional one-year periods on an ongoing basis unless written notice expressing one Party's intention to terminate this Agreement is provided to the other Party no less than one year prior to the expiration of whichever one year period is in effect at that time.

II. SALARY

Employee shall be entitled to no salary or compensation (other than the fringe benefits set forth in Section IX below) except as stated in this Section II as follows:

Employee's base salary shall be $25,255.50 per month, effective July 1, 2024. Employee shall be compensated on a pro rata basis of his base salary for the first and last months of his employment. Employee shall be paid pursuant to the procedures regularly established and as they may be amended by the City in its sole discretion.

On about July 1, 2025, and on each anniversary thereafter, the City Council shall consider, and when warranted award the Employee, an annual salary increase. Such increase shall be awarded at the City Council's discretion, based on the City Council's most recent personnel evaluation of Employee. Any salary increase shall be conditioned on the City Council's most recent personnel evaluation resulting in a finding that Employee has satisfactorily

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performed all job duties. Each annual salary increase may be up to four (4) percent of Employee's base salary at the time of such evaluation.

Employee shall receive a yearly Cost of Living Adjustment ("COLA") of five (5) percent each City fiscal year.

Annual adjustments to salary shall be effective as of July 1 of the respective year of the adjustment. The annual adjustment shall not be implemented unless set forth in a written amendment to this Agreement, signed by both parties, that the City Council duly approves in an open session.

III. DUTIES

Employee shall perform the duties of the City Manager as prescribed by Section 2.12.060 of the San Jacinto Municipal Code. In addition to the powers and duties set forth in the Municipal Code, the City Manager shall have such powers and duties which are delegated to him by the City Council. The City Manager shall execute all powers and duties in accordance with the policies adopted by the City Council and the State of California Government Code.

IV. CITY MANAGER AND COUNCIL RESPONSIBILITIES

The City Manager shall be the Chief Executive Officer of the City. As such, the City Manager shall have the responsibility for implementing City Council policy, whereas the City Council shall retain the responsibility for formulating and adopting said policy.

The City Council and its members shall deal with the administrative services of the City only through the Employee, except for the purpose of inquiry. Neither the City Council nor any member thereof shall give orders to any subordinate of the Employee. Employee shall take direction only from a majority of the City Council as expressed at a duly noticed Brown Act meeting. Employee shall not be required to take direction from individual City Councilmembers or less than a majority of Councilmembers.

V. OTHER DUTIES

The City Manager (or his designee) shall: (1) review all policies proposed to the City Council and make appropriate recommendations to the Council; (2) periodically evaluate employees as provided for by California law and City policy; (3) advise the Council of possible sources of funds that might be available to implement present or contemplated City programs or services; (4) maintain and improve his professional competence by available means, including subscription to and reading of appropriate periodicals, and joining and participating in appropriate professional associations and their activities; (5) establish and maintain an appropriate community relations program; and (6) serve as liaison between the Council and as its designated representative with respect to all employer-employee matters, and make recommendations to the Council concerning those matters. Notwithstanding that a designee of the City Manager may perform said duties, the City Manager shall be the person ultimately

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responsible to the Council for the proper implementation of the duties and responsibilities described in this Agreement.

VI. OUTSIDE PROFESSIONAL ACTIVITIES

The Employee may undertake outside professional activities for compensation, including consulting, teaching, training, speaking and writing provided they do not interfere with Employee's normal duties and are done only during non-business hours, personal leave or holiday time of Employee and are not done with any existing vendors or contractors of the City. Under no circumstances shall such outside activities create a conflict of interest with the duties of the City Manager and the interests of the City.

VII. EVALUATION

Employee shall meet with the City Council in closed session annually, beginning on or about July 1, 2025, to review the Employee's performance and to discuss the City Council's evaluation of said performance. It shall be Employee's obligation to remind City Council of the need to conduct this annual performance evaluation. Additional closed sessions may be scheduled at the direction of the City Council to discuss the Employee's performance as deemed necessary by the City Council.

VIII. TERMINATION

The Employee shall serve at the will and pleasure of the City Council and may be removed from office (terminated) at any time for any reason or no reason upon a majority vote of the City Council. Nothing in this Agreement shall prevent the City Council from terminating this Agreement and the services of the Employee at its sole discretion.

A. Termination without Cause

(i) Termination with Advance Notice. In the event Employee is terminated by the City without cause during the term of this Agreement, during which time Employee is willing and able to perform his duties under this Agreement, the City shall provide Employee with sixty (60) days' written notice prior to the effective date of termination. Upon termination, City shall provide Employee with: (1) twelve (12) months' salary; and (2) continuation of all existing health benefits currently offered the Employee, for the lesser of twelve (12) months or until Employee finds other employment, whichever occurs first. The salary and benefits shall be referred to collectively as "Severance Pay."

(ii) Termination without Advance Notice. In lieu of termination with notice as set forth in Subsection (i) above, the City may immediately terminate Employee from his employment without advance notice, in which case the Severance Pay shall be (1) twelve (12) months' salary; and (2) continuation of all existing health benefits currently offered the Employee, for the lesser of twelve (12) months or until Employee finds other employment, whichever occurs first.

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(iii) In exchange for Severance Pay under either Subsections (i) or (ii) above, the Employee hereby expressly waives any right he may have under any applicable law, City policy, or otherwise to appeal or grieve his termination and the terms of this Agreement.

B. Termination for Cause

In the event that it is determined that the Employee has been terminated for cause, the Employee shall not be entitled to any Severance Pay. Termination shall be "for cause" if Employee: (i) acts in bad faith and to the detriment of the City; (ii) refuses or fails to act in accordance with any specific direction or order of the City Council; (iii) exhibits misconduct or dishonesty in regard to his employment or v) is determined to have mislead the City Council or engaged in any dishonesty during the application process or his interview with the City Council prior to his appointment as City Manager; (v) engages or is found to have engaged in any misconduct outside of his employment with the City that materially impacts the City's reputation; or (vi) is convicted of either a misdemeanor that materially impacts the City's reputation or Employee's ability to perform his duties or felony crime. The removal of the Employee from office pursuant to this paragraph shall be only on a majority vote of the whole City Council. In case of his intended removal, the Employee shall be furnished with a written notice stating the City Council's intention to remove him and the reasons therefore, at least thirty (30) days before the effective date of removal. Within seven (7) days after the furnishing of the Employee of such notice, he may, by writing, addressed to the City Council and delivered to the City Clerk, request a hearing before the City Council. Thereupon, the Mayor shall fix a time for such public hearing. Such hearing shall be held at the usual meeting place of the City Council, before the expiration of the aforesaid thirty (30) day period and the Employee shall attend and be heard. After furnishing the Employee with written notice of his intended removal from office, the City Council may suspend him from further duty, but his compensation shall continue until his removal by motion of the City Council, duly made and passed following the close of the public hearing. This Section VIII of this Agreement is mutually agreed to by the City Council and Employee in lieu of Municipal Code sections 2.12.080(B), pursuant to San Jacinto Municipal Code section 2.12.100.

C. Resignation

If Employee desires to resign from his position, he will provide the City Council with at least sixty (60) calendar days' notice, in writing. In the event that the Employee resigns from his employment with the City, the Employee shall not be entitled to any Severance Pay.

Notwithstanding the foregoing, if Employee desires to resign from his position after July 1, 2025, Employee may request to stay employed with the City for a six (6) month period and help the City Council transition to a new city manager. In that case, the City will provide Employee with: (1) six (6) months' salary; and (2) continuation of all existing health benefits currently offered the Employee. In exchange, the City Council may request City Manager to perform the following tasks: (1) choose an interim city manager to run the day to day operations of the City; and/or (2) run the city manager recruitment for a new, permanent city manager. During this six (6) month period, Employee will not be in the office at City Hall, but will be available on an as needed basis for consultation with the interim city manager, City

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Council, and/or city attorney, either at City Hall, by video, or at another location. If appropriate, the City Council may allow and pay for Employee to attend annual conferences such as Cal Cities, SCAG, ICSC, etc.

D. Abuse of Office

Pursuant to Government Code Sections 53243, 53243.1 and 53243.2, if City Manager is convicted of a crime involving an abuse of his office or position, all of the following shall apply: (1) if City Manager is provided with administrative leave pay pending an investigation, City Manager shall be required to fully reimburse City such amounts paid; (2) if City pays for the criminal legal defense of City Manager (which would be in its sole discretion, as it is generally not obligated to pay for a criminal defense), City Manager shall be required to fully reimburse City such amounts paid; and (3) if this Agreement is terminated, any Severance Pay and Severance Benefits related to the termination that City Manager may receive from City shall be fully reimbursed to City or void if not yet paid to City Manager. For purposes of this Section, abuse of office or position means either: (1) an abuse of public authority, including waste, fraud, and violation of the law under color of authority; or (2) a crime against public justice, including, but not limited to, a crime described in Title 7 (commencing with Section 92) of Part 1 of the Penal Code. In addition to the salary and compensation in Section II, above, Employee shall be entitled only to the following fringe benefits:

IX. FRINGE BENEFITS

In addition to the salary and compensation in Section II, above, Employee shall be entitled only to the following fringe benefits:

A. Time Off

Employee shall be provided with paid time off as follows:

(i) Vacation time to be accrued on a pro rata basis each pay period at the rate of 160 hours per year.

(ii) Sick Leave accruing on a pro rata basis each pay period at a rate of 96 hours per year. Sick leave may accrue up to a maximum of 960 hours. Upon completion of two years of service with the City, Employee may sell back to the City up to 96 hours of sick leave at the end of each calendar year, provided that after selling back any sick leave, Employee still retains a balance of 100 hours.

(iii) Management leave accruing on a pro rata basis each pay period at a rate of 96 hours per year, which is in addition to sick leave and vacation time. Management leave time carries over for twelve (12) months and if not used during that period or the subsequent year, it expires. It may not be cashed out upon separation from employment.

(iv) Paid holidays as follows: New Year's Day, President's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day,

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Thanksgiving Friday, Christmas Eve, Christmas Day, and for each six month period or portion thereof one (1) floating holiday.

B. Retirement

Employee shall be enrolled in the City's retirement program through CalPERS consistent with the City's existing contract with CalPERS for such benefits and applicable law. In this regard, it is understood that Employee will be a "classic" CalPERS member under Tier II of the City's contract with CalPERS, which provides for a retirement formula of 2% at 55.

If Employee elects to participate in City's deferred compensation plan, City will match the Employee's annual contribution effective July 1, 2024.

C. Health/Dental/Vision Insurance

Employee shall be eligible to enroll in the City's health, dental, and vision plans to the same extent as and under the same terms of other management employees.

D. Cafeteria Benefit (Non-Health)

Employee shall be entitled to participate in the non-health cafeteria benefit to the extent and under the same rules that said benefit is also provided to management employees.

E. Life Insurance

The City shall provide employee with life insurance to the same extent as and under the same terms of other management employees.

F. Professional Membership

Upon approval by the City Council, the City will pay dues for Employee's membership in professional associations related to his position as City Manager or that are in the City's interests.

G. Automobile Allowance

City shall provide Employee with an automobile allowance of six hundred dollars ($600) per month, or portion thereof.

H. Cellular Phone Allowance

City shall provide Employee with the use of a cellular phone or a cellular phone allowance of one hundred fifty dollars ($150) per month, or portion thereof. The cellular phone shall not be used by persons other than the Employee. The Employee may use the cellular phone for incidental personal purposes, consistent with the City's adopted electronic device policy or

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other applicable policies. The City shall also provide for maintenance, repair and replacement costs of said cellular phone, in accordance with City policy.

X. GENERAL PROVISIONS

A. Any modifications of this Agreement will be effective only if made in writing and signed by both the Employee and the City.

B. The salary and compensation set forth in Section II and the fringe benefits set forth in Section IX shall be the exclusive consideration provided to Employee under this Agreement. Employee shall not be entitled to any additional compensation, salary increases, or fringe benefits provided to any other city employees or bargaining groups unless this Agreement is duly amended to incorporate such provision.

C. All compensation, benefits and comparable payments to be provided to the Employee under this Agreement shall be less withholdings required by law. The compensation, benefits and comparable payments set forth in this Agreement shall be provided subject to any rules, regulations, agreements, or policies established for the City's management group, as of the date of this Agreement.

D. This Agreement supersedes any and all other agreements, either oral or written, between the Parties hereto with respect to the employment of the Employee by the City and contains all of the covenants and agreements between the Parties with respect to the employment of the Employee by the City.

E. Each Party agrees and acknowledges that no representations, inducements, promises or agreements, orally or otherwise, have been made by any Party, or anyone acting on behalf of any Party, which are not embodied herein and that any agreement, statement, or promise not contained in this Agreement shall not be valid or binding on either Party.

F. If any provision of this Agreement is held by a Court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way.

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CITY OF SAN JACINTO

By: _____
Phil Ayala, Mayor

Dated: 7/8/2024

Attest: Julia Espinoza
Julia Espinoza, City Clerk

Approved as to Form:
Craig Hayes
City Attorney, Best Best & Krieger

ROBERT A. JOHNSON

By: _____
Robert A. Johnson

Dated: 7/3/2024

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FIRST AMENDMENT TO EMPLOYMENT AGREEMENT CITY MANAGER
(July 1, 2025, Salary Adjustment)

A. The City of San Jacinto ("City") entered into an Employment Agreement, effective July 1, 2024, with Mr. Robert A. Johnson to serve as the City Manager of the City; and

B. Pursuant to the Employment Agreement, Mr. Johnson receives a yearly Cost of Living Adjustment ("COLA") of 5% effective July 1, 2025; and

C. Pursuant to the Employment Agreement, the City Council recently held an annual performance evaluation and determined that Mr. Johnson has met the prerequisites for an annual salary adjustment; and

D. The City Council grants a 4% annual salary adjustment that is to be set forth in section II of the Employment Agreement.

Now therefore, the Parties mutually agree and promise as follows:

1. Employee's base salary, to be set forth in Section II of the Employment Agreement, shall be amended to be $27,528.50 per month, effective July 1, 2025.

2. All other terms and conditions of the Agreement shall remain unmodified and in full force and effect.

CITY OF SAN JACINTO

By: _____
Valerie Vandever, Mayor

ROBERT A. JOHNSON

By: _____
Robert A. Johnson

Attest: _____
Julia Espinoza, City Clerk

APPROVED AS TO FORM:

_____
Craig Hayes, City Attorney
Best Best & Krieger

SECOND AMENDMENT TO CITY MANAGER EMPLOYMENT AGREEMENT
(City Manager Transition and Executive Advisory Role)

This Second Amendment to the Employment Agreement ("Second Amendment") is made and entered into as of this 2nd day of June, 2026 ("Effective Date"), by and between the City of San Jacinto, a municipal corporation and general law city organized and existing under the laws of the State of California ("City), and Robert A. Johnson ("Employee"). City and Employee are sometimes referred to herein individually as a "Party" and collectively as the "Parties."

RECITALS

A. City and Employee entered into that certain Employment Agreement, dated, July 1, 2024, whereby Employee agreed to serve as City Manager of the City ("Agreement").

B. City and Employee subsequently entered into that certain First Amendment to the Employment Agreement ("First Amendment"), dated July 1, 2025, for the purposes of amending and increasing Employee's base salary.

C. Employee has notified the City Council of his desire to transition out of the position of City Manager and, for a limited transition period, continue serving the City in a different executive and advisory capacity; and

D. The City Council desires to provide for an orderly transition of executive management responsibilities, while retaining Employee's institutional knowledge, project experience, and assistance with certain City priorities.

E. The Parties therefore desire to amend the Agreement to memorialize Employee's transition from City Manager to Executive Director of San Jacinto Power and Special Advisor to the City Council, and to set forth the terms and conditions governing Employee's continued employment during the transition period.

NOW THEREFORE, in consideration of the mutual covenants, promises, and agreements set forth herein, the Parties mutually agree and promise as follows:

1. Incorporation of Recitals.

The Recitals set forth above are true and correct and are incorporated herein by this reference.

2. Transition from City Manager Position and Amendment of Title.

Upon the effective date of the City Council's appointment of an Interim City Manager ("Transition Date"), Employee shall cease serving as City Manager of the City and shall no longer possess, perform, or exercise the powers, duties, or authority of the City Manager under the San Jacinto Municipal Code, the Agreement, or otherwise, except to the extent expressly authorized by the City Council and permitted by law. The Parties acknowledge and agree that Employee's transition under this Second Amendment shall not, in and of itself, constitute a termination, removal, resignation, retirement from City employment, or separation from City service. Rather, as of the Transition Date, Employee shall continue in employment with the City in the amended position of Executive Director of San Jacinto Power and Special Advisor to the City Council, subject to the terms of the Agreement as amended by this Second Amendment. From and after the Transition Date, references in the Agreement to "City Manager" shall be deemed to refer to Employee in his amended capacity as Executive Director of San Jacinto Power and Special Advisor to the City Council.

3. Transition Services Period.

Unless earlier terminated in accordance with the Agreement as amended by this Second Amendment, Employee's employment in the amended position described herein shall commence on the Transition Date and

shall continue through December 31, 2026 ("Transition Services Period"). Upon expiration of the Transition Services Period, Employee's employment with the City shall end without further action by either Party, unless the Parties enter into a subsequent written amendment approved by the City Council and executed by both Parties. The expiration of the Transition Services Period shall not constitute a termination without cause by the City and shall not entitle Employee to Severance Pay or other separation compensation, except for any compensation, accrued leave cash-out, or benefits required by the Agreement, City policy, applicable benefit plan documents, or applicable law.

4. Amended Duties.

Effective as of the Transition Date, Sections III, IV, and V of the Agreement are hereby amended to provide that Employee shall perform the duties set forth in Exhibit "A," attached hereto and incorporated herein by this reference, together with such other duties as may be assigned by the City Council and agreed to by Employee in a manner consistent with this Second Amendment and applicable law. In the event a material question arises regarding whether a matter falls within Employee's amended duties or the authority of the Interim City Manager or successor City Manager, the matter shall be resolved by direction of the City Council, or pending such direction, by the Mayor in consultation with the City Attorney to the extent consistent with applicable law and the Agreement.

5. Compensation and Waiver of Further Salary Adjustments.

During the Transition Services Period, Employee's base salary shall remain Twenty-Seven Thousand Five Hundred Twenty-Eight Dollars and Fifty Cents ($27,528.50) per month. Employee acknowledges and agrees that, during the Transition Services Period, he shall not be entitled to any cost-of-living adjustment, annual salary adjustment, merit increase, market adjustment, or other increase in base salary otherwise provided for in Section II of the Agreement, any prior amendment, City policy, or City practice, unless expressly approved by the City Council in a subsequent written amendment to the Agreement. Section VII of the Agreement shall not apply during the Transition Services Period, and the City Council shall have no obligation to conduct an annual performance evaluation of Employee during the Transition Services Period. Except as expressly provided in this Second Amendment, Employee's compensation and benefits shall remain as provided in the Agreement, as previously amended.

6. Availability and Work Location.

Employee shall remain reasonably available by telephone, text message, electronic mail, video conference, and in person as necessary to perform the duties described in this Second Amendment. Employee shall be physically present at City offices approximately two (2) days per week, as time permits and as reasonably necessary for the performance of assigned duties, and may otherwise perform duties remotely or at such other locations as may be appropriate for the assigned work.

7. Termination During Transition Services Period.

Employee shall continue to serve at the will and pleasure of the City Council. During the Transition Services Period, the City Council may terminate Employee's employment without cause or for cause in accordance with Section VIII of the Agreement, as amended by this Second Amendment. Notwithstanding the foregoing, Section VIII(C) shall not apply during the Transition Services Period. In the event the City terminates Employee's employment without cause before expiration of the Transition Services Period, any Severance Pay shall be limited to the salary and health-benefit continuation Employee would have received from the effective date of termination through December 31, 2026. Employee shall not be entitled to Severance Pay if Employee voluntarily resigns, retires, separates from employment upon expiration of the Transition Services Period, or is terminated for cause. Section VIII.D of the Agreement, including the statutory reimbursement obligations set forth therein, shall remain in full force and effect.

8. No City Manager Authority Following Transition Date.

Employee shall not represent himself as City Manager after the Transition Date. Employee shall perform his duties in coordination with the Interim City Manager or successor City Manager, as appropriate. Employee's authority shall be limited to the duties set forth in Exhibit "A" and any further direction lawfully provided by the City Council.

9. Compliance with Law; Confidentiality.

Employee shall continue to comply with all applicable federal, state, and local laws, City policies, ethics rules, conflict-of-interest requirements, confidentiality obligations, and lawful directions of the City Council applicable to Employee's amended position.

10. No Other Amendments.

Except as expressly amended by this Second Amendment, the Agreement, as previously amended, shall remain unchanged and in full force and effect. In the event of any conflict between this Second Amendment and the Agreement or the First Amendment, this Second Amendment shall control.

CITY OF SAN JACINTO **ROBERT A. JOHNSON**

By:_____ By:_____
Crystal Ruiz, Mayor Robert A. Johnson

Attest: _____
Julia Espinoza, City Clerk

APPROVED AS TO FORM:

_____
Craig Hayes, City Attorney
Best Best & Krieger

EXHIBIT "A"

TRANSITION SERVICES DUTIES

During the Transition Services Period, Employee shall perform the following duties, subject to City Council direction, applicable law, and the terms of the Agreement as amended by the Second Amendment:

1. Executive Director of San Jacinto Power.

Employee shall serve as Executive Director of San Jacinto Power and shall assist with or oversee, as applicable, the following matters:

- San Jacinto Power day-to-day operations;
- Energy-efficiency projects;
- Residential solar and battery programs, including PowerChoice;
- Commercial and industrial solar and battery programs, including PowerChoice+;
- Carport, solar, battery, and electric-fueling-station projects, including projects involving City Hall/Library, the Community Center, and the San Jacinto Sheriff Station;
- Disadvantaged Communities energy-efficiency grants and programs, including programs focused on solar installation and energy-saving upgrades; and
- Mentoring and managing one 0.5 FTE employee assigned to San Jacinto Power or related programs.

2. CalChoice.

Employee may serve as Interim Chief Executive Officer of California Choice Energy Authority/CalChoice through December 31, 2026, subject to any required CalChoice approvals, authorizations, and applicable law. Nothing in this Second Amendment shall require Employee to serve in such capacity or limit CalChoice's authority with respect to that role.

3. Special Advisor to the City Council; Transition Support.

Employee shall serve as Special Advisor to the City Council and shall provide transition-related assistance, including:

- Assisting with the transition of direct reports and operational matters to the Interim City Manager;
- Assisting the City Attorney and Interim City Manager with larger projects, goals, and background matters not previously transitioned to staff;
- Providing background information, institutional knowledge, and mentoring to the Interim City Manager;
- Assisting the Interim City Manager with communication practices responsive to City Council needs;
- Assisting with organizational structure or change-management issues, if requested; and
- Assisting with structural reorganization or the filling of budgeted vacant positions, if requested and consistent with the Interim City Manager's authority.

4. Economic Development and City Property Development.

Employee shall continue to assist with economic development and City property development matters, including:

- Main Street and City property development;
- City acquisition of property on Main Street for potential development opportunities;
- Developer relationships related to investment in, and construction of, market-rate product on Main Street;
- Efforts to identify a partner to develop, construct, finance, or otherwise assist with a City Hall facility; and
- Assist with transition of relationships, project history, and institutional knowledge to the Interim City Manager or successor City Manager.

June 2, 2026

TO:	City Council
REQUESTED BY:	Kimberly Ganimian, Finance Director
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Annual Proceedings for Landscaping, Lighting, and Park District No. 1 (LLPD No. 1) – Initiation and Intent to Levy Assessments for Fiscal Year 2026–2027

RECOMMENDATION:

Staff recommends that the City Council take the following actions:

1. Adopt **Resolution 4125** initiating proceedings and ordering the Assessment District Engineer to prepare and file the Engineer's Report for LLPD No. 1 for Fiscal Year 2026–2027, pursuant to Streets and Highways Code §22622.
2. Adopt **Resolution 4126** declaring the City's intent to levy and collect assessments within LLPD No. 1 for Fiscal Year 2026–2027, accepting the Engineer's Report, and setting June 16, 2026, as the date of the public hearing to consider the annual levy.

DISCUSSION:

Resolution of Initiation

LLPD No. 1 requires annual proceedings under the Landscape and Lighting Act of 1972, including initiation of the levy process, preparation of the Engineer's Report, and setting a public hearing. The Resolution of Initiation begins the FY 2026–2027 process and directs the Assessment District Engineer (NBS) to prepare the required report. No new parcels are being annexed this year other than those previously conditioned through development approvals. LLPD No. 1 is a pre-Proposition 218 district and does not include an automatic cost-of-living escalator. As a result, the maximum assessment cannot be increased without approval by property owners per Article XIIID of the California Constitution.

Resolution of Intent & Engineer's Report

The Resolution of Intent accepts the Engineer's Report and sets June 16, 2026, as the public hearing date. Assessments will remain unchanged from the prior fiscal year. Because LLPD No. 1 is a pre-Proposition 218 district without an escalation factor, increases cannot occur without property-owner approval. Current service costs continue to exceed assessment revenues, and a General Fund subsidy of approximately $1.2 million is anticipated to maintain existing service levels, subject to available funding.

Adoption of the Resolution of Intent is required to continue the annual levy and to provide notice to property owners of the upcoming public hearing.

FISCAL IMPACT:

There is no fiscal impact associated with adopting the Resolution of Initiation or the Resolution of Intent. These actions begin the annual assessment process and set the public hearing date. Any General Fund subsidy needed to support District operations will be addressed through the broader budget process.

Attachments

Resolution No. 4125 - LLPD 1 Initiation.pdf
Resolution No. 4126 - LLPD 1 Intention.pdf
LLPD No. 1 FY 26-27 Engineer's Report.pdf

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE)ss
CITY OF SAN JACINTO)

RESOLUTION NO. 4125

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JACINTO, CALIFORNIA, INITIATING PROCEEDINGS PURSUANT TO THE LANDSCAPE AND LIGHTING ACT OF 1972 FOR THE LEVY AND COLLECTION OF THE ANNUAL ASSESSMENTS AND ORDERING THE DISTRICT'S ENGINEER TO PREPARE AND TO FILE A REPORT RELATED TO MAINTENANCE OF PUBLIC IMPROVEMENTS IN THE CITY OF SAN JACINTO LANDSCAPING, LIGHTING, AND PARK DISTRICT NO. 1, AND ANY ASSESSMENT THEREON FOR FISCAL YEAR 2026-2027

WHEREAS, heretofore the City of San Jacinto Landscaping, Lighting, and Park District No.1 was created pursuant to Part 2 of Division 15 of the California Streets and Highways Code (Section 22500, et. seq.); and

WHEREAS, California Streets and Highways Code Section 22622 provides that this Council shall adopt a Resolution generally describing any proposed new improvements or substantial changes in existing improvements in such a District and ordering the City Engineer, or designated District Engineer, to prepare and file a report related to annual maintenance and assessment in such a District; and

WHEREAS, no new improvements or substantial changes in existing improvements are proposed for said Landscaping, Lighting, and Park District No. 1 (LLPD No. 1); and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred.

NOW, THEREFORE, BE IT RESOLVED, determined and ordered by the City Council of the City of San Jacinto, as follows:

Section 1: The Recitals, as set forth in this Resolution, are in all respects true and correct.

Section 2: NBS, the designated Assessment District Engineer, is ordered and directed to prepare an annual report as specified in the California Streets and Highways Code Section 22565, et. seq. with respect to the LLPD No.1 for Fiscal Year 2026-2027.

Section 3: The City Clerk shall certify to the adoption of this Resolution.

APPROVED, SIGNED and ADOPTED this 2nd day of June, 2026:

AYES:
NAYS:
ABSENT:
ABSTAIN:

City of San Jacinto

By: _____
Crystal Ruiz, Mayor

ATTEST:

_____
Julia Espinoza, City Clerk
City of San Jacinto

APPROVED AS TO FORM:

_____
City Attorney, City of San Jacinto
Best, Best & Krieger, LLP.

CERTIFICATE

I, Julia Espinoza, City Clerk of the City of San Jacinto, do certify that the foregoing Resolution No. 4125 was passed, adopted, and approved at a regular meeting of the City Council of the City of San Jacinto held on the 2nd day of June 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

WITNESS MY HAND AND OFFICIAL SEAL this 2nd day of June 2026.

_____
Julia Espinoza, City Clerk
City of San Jacinto
State of California

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE)ss
CITY OF SAN JACINTO)

RESOLUTION NO. 4126

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JACINTO, CALIFORNIA, DECLARING ITS INTENTION TO LEVY AND COLLECT ASSESSMENTS WITHIN LANDSCAPING, LIGHTING AND PARK DISTRICT NO. 1 AND GIVING NOTICE OF AND SETTING THE TIME AND PLACE OF THE HEARING ON THE LEVY OF THE PROPOSED ASSESSMENT FOR FISCAL YEAR 2026-2027

WHEREAS, on June 16, 1992 the City Council of the City of San Jacinto, ("City") authorized the formation of Landscaping, Lighting, and Park District No. 1 (the "District") pursuant to the Landscaping and Lighting Act of 1972, Part 2 of Division 15 of the Streets and Highways Code (the "Act"), for the maintenance and servicing of street lights, landscaping, parkways and median islands; and

WHEREAS, in November 1996 the voters of the State of California passed Proposition 218 which added Article XIIID to the California Constitution requiring, among other things, new procedures for the approval of the levying of assessments against real property; and

WHEREAS, Article XIIID of the California Constitution requires that assessments comply with stated procedural and approval provisions by July 1, 1997, unless an assessment district meets certain exemptions as set forth in Section 5 of Article XIIID, which exemptions include the following**:**

"(a) any assessment imposed exclusively to finance the capital costs or maintenance and operation expenses for sidewalks, streets, sewers, water, flood control, drainage system or vector control."

"(b) any assessment imposed pursuant to a petition signed by the persons owning all of the parcels subject to the assessment at the time the assessment is initially imposed;" and

WHEREAS, the District assessments proposed for Fiscal Year 2026-2027 are exempt from Proposition 218 because the assessments are either general revenue for the operation and maintenance of street and highways, all expenditures thereunder qualifying as street maintenance as defined by the State of California, or the assessments were approved by the property owners on June 16, 1992, originally imposed prior to the passage of Proposition 218; and

WHEREAS, the Act also requires that the City comply with certain procedural and approval procedures before levying its annual assessments under an existing assessment district; and

WHEREAS, the adoption of this Resolution, among other things, is required in order to levy the proposed assessments for Fiscal Year 2026-2027 for the District; and

WHEREAS, by said Resolution the City Council ordered NBS, the company designated by this Council as the Assessment District Engineer, to file a report with the City Clerk in accordance with the Act; and

WHEREAS, NBS has filed such report with the City Clerk, and such report has been presented to and was considered by the City Council.

NOW THEREFORE, BE IT RESOLVED, determined and ordered by the City Council of the City of San Jacinto, California as follows:

Section 1. The City Council hereby declares its intention to levy and collect assessments for the District during the Fiscal Year 2026-2027 pursuant to the Act. The area to be assessed is located in the City of San Jacinto, Riverside County, California. The boundaries of the District are described in the report on file with the City Clerk.

Section 2. The purpose of the District is for maintenance and servicing of landscaping, irrigation, parkways, medians and street lighting.

Section 3. The report filed by NBS which is on file with the City Clerk and which has been considered by the City Council at the meeting at which this Resolution has been adopted, is hereby accepted. All interested persons are referred to that report for a full and detailed description of the work and improvements, the boundaries of the District, and the proposed assessments upon assessable lots and parcels of land with the District. The complete list of assessor parcel numbers can be found on file with the City Clerk.

Section 4. The Fiscal Year 2026-2027 assessments in each benefit zone within District are the same as the Fiscal Year 2025-2026 assessments and are not proposed to be increased.

Section 5. On Tuesday, June 16, 2026, at the hour of 6:30 p.m., or as soon thereafter during the course of its regularly scheduled meeting, the City Council will conduct a public hearing on the question of the levy of the proposed annual assessment. The hearing will be held at the San Jacinto Community Center, 625 S. Pico Avenue, San Jacinto, CA 92583.

Section 6 The City Clerk shall give notice of the time and place of said hearing by publishing a copy of this Resolution once in the Press Enterprise not less than 10 days before the date of the hearing pursuant to Section 22626 of the Streets and Highways Code.

Section 7. This Resolution is adopted pursuant to Section 22624 of the Streets and Highways Code.

APPROVED, SIGNED and ADOPTED this 2nd day of June, 2026:

AYES:
NAYS:
ABSENT:
ABSTAIN:

City of San Jacinto

By: _____
Crystal Ruiz, Mayor

ATTEST:

_____
Julia Espinoza, City Clerk
City of San Jacinto

APPROVED AS TO FORM:

_____
City Attorney, City of San Jacinto
Best, Best & Krieger, LLP.

CERTIFICATE

I, Julia Espinoza, City Clerk of the City of San Jacinto, do certify that the foregoing Resolution No. 4126 was passed, adopted, and approved at a regular meeting of the City Council of the City of San Jacinto held on the 2nd day of June 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

WITNESS MY HAND AND OFFICIAL SEAL this 2nd day of June 2026.

_____
Julia Espinoza, City Clerk
City of San Jacinto
State of California

CITY OF SAN JACINTO

Fiscal Year 2026/27 Engineer's Report For:

Landscaping, Lighting and Park District No. 1

May 2026

NBS
helping communities
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1. ENGINEER'S LETTER

WHEREAS, the City Council of the City of San Jacinto (the "City"), State of California, directed NBS to prepare and file a report presenting plans and specifications describing the general nature, location and extent of the improvements to be maintained, and an estimate of the costs of the maintenance, operations and servicing of the improvements for the City of San Jacinto Landscaping, Lighting and Park District No. 1 (the "District") for Fiscal Year 2026/27; and

WHEREAS, the report includes a diagram for the District, showing the area and properties proposed to be assessed, an assessment of the estimated costs of the maintenance, operations and servicing of the improvements, and the net amount to be assessed upon all assessable lots and/or parcels within the District in proportion to the special benefit received; and

NOW THEREFORE, the assessments as detailed in this Engineer's Report and as summarized in the table below are made to cover the portion of the estimated costs of maintenance, operation and servicing of the improvements to be paid by the assessable real property within the District in proportion to the special benefit received.

Description	Maximum Rate Per AU	Maximum Amount	Actual Rate Per AU	Actual Amount[2]
Total Costs for District Improvements/Services		**$2,294,618.00**		**$2,294,618.00**
District Assessments				
Landscaping - Zone A-1 (Citywide)	$34.76	$254,802.44	$34.76	$254,802.44
Landscaping - Zone A-2 (Soboba Springs)	229.96	38,518.30	229.96	38,518.30
Landscaping - Zone A-3 (Rancho San Jacinto)	77.00	77,000.00	77.00	77,000.00
Lighting - Zone B (Lighted Areas)	25.89	238,917.45	25.89	238,917.45
Lighting - Zone C (Non-Lit Outlying Areas)	0.00	0.00	0.00	0.00
Parks - Zone D	14.67	50,363.43	14.67	50,363.43
Rounding and Adjustments		0.00		0.00
Total District Assessments		**$659,601.63**		**$659,601.63**
Contribution From Other Sources		234,800.00		234,800.00
Contribution From LLPD No. 2		198,899.00		198,899.00
Total Funds Available		**$1,093,300.63**		**$1,093,300.63**
Contribution From General Fund [1]		**$1,201,317.37**		**$1,201,317.37**

(1) Subject to available funds.
(2) The 2026/27 Actual Amount may differ slightly from the Assessment Roll and final applied levy amounts due to rounding.

I, the undersigned, respectfully submit the enclosed Engineer's Report and, to the best of my knowledge, information and belief, the Engineer's Report and assessments herein have been prepared and computed in accordance with the Assessment Law.

By: _____
John G. Egan
Assessment Engineer
R.C.E. 14853

2. OVERVIEW

This District, by special benefit assessments, provides funding for the installation, operation, maintenance and servicing of: street lights and traffic signals, landscaped areas (parkways and medians, etc.) and municipal parks; on a citywide basis; all of which are located on public land, public rights-of-way, or in landscaping easements within the City.

In November of 1996, the voters of California passed Proposition 218 which added Articles XIII C and XIII D to the California Constitution. These Constitutional provisions affect the procedural and substantive requirements for the levy of assessments. Among other things, the requirements provide that assessed parcels of real property must receive a special benefit from assessments. Assessments are also subject to new majority protest requirements. These new requirements apply, unless an assessment district meets certain exemptions set forth in Proposition 218.

The following assessments are exempt from the procedures and approval process of Article XIII D of the California Constitution:

A. Any assessment imposed exclusively to finance the capital costs or maintenance and/or operation expenses for sidewalks, streets, sewers, water, flood control, drainage systems, or vector control; or

B. Any assessment imposed pursuant to a petition signed by the persons owning all of the parcels subject to the assessment at the time the assessment is initially imposed.

Zone A (Including Sub-Zones A-1, A-2 and A-3), Zone B and Zone E of the District qualify as existing assessments exempt under exemption "A" described above. This conclusion has been reached using the definitions provided by the Office of the Controller for the State of California and the Guidelines Relating to Gas Tax Expenditures published by the division of local government affairs. Under this definition, street improvements include, but are not limited to, such things as street lighting and parkway and median landscaping.

Zone D park maintenance assessments within the District also qualify as an existing assessment exempt under exemption "B" described above in that the park maintenance assessment imposed was consented to by all of the persons owning all of the parcels subject to the park maintenance assessment at the time the assessment was initially imposed. The language of Articles XIII C and XIII D will be subject to future legislation and court decisions in order to clarify the specific intent of these Constitutional provisions. At the time that this report was prepared no such legislation or judicial guidance existed with regard to determining how the property owner consent exemption would apply. However, the drafter of these provisions, the Howard Jarvis Taxpayers Association, has stated that it intended to exempt from the procedural and substantive requirements those assessments being re-levied on an annual basis under an existing assessment district so long as the assessments are not increased. The proposed assessments for the 2026/27 Fiscal Year for the District fall within this exemption because they are merely the annual levy for assessments previously consented to by property owners, and are not being increased.

Section 22573, of the Landscaping and Lighting Act of 1972 (the “1972 Act”), requires assessments to be levied according to benefit rather than according to assessed value. The section states:

"The net amount to be assessed upon lands within an assessment district may be apportioned by any formula or method which fairly distributes the net amount among all assessable lots or parcels in proportion to the estimated special benefits to be received by each such lot or parcel from the improvements.

The determination of whether or not a lot or parcel will benefit from the improvements shall be made pursuant to the Improvement Act of 1911 (Division 7 commencing with Section 5000) [of the Streets and Highways Code, State of California]."

The 1972 Act also provides for the classification of various areas within an assessment district into different zones where, “by reason of variations in the nature, location and extent of the improvements, the various areas will receive differing degrees of benefit from the improvements. A zone shall consist of all territory which will receive substantially the same degree of benefit from the improvements." An assessment district may consist of contiguous or noncontiguous areas.

Although Proposition 218 mandates that parcels owned by public agencies be assessed if they receive special benefit from the improvements being serviced and maintained by the assessments; under the exemptions stated above, properties owned by public agencies, such as city, county, state, federal government, or board-governed special districts, are not assessed.

The word “parcel,” for the purposes of this report, refers to an individual property assigned its own assessor’s property identification number by the Riverside County Assessor’s Office. The Riverside County Auditor/Controller uses assessor’s property identification numbers and specific fund numbers to identify, on the tax roll, properties assessed for special district benefit assessments.

Following consideration of public comments at a noticed public hearing, and review of the Final Annual Engineer’s Report, the City Council may confirm the report as submitted and order the levy and collection of assessments for Fiscal Year 2026/27. If approved, the assessment information will be submitted to the Riverside County Auditor/Controller and included on the property tax roll for each benefiting parcel for Fiscal Year 2026/27.

3. PLANS AND SPECIFICATIONS FOR THE IMPROVEMENTS

Plans and specifications for the improvements have been prepared and approved as part of the improvement plans. These plans and specifications are on file and available for review at the office of the City Engineer and, by reference, have been made part of this report.

3.1 Landscaping and Park Maintenance

A map showing the location of all landscaping sub-zones and park maintenance areas within the District is on file at City Hall with the City Clerk and is made a part of this report by reference.

Servicing means the furnishing of:

1. Water for the irrigation of any landscape, park improvement, the operation of any fountains, or the maintenance of any other appurtenant improvements.
2. Electric current or energy, gas, or other illuminating agent for any public lighting facilities or for the lighting or operation of any other improvement.

Maintenance means the furnishing of services and materials for the ordinary and usual maintenance, operation and servicing of any improvement, including:

1. Installation, repair, removal or replacement of all or any part of any landscape, park improvement, including turf, shrub and tree plantings, statuary, fountains, other ornamental structures, lights, electrical systems, playground equipment, play courts, paving, curbs, gutters, sidewalks, and public restrooms.
2. Removal of graffiti by washing, painting, grinding, sanding, or other usual means.
3. Providing for the life, growth, health, and beauty of landscaping, including cultivation, irrigation, trimming, spraying, fertilizing, or treating for disease or injury.
4. The removal of trimmings, rubbish, debris, and other solid waste.
5. Land preparation which may be necessary for the installation, repair or replacement of landscape, park improvements, irrigation systems, sidewalks and drainage, including grading, leveling, cutting, filling, and sod.

3.2 Street Lights and Traffic Signals

A map showing the location of all street lights within the District is on file at City Hall with the City Clerk and is made a part of this report by reference.

Servicing means the furnishing of electric current or energy, gas or other illuminating agent for public street lighting and traffic signal facilities.

Maintenance means the furnishing of services and materials for the ordinary and usual installation, maintenance, operation, and servicing of any improvement, including the repair, removal, or replacement of all or any part of a component of the street lighting system, traffic signal system, or appurtenant horizontal or vertical surfaces (including graffiti removal).

3.3 Street Trees

Reference to Street Trees throughout this report is only a description of improvements that were proposed during initial formation of the District. The assessment for street trees, although approved by property owners during the initial formation of the District, was not levied by the City prior to the passage of Proposition 218. As such, since the District has been grandfathered in under the assessment methodology and assessment rates existing prior to Proposition 218, the assessment for street trees cannot be levied unless additional property owner approval is secured through the procedures outlined in Proposition 218.

4. ESTIMATE OF COSTS

The following table provides an estimate of the costs of the improvements for Fiscal Year 2026/27.

CITY OF SAN JACINTO
LANDSCAPING, LIGHTING AND PARK DISTRICT No. 1

MAINTENANCE ESTIMATE
FISCAL YEAR 2026/27

Cost Items	BENEFIT ZONES						Cost Item Totals
	Landscaping			Lighting		Parks	
	A-1	A-2	A-3	B	C	D	
	City-wide	Soboba Springs	Rancho San Jacinto	Lights	No Lights		
Personnel Services [1]	$413,726	$16,743	$97,467			$155,178	$683,114
Maintenance & Operations							
Supplies & Materials [2]	0	0	500	0		0	500
Professional & Specialized Services [3]	36,000	3,443	8,000	3,000		3,000	53,443
Repair & Maintenance [4]							
Contracts, Leases & Rents [5]	128,750	52,483	355,000	60,664		153,500	750,397
Utilities [6]	55,000	30,500	337,500	150,000		115,000	688,000
Overhead, Insurance & Bonds	30,294	6,770	0	32,763		49,337	119,164
Capital Outlays							
Interfund Transfer (LLPD No. 2) [7]			(126,046)			(72,853)	(198,899)
Interfund Transfer (Equipment Replacement)	(25,000)		(3,000)				(28,000)
CSA 152						(206,800)	(206,800)
Interfund Transfer (General Fund) [8]	(383,967)	(71,421)	(592,421)	(7,510)		(145,999)	(1,201,318)
TOTALS	**$254,802**	**$38,518**	**$77,000**	**$238,917**	**$0**	**$50,363**	**$659,602**
Amount per AU	**34.76**	**229.96**	**77.00**	**25.89**	**0.00**	**14.67**	
Rounding and Adjustments	0.00	0.00	0.00	0.00	0.00	0.00	$0
TOTAL AMOUNT TO ASSESSMENT							**$659,602**

Notes:

1. Personnel Services is calculated based on estimated hours and a fully-burdened hourly rate, which includes amounts for salaries, fringe benefits, and other departmental operating expenditures that cannot be directly assigned to one zone. Accordingly, all other expenditures are those directly charged to each zone.
2. Supplies and Materials include office supplies, uniforms and safety equipment, small tools, etc.
3. Professional and Specialized Services include assessment engineering, legal counsel, City administration and County Auditor fees.
4. Repair and Maintenance includes building and vehicle R&M, parts and supplies for landscaping, irrigation and mowing, and street light R&M.
5. Contracts, Leases and Rents include weekend restroom maintenance, landscape maintenance contracts, traffic signal maintenance provided by Riverside County/CALTRANS, and vertical surface maintenance (graffiti abatement).
6. Utilities include water, electricity, and street light maintenance provided by SCE and City of San Jacinto.
7. Fund Transfer from Rancho San Jacinto LLPD No. 2 funds to finance the LLPD No. 2 component of shared facilities in Rancho San Jacinto, and to account for the LLPD No. 2 zones that don't have parks and contribute to the City-wide parks.
8. Subject to available funds.

5. METHOD OF APPORTIONMENT

5.1 Method of Apportionment

The net amount to be assessed upon lands within the District in accordance with this report is apportioned by a formula and method which fairly distributes the amount among all assessable lots or parcels in proportion to the estimated special benefit to be received by each lot or parcel from the improvements, namely the maintenance and servicing of public landscaping, lighting and park facilities within such District. The maintenance and servicing of public landscaping, lighting and park facilities installed and constructed in public places in the City provides a special benefit which is received by parcels within the specified zones of benefit in the District. Landscaping within the District enhances the aesthetic appeal of parcels within the landscaping zones. Such landscaping improves erosion resistance and dust control. Street lights improve ingress and egress from lots or parcels by illuminating access after sunset. Such street lights, by so improving ingress and egress, improve the security of such lots or parcels by improving the nighttime visibility of such lots or parcels and improve the access of emergency vehicles thereto and in the case of commercial lots or parcels, facilitate the opening and operation of business uses after sunset.

The primary benefits of landscaping are set forth below:

1. Improved aesthetic appeal of nearby parcels.
2. Green space within the urban environment.
3. Enhances wind breaks.
4. Improved erosion resistance.
5. Improved dust control.
6. Tends to instill a sense of pride within the neighborhood.

The primary benefits of municipal parks are as set forth below:

1. Designated sites where children may gather to play without danger from traffic.
2. Designated sites where adult, youth and family activities can take place (i.e., picnics, baseball and softball leagues, soccer leagues, other athletic activities, art festivals, animal shows, and training, etc.)
3. Green space and open space within the urban environment.
4. Availability of public restrooms.

The primary benefits of street lighting are set forth below:

1. Improvement to traffic circulation and reduction in nighttime accidents and attendant human misery and decrease in personal property loss.
2. The deterrence of crime and aid to police protection.
3. Promotion of business during nighttime hours.
4. Increased nighttime safety on roads and highways.

5. The improved ability of pedestrians and motorists to see, which helps people safely find their way.
6. Improved ingress and egress to lots and parcels.
7. Reduction in vandalism and other criminal acts, and reduced damage to improvements.

5.2 Zones of Benefit

The 1972 Act provides for areas within a district to be classified into different zones of benefit. The District is divided into separate zones and sub-zones for funding landscaping, lighting and park improvements. The various zones and sub-zones are delineated on the Assessment Diagram on file in the office of the City Clerk.

5.2.1 LANDSCAPING ZONES

Landscaping is divided into three (3) benefit sub-zones. These sub-zones are labeled A-1, A-2 and A-3 and are comprised of the areas described below:

Landscape Zone Descriptions:

1. Subzone A-1: All parcels in the fully inhabited areas of the City approximately bounded by the San Jacinto River, the southerly City Limit, the northerly prolongation of Pine Avenue, De Anza Drive, the San Diego Aqueduct, and the northerly City Limit to the San Jacinto River; with the exception of Subzones A-2 and A-3; and excluding parcels in Landscaping, Lighting and Park District No. 2.
2. Subzone A-2: All parcels in the Soboba Springs (Village IV) Tract.
3. Subzone A-3: All parcels in the Rancho San Jacinto area that are not in Landscaping, Lighting and Park District No. 2.

5.2.2 STREET LIGHTING ZONES

Street lighting is divided into two (2) benefit zones. These zones are labeled Zone B (lighted areas) and Zone C (non-lit outlying areas) and are comprised of the areas described below:

Street Lighting Zone Descriptions:

1. Zone B: Those parcels within the boundary of the District that have street lights installed within close proximity or that are surrounded by areas that have street lights.
2. Zone C: Those parcels within the boundary of the District that have no street lights within a reasonable distance. These parcels are primarily in outlying areas with little or no population.

5.2.3 PARKS ZONE

Parks are comprised of a single citywide benefit zone designated Zone D and as described below:

Parks Zone Description:

1. Zone D: All parcels within the District that are included in existing residential uses (including apartments, condominiums, PUD's, mobile home parks, recreational vehicle parks, etc.);

commercial/industrial uses; and churches/fraternal organizations; and are included in petitions signed when they were developed. No vacant parcels are included.

5.3 Assessment Formula

The formula used to calculate the amount spread to all parcels within the District for landscaping, street lighting, and parks starts with the basic assessment unit ("AU"). The basic AU is given a value of one (1) for a single-family residential parcel. From this base, the remaining parcels are related according to their equivalent benefit within each benefit zone or sub-zone. Zone A parcels are assessed for landscaping separately in three (3) sub-zones. Zone B parcels are assessed for street lighting and Zone C parcels are not assessed for street lighting. Zone D residential and commercial/industrial parcels containing dwelling units or business establishments are assessed for municipal parks.

Vacant parcels (agricultural, residential or commercial/industrial) are assigned 0.5 AU for landscaping and street lighting because they have a partial benefit due to the overall enhancement of the area and to the increase in accessibility from the installation and/or maintenance and servicing of said public improvements. Vacant parcels are not assessed for park maintenance.

Commercial/industrial and public utility parcels are assigned 3.0 AU per acre (1.0 AU minimum, 10.0 AU maximum) for landscaping, street lighting, and parks based upon the fact that one acre of commercial/industrial property is the equivalent of three single-family residences.

Small residences (less than 1,000 square feet and/or less than 50 feet of frontage) (Riverside County Land Use Code "RS") are assessed at a rate of 0.7 AU for landscaping and 1.0 AU for all other improvements due to smaller frontages relative to landscaping, but have the same benefit as other single-family residences from street lights and park maintenance.

Condominiums and PUD's are assigned 0.9 AU for each type of maintenance because, although these units have most of the characteristics of a single-family residence, they generally are somewhat smaller and have common areas and homeowner associations.

Apartments and common unit condominiums are assigned 0.6 AU per apartment unit for landscape maintenance and 0.8 AU for each of the other types of indicated public improvement because apartment units are typically smaller than a single-family residence.

Mobile homes are assigned 0.5 AU per mobile home unit for landscaping and 0.7 AU for street lighting and parks because these units are generally smaller than a single-family residence or condominium.

Recreational vehicle (RV) parks (own or rental) are assigned 0.3 AU for landscape maintenance and 0.7 AU for street lighting and parks for the same reasons cited for mobile homes, except that RV parks often have high vacancies, especially during the summer months.

Railroad parcels are assessed 0.5 AU per acre (1.0 AU minimum, 5.0 AU maximum) for street lighting only because street lighting causes a reduction in vandalism on railroad property and increases safety at railroad crossings, but receives less benefit than does a single-family residence because of the reduced activity on railroad tracks.

Churches and fraternal organizations are assigned 0.5 AU per acre (1.0 AU minimum, 4.0 AU maximum) for each type of indicated public improvement because these parcels obtain benefit from each type of improvement, but at a reduced rate due to the periodic use of the property.

Assessments by zone, if applicable, are additive. As the land use on any specific parcel changes from one fiscal year to the next, the applicable assessment rate shall also change to reflect the change in land use.

6. ASSESSMENT UNIT ("AU") METHOD

The following table shows the assessment formula using the AU method for the most common County land use codes.

CITY OF SAN JACINTO LANDSCAPING, LIGHTING AND PARK DISTRICT NO. 1 ASSESSMENT FORMULA USING ASSESSMENT UNIT (AU) METHOD				
Land Use Code	Land Use	Zone A Landscaping Assessment Formula	Zone B Lighting Assessment Formula	Zone D Park Assessment Formula
AA	Agricultural Avocado Grove	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AC	Agricultural Citrus Grove	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AD	Agricultural Dairy	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AI	Agricultural Irrigated Farm	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AL	Agricultural Livestock	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AN	Agricultural Non-Irrigated	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AO	Agricultural - Other Crops	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AP	Agricultural Poultry	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AR	Agricultural Residential	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
AS	Agricultural w/Structures	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AV	Agricultural Vineyard	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
AY	Agricultural Vacant	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
A1	Agricultural Other	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
CA	Apartments	0.6 AU per Unit	0.8 AU per Unit	0.8 AU per Unit
CF	Churches, Fraternal Orgs.	0.5 AU per Acre (1.0 AU min, 4.0 AU max)	0.5 AU per Acre (1.0 AU min, 4.0 AU max)	0.5 AU per Acre (1.0 AU min, 4.0 AU max)

ASSESSMENT FORMULA USING ASSESSMENT UNIT (AU) METHOD
(Continued)

Land Use Code	Land Use	Zone A Landscaping Assessment Formula	Zone B Lighting Assessment Formula	Zone D Park Assessment Formula
CL	Commercial/Industrial on Leased Land	3.0 AU per Acre (1.0 AU min, 10.0 AU max)	3.0 AU per Acre (1.0 AU min, 10.0 AU max)	3.0 AU per Acre (1.0 AU min, 10.0 AU max)
CR	Commercial w/Residences	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
CY	Commercial Vacant	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
C1	Commercial/Industrial	3.0 AU per Acre (1.0 AU min, 10.0 AU max)	3.0 AU per Acre (1.0 AU min, 10.0 AU max)	3.0 AU per Acre (1.0 AU min, 10.0 AU max)
EP	Exempt Public Property	Exempt	Exempt	Exempt
HO	Homeowner's Assn, Open Space	Exempt	Exempt	Exempt
MF	Mobile home Legal Foundation	0.5 AU per MH Parcel	0.7 AU per MH Parcel	0.7 AU per MH Parcel
ML	Mobile home, Leased Lot	0.5 AU per MH Parcel	0.7 AU per MH Parcel	0.7 AU per MH Parcel
MO	Mobile home Assessed	0.5 AU per MH Parcel	0.7 AU per MH Parcel	0.7 AU per MH Parcel
MP	Mobile home Rental/Lease Lot	0.5 AU per MH Unit	0.7 AU per MH Unit	0.7 AU per MH Unit
MR	Mobile home Lot Only	0.5 AU per MH Parcel	0.7 AU per MH Parcel	0.7 AU per MH Parcel
MT	Mobile home - Transient	0.3 AU per MH Unit	0.5 AU per MH Unit	0.5 AU per MH Unit
M0	Mobile home Assessed	0.5 AU per MH Parcel	0.7 AU per MH Parcel	0.7 AU per MH Parcel
M1	Mobile home Assessed	0.5 AU per MH Parcel	0.7 AU per MH Parcel	0.7 AU per MH Parcel
PA	Ag Preserve Avocado Grove	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel

ASSESSMENT FORMULA USING ASSESSMENT UNIT (AU) METHOD
(Continued)

Land Use Code	Land Use	Zone A Landscaping Assessment Formula	Zone B Lighting Assessment Formula	Zone D Park Assessment Formula
PC	Ag Preserve Citrus Grove	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PD	Ag Preserve Dairy	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PI	Ag Preserve Irrigated Farm	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PL	Ag Preserve Livestock	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PN	Ag Preserve Non-Irrigated	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PO	Ag Preserve Other Crops	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PP	Ag Preserve Poultry	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PR	Ag Preserve Residential	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
PS	Ag Preserve w/Structures	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PV	Ag Preserve Vineyard	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PY	Ag Preserve Vacant	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
P1	Ag Preserve Other	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
PX	Ag Preserve	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
R-	Residential	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
RA	Residential Agriculture	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
RC	Residential Condo/PUD	0.9 AU per Condo/PUD Unit	0.9 AU per Condo/PUD Unit	0.9 AU per Condo/PUD Unit
R1	Residential Single Family	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit

ASSESSMENT FORMULA USING ASSESSMENT UNIT (AU) METHOD
(Continued)

Land Use Code	Land Use	Zone A Landscaping Assessment Formula	Zone B Lighting Assessment Formula	Zone D Park Assessment Formula
R2	Residential Duplex/Triplex	0.8 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
RS	Residential Small	0.7 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
RR	Railroad Parcels	0.0 AU per Parcel	0.5 AU per Acre (1.0 AU min, 5.0 AU max)	0.0 AU per Parcel
RV	Recreational Vehicle Lot	0.3 AU per RV Parcel	0.5 AU per RV Parcel	0.5 AU per RV Parcel
UP	Public Utility	3.0 AU per Acre (1.0 AU min, 10.0 AU max)	3.0 AU per Acre (1.0 AU min, 10.0 AU max)	0.0 AU per Parcel
YD	Vacant Desert	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
YM	Vacant Mountainous	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
YP	Vacant - Prob. Residential	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
YR	Vacant Residential	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
YS	Vacant Land Miscellaneous	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel
YY	Vacant Remainder	0.5 AU per Parcel	0.5 AU per Parcel	0.0 AU per Parcel

ASSESSMENT FORMULA USING ASSESSMENT UNIT (AU) METHOD
(Continued)

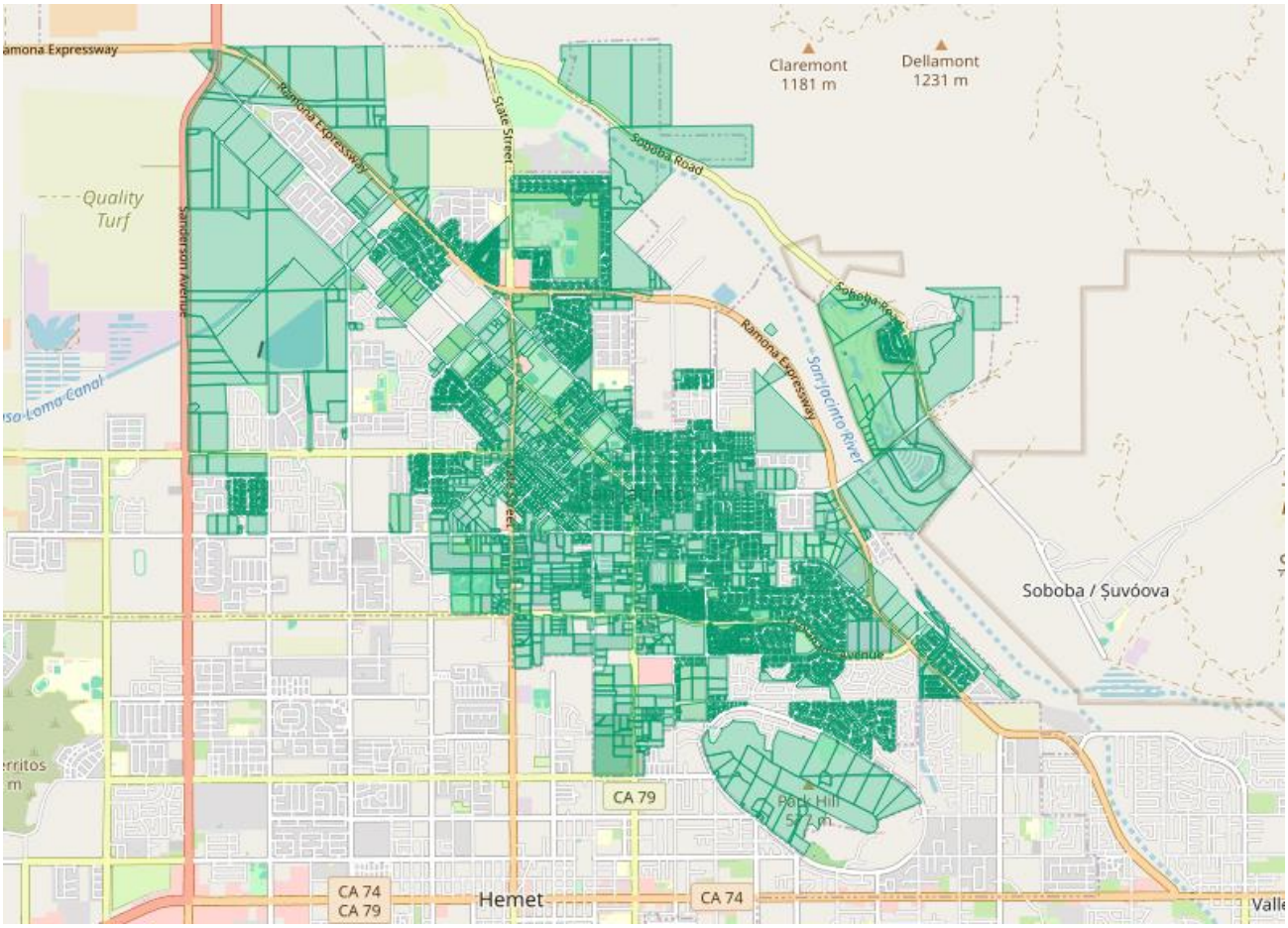
Notes:

1. Zone C is not assessed.
2. Public Utilities include gas, electricity, telephone, cable TV, etc. Public utility parcels are assessed in the same manner as commercial property because public utilities are “for profit” enterprises.
3. The fraternal organization category includes such organizations as the Elks Lodge, Moose Lodge, IOOF, Order of Eagles, Mason's, Women's Clubs, etc.
4. Public property includes that property that is exempt from assessment including property owned by the City, County, State, Federal Government, water districts and other special districts.

7. BOUNDARIES AND ASSESSMENT DIAGRAM

The boundaries of the District are completely within the City limits as shown on the maps on file with the City. The map below is for illustration purposes only. The boundary map and assessor's maps serve as the assessment diagram for the District. The lines and dimensions shown on the maps of the County Assessor for the current year are incorporated by reference herein and made part of this report. All parcels of real property included within the District are described in detail on the assessor's maps.

Parcels within Landscaping, Lighting and Park District No. 2, an assessment district formed in April 2002 and subsequent annexations thereto, that are within the boundaries of the District are not levied the District assessments.



8. ASSESSMENT ROLL

The assessment roll is provided on the following pages. The description of each lot or parcel as part of the records of the County Assessor are by reference made part of this report.

Parcel listing currently available with City Clerk or on City website upon adoption

June 2, 2026

TO:	City Council
REQUESTED BY:	Kimberly Ganimian, Finance Director
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Annual Proceedings for Landscaping, Lighting and Park District No. 2 (LLPD No. 2) – Initiation and Intent to Levy Assessments for FY 2026–2027

RECOMMENDATION:

Staff recommends that the City Council take the following actions:

1. **Adopt Resolution 4127** to initiate proceedings and direct the Assessment District Engineer to prepare and file the Engineer's Report for LLPD No. 2 for FY 2026–2027, pursuant to Streets and Highways Code §22622.

2. **Adopt Resolution 4128** to accept the Engineer's Report, declare the City's intent to levy and collect assessments for FY 2026–2027, and set June 16, 2026, as the date of the public hearing.

DISCUSSION:

LLPD No. 2 consists of the original district area and approximately 91 annexation zones, totaling nearly 6,000 parcels. Annual proceedings are required under the Landscape and Lighting Act of 1972, including initiation of the levy process, preparation of the Engineer's Report, and setting a public hearing.

The Resolution of Initiation begins the FY 2026–2027 process and authorizes preparation of the Engineer's Report. The Resolution of Intent accepts that report and sets the public hearing date. LLPD No. 2 is a post-Proposition 218 district; its maximum assessment may increase annually by CPI (up to 7.5%), though actual levies are based on the cost of maintaining district improvements. New zones may require temporary reserves or operating advances until assessment revenues are received.

These actions are required to continue the annual levy and ensure the District can fund its maintenance obligations.

FISCAL IMPACT:

There is no fiscal impact associated with adoption of the Resolution of Initiation or the Resolution of Intent. These actions begin the annual assessment process and set the public hearing date. Failure to adopt the required resolutions would prevent the City from collecting LLPD No. 2 assessments, requiring the General Fund to cover all district costs.

Attachments

Resolution No. 4127 - LLPD 2 Initiation.pdf
Resolution No. 4128 - LLPD 2 Intention .pdf
FY 2026-27 Engineer's Report LLPD No. 2.pdf

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE)ss
CITY OF SAN JACINTO)

RESOLUTION NO. 4127

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JACINTO, CALIFORNIA, INITIATING PROCEEDINGS PURSUANT TO THE LANDSCAPE AND LIGHTING ACT OF 1972 FOR THE LEVY AND COLLECTION OF THE ANNUAL ASSESSMENTS AND ORDERING THE DISTRICT'S ENGINEER TO PREPARE AND TO FILE A REPORT RELATED TO MAINTENANCE OF PUBLIC IMPROVEMENTS IN THE CITY OF SAN JACINTO LANDSCAPING, LIGHTING AND PARK DISTRICT NO. 2, AND ANY ASSESSMENT THEREON FOR FISCAL YEAR 2026-2027

WHEREAS, heretofore the City of San Jacinto Landscaping, Lighting and Park District No. 2 (LLPD No. 2) was created pursuant to Part 2 of Division 15 of the California Streets and Highways Code (§22500, et. seq.); and

WHEREAS, California Streets and Highways Code §22622 provides that this Council shall adopt a resolution generally describing any proposed new improvements or substantial changes in existing improvements in such a district and ordering the District's Engineer to prepare and file a report related to annual maintenance and assessment in such a district; and

WHEREAS, no new improvements or substantial changes in existing improvements are proposed for said LLPD No. 2; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred.

NOW, THEREFORE, BE IT RESOLVED, determined, and ordered by the City Council of the City of San Jacinto, as follows:

Section 1: The recitals, as set forth in this Resolution, are in all respects true and correct.

Section 2: The City Engineer, or designated District Engineer, hereby is ordered and directed to prepare an annual report as specified in California Streets and Highways Code §§22565, et. seq., with respect to LLPD No. 2 for Fiscal Year 2026-2027.

Section 3: The City Clerk shall certify to the adoption of this Resolution.

APPROVED AND ADOPTED this 2nd day of June 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

CITY OF SAN JACINTO:

By: _____
Crystal Ruiz, Mayor

ATTEST:

_____
Julia Espinoza, City Clerk

APPROVED AS TO FORM:

_____
Best, Best & Krieger
City Attorney, City of San Jacinto

CERTIFICATE

I, Julia Espinoza, City Clerk of the City of San Jacinto, do certify that the foregoing Resolution No. 4127 was passed, adopted and approved at a regular meeting of the City Council of the City of San Jacinto held on the 2^{n} day of June, 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAINED:

WITNESS MY HAND AND OFFICIAL SEAL this 2nd day of June, 2026.

_____
Julia Espinoza, City Clerk
City of San Jacinto
State of California

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE)ss
CITY OF SAN JACINTO)

RESOLUTION NO. 4128

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JACINTO, CALIFORNIA, DECLARING ITS INTENT TO LEVY AND COLLECT ASSESSMENTS WITHIN LANDSCAPING, LIGHTING AND PARK DISTRICT NO. 2, ACCEPTING THE ENGINEER'S REPORT AND GIVING NOTICE OF AND SETTING THE TIME AND PLACE OF THE HEARING ON THE LEVY OF THE PROPOSED ASSESSMENT FOR FISCAL YEAR 2026-2027

WHEREAS, on April 4, 2002 the City Council of the City of San Jacinto, (the "City") adopted Landscaping, Lighting and Park District No. 2 (the "District") pursuant to the Landscaping and Lighting Act of 1972, Part 2 of Division 15 of the Streets and Highways Code (the "Act"), for the maintenance and servicing of street lights, traffic signals, street trees, landscaping, parkways, median islands, drainage facilities, parks and appurtenant improvements; and

WHEREAS, in November 1996 the voters of the State of California passed Proposition 218 which added Articles XIIIC and XIIID to the California Constitution requiring, among other things, new procedures for the approval of the levying of assessments against real property; and

WHEREAS, Article XIIID of the California Constitution requires that assessments comply with stated procedural and approval provisions by July 1, 1997, unless an assessment district meets certain exemptions as set forth in Section 5 of the Article which exemptions include the following:

> "(a) any assessment imposed exclusively to finance the capital costs or maintenance and operation expenses for sidewalks, streets, sewers, water, flood control, drainage system or vector control."
>
> "(b) any assessment imposed pursuant to a petition signed by the persons owning all of the parcels subject to the assessment at the time the assessment is initially imposed;" and

WHEREAS, the District assessments proposed for Fiscal Year 2026-2027 are exempt from Proposition 218 because the assessments either generate revenue for the operation and maintenance of streets and highways, all expenditures thereunder qualifying as street maintenance as defined by the State of California or they were approved by petition of the property owners when the assessments were originally imposed; and

WHEREAS, no new improvements or substantial changes in existing improvements are proposed for said District; and

WHEREAS, the Act also requires that the City comply with certain procedural and approval procedures before levying its annual assessments under an existing assessment district; and

WHEREAS, the adoption of this Resolution, among other things, is required in order to levy the proposed assessments for Fiscal Year 2026-2027 for the District; and

WHEREAS, by said Resolution the City Council ordered NBS as the person and entity designated by this Council as the Engineer of Work for the District to file a report with the City Clerk in accordance with the Act; and

WHEREAS, NBS has filed such report with the City Clerk, and such report has been presented to and was considered by the City Council.

NOW THEREFORE, BE IT RESOLVED, determined, and ordered by the City Council of the City of San Jacinto, California as follows:

SECTION 1. The City Council hereby declares that it is its Intent to levy and collect assessments for the District during the Fiscal Year 2026-2027 pursuant to the Act. The area to be assessed is located in the City of San Jacinto, Riverside County, California. The boundaries of the District are described in the report on file with the City Clerk.

SECTION 2. The purpose of the District is for maintenance and servicing of street lights, traffic signals, street trees, landscaping, parkways, median islands, drainage facilities, parks and appurtenant improvements.

SECTION 3. The report prepared by NBS, which is on file with the City Clerk, and which has been considered by the City Council at the meeting at which this Resolution has been adopted, is hereby accepted. All interested persons are referred to said report for a full and detailed description of the work, the boundaries of the proposed assessment district, and the proposed assessments upon assessable lots and parcels of land with the District.

SECTION 4. The Fiscal Year 2026-2027 assessments in each benefit zone within the District are within the limits approved by petition of the property owners when the assessments were originally imposed.

SECTION 5. The City Council hereby declares that the Finance Director has authorization to adjust the District budget in the property tax lien year assessed to the amount authorized in the levy up to the maximum assessment. The Finance Director shall process budget adjustments within each zone to reflect the actual costs anticipated in each zone of benefit as assessed on the levy up to the maximum assessment.

SECTION 6. On Tuesday, June 16, 2026, at the hour of 6:30 p.m. or as soon thereafter, during the course of its regularly scheduled meeting, the City Council will conduct a public hearing on the question of the levy of the proposed annual assessment. The hearing will be held at the San Jacinto Community Center, 625 S. Pico Avenue, San Jacinto, CA 92583.

SECTION 7. The City Clerk shall give notice of the time and place of said hearing by publishing a copy of this Resolution once in the Press Enterprise not less than ten (10) days before the date of the hearing.

SECTION 8. This Resolution is adopted pursuant to Section 22622 of the Streets and Highways Code.

APPROVED AND ADOPTED this 2nd day of June, 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

CITY OF SAN JACINTO

By: _____
Crystal Ruiz, Mayor

ATTEST:

_____
Julia Espinoza, City Clerk

APPROVED AS TO FORM:

_____
City Attorney, City of San Jacinto
Best, Best & Krieger, LLP

CERTIFICATE

I, Julia Espinoza, City Clerk of the City of San Jacinto, do certify that the foregoing Resolution No. 4128 was passed, adopted and approved at a regular meeting of the City Council of the City of San Jacinto held on the 2nd day of June, 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAINED:

WITNESS MY HAND AND OFFICIAL SEAL this 2nd day of June, 2026.

_____
Julia Espinoza, City Clerk
City of San Jacinto
State of California

CITY OF SAN JACINTO

Fiscal Year 2026/27 Engineer's Report For:

Landscaping, Lighting, and Park District No. 2

May 2026

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fund tomorrow since 1996
nbsgov.com

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1. ENGINEER'S LETTER

WHEREAS, the City Council of the City of San Jacinto (the "City"), State of California, directed NBS Government Finance Group, (DBA "NBS"), to prepare and file a report presenting plans and specifications describing the general nature, location, and extent of the improvements to be maintained and an estimate of the costs of the maintenance, operations, and servicing of the improvements for the City of San Jacinto Landscaping, Lighting and Park District No. 2 (the "District") for Fiscal Year 2026/27.

WHEREAS, NBS has prepared this report which includes a diagram for the District, showing the area and properties proposed to be assessed, an assessment of the estimated costs of the maintenance, operations and servicing of the improvements, and the net amount to be assessed upon all assessable lots and/or parcels within the District in proportion to the special benefit received;

WHEREAS, the assessment rates and the annual rate escalation factor of the Riverside-San Bernardino-Ontario area for all urban consumers CPI (not to exceed 7.5%) were approved by property owners through the assessment balloting procedures set forth in Article XIII D Section 4 of the California Constitution (Proposition 218).

NOW THEREFORE, the assessments detailed in this Engineer's Report (the "Report") and as summarized in the table below are made to cover the portion of the estimated costs of maintenance, operation and servicing of the improvements to be paid by the assessable real property within the District in proportion to the special benefit received.

Description	Maximum Amount	Actual Amount (1)
Street Light and Traffic Signal Maintenance Levy	$888,942.21	$627,531.79
Park Maintenance Levy	3,163,036.32	2,350,629.26
Landscape Maintenance Levy	1,374,232.39	890,609.93
Storm Drain Levy	2,405,631.66	1,793,855.97
Detention Basin Levy	0.00	0.00
Graffiti Removal Levy	591,612.43	359,290.74
Sidewalk Maintenance Levy	6,998.26	1,259.01
Adjustment Rounding	0.00	(201.76)
Total	**$8,430,453.27**	**$6,022,974.94**

(1) The 2026/27 Actual Amount may differ slightly from the Assessment Roll and final applied levy amounts due to rounding.

I, the undersigned, respectfully submit the enclosed Engineer's Report and, to the best of my knowledge, information and belief, the Engineer's Report and assessments herein have been prepared and computed in accordance with the Assessment Law.

By: _____

John G. Egan
Assessment Engineer
R.C.E. 14853

2. OVERVIEW

2.1 Introduction

The Report describes the District and the charge per Assessment Unit (AU) for Fiscal Year 2026/27 based on the historical and estimated cost to maintain the improvements and provide the services that benefit parcels within the District. This District, by special benefit assessments, provides funding for the installation, operation, maintenance, and servicing of: streetlights and traffic signals; landscaped areas (parkways, medians, open space, detention/retention basins, etc.); municipal parks; drainage facilities; graffiti removal from horizontal and vertical surfaces which are appurtenant to the above items; all of which are located in public rights-of-way or easements in the District. The District is divided into multiple zones to allow the assessments to properly match the special benefits provided by the improvements to the assessed parcels within the District.

The word "parcel," for the purposes of this Report, refers to an individual property assigned its own assessor's property identification number by the Riverside County Assessor's Office. The Riverside County Auditor/Controller uses assessor's property identification numbers and specific fund numbers to identify on the tax roll properties assessed for special district benefit assessments.

Following consideration of public comments at a noticed public hearing and review of this Report, the City Council may confirm this Report as submitted and order the levy and collection of assessments for Fiscal Year 2026/27. If approved, the assessment information will be submitted to the County Auditor/Controller and included on the property tax roll for each benefiting parcel for Fiscal Year 2026/27.

3. PLANS AND SPECIFICATIONS FOR THE IMPROVEMENTS

Plans and specifications for the improvements have been prepared and approved as part of the improvement plans. These plans and specifications are on file and available for review at the office of the City Clerk and, by reference, have been made part of this Report.

The City Council in the Resolutions of Initiation and Intent for Fiscal Year 2014/15, in accordance with the Streets and Highways Code Section 22622, added a flood control basin to the improvements maintained in Zone 38 (Coventry Acres). The flood control basin is composed of lots 1 through 12, inclusive, and lots 78 through 83, inclusive, of Tract Number 31097, in the City of San Jacinto, County of Riverside, State of California, as per map recorded in Book 398 pages 94 through 103, inclusive, of maps, in the Office of the Riverside County Recorder. The lots that compose the flood control basin are also known as assessor's property identification numbers 434-520-001-9 through 434-520-012-9, inclusive, and 434-522-001-5 through 434-522-006-0, inclusive. The addition of the flood control basin to the improvements maintained by Zone 38 will not result in an increase to the annual maximum assessment as increased by the annual inflator, approved by the property owners, and assessable on real property within the boundaries of Zone 38. The flood control basin is necessary to protect the Tract and Zone improvements from flooding until other flood control measures are in place.

In Fiscal Year 2017/18, the authorized improvements for Zone 7 (Tesoro) included the repair of curbs, gutters, and sidewalks located within the boundaries of the District. These improvements and services are anticipated to be included in future years. The inclusion of these improvements maintained by Zone 7 will not result in an increase of the annual maximum assessment allowed.

4. SUMMARY OF ESTIMATE OF COSTS

The following table is a summary of the Fiscal Year 2026/27 estimate of costs.

Zone	2026/27 Levy Amount	2026/27 Maximum Rate	2026/27 Actual Rate	% of Maximum [1]
Zone 1 (Sagecrest)	$233,061.36	$929.66	$929.66	100%
Zone 1A (Sagecrest)	5,463.00	910.54	910.54	100%
Zone 2 (Meridian Estates)	37,105.94	547.77	410.83	75%
Zone 3 (San Jacinto Ranch)	90,950.28	1,550.77	1,318.15	85%
Zone 4 (Timothy Lane)	31,038.56	838.92	838.92	100%
Zone 5 (Sunset Ranch)	49,628.80	954.43	763.55	80%
Zone 6 (Heritage Ranch)	62,317.20	944.22	944.22	100%
Zone 7 (Tesoro)	222,361.98	1,050.65	893.05	85%
Zone 8 (Meadowbrook/Solano)	250,498.84	825.94	743.34	90%
Zone 9 (Goldencrest)	185,001.48	980.45	833.38	85%
Zone 10A (Maravilla)	38,476.24	522.83	418.27	80%
Zone 10B (Sendera)	35,548.70	522.83	418.27	80%
Zone 11 (Sandalwood)	140,401.80	1,310.97	1,114.33	85%
Zone 12 (Windmill Plaza)	2,971.60	183.16	119.06	65%
Zone 13 (Park Meadows)	170,217.60	1,251.65	1,001.32	80%
Zone 14 (MSJC)	732.80	916.03	732.82	80%
Zone 15 (Willow Creek Apts.)	6,293.18	10,488.71	6,293.23	60%
Zone 16 (La Perla)	10,102.30	818.05	531.73	65%
Zone 17 (Cloverdale)	11,644.80	776.37	388.19	50%
Zone 18 (500 S. State Street)	1,362.80	120.93	66.51	55%
Zone 19-1 (Walmart)	50,229.36	1,371.27	685.64	50%
Zone 19-2 (Cali Coffee – Santana's)	3,944.14	1,711.88	1,027.13	60%
Zone 20 (Durango)	148,021.02	1,112.96	1,112.96	100%
Zone 21 (Arterra)	101,785.36	697.19	697.19	100%
Zone 22 (Park Hill)	136,420.04	1,272.60	1,018.08	80%
Zone 23 (Summerfield Ranch)	32,660.60	885.16	398.32	45%
Zone 24 (El Toro Market)	1,971.94	300.28	165.16	55%
Zone 25 (Stallions Crossing)	83,007.70	848.35	805.93	95%
Zone 26 (The Ranch)	265,075.20	1,057.18	898.60	85%
Zone 27 (Potter Ranch)	231,508.38	926.63	880.30	95%
Zone 28 (Mountain View Business Park)[2]	699.24	2,428.08	728.42	30%
Zone 29 (Creekside)	156,181.74	1,092.21	1,092.21	100%
Zone 30 (Almaden)	86,475.84	1,310.29	982.72	75%
Zone 31 (Belicia)	72,959.66	1,196.09	1,196.09	100%

Zone	2026/27 Levy Amount	2026/27 Maximum Rate	2026/27 Actual Rate	% of Maximum [1]
Zone 32 (Cottonwood Ranch)	$143,858.96	$1,155.99	$1,098.19	95%
Zone 33 (Daybreak)	77,270.60	789.71	750.22	95%
Zone 34 (Palmilla)	49,744.64	777.30	777.30	100%
Zone 35 (Terragon)	55,347.14	758.22	758.22	100%
Zone 36 (Cypress)	52,195.92	776.75	621.40	80%
Zone 37 (Cypress/Daybreak)	33,254.38	786.19	707.57	90%
Zone 38 (Coventry Acres)	177,709.28	906.72	906.72	100%
Zone 39 (The Trails)	66,961.28	766.19	727.88	95%
Zone 40 (Winners Circle)	6,441.50	991.09	495.55	50%
Zone 41 (Mosaico)	101,854.48	1,243.68	1,119.32	90%
Zone 42 (Santa Bella)	24,945.84	815.25	692.97	85%
Zone 43 (Remington/Lyndon Trails)	190,146.04	986.01	936.71	95%
Zone 44 (Lyon/Shadow Canyon Trail)	0.00	806.82	0.00	0%
Zone 45 (Tamarisk)	324,938.02	1,351.98	1,284.38	95%
Zone 46 (Parkside Village)	153,958.00	1,099.74	1,099.74	100%
Zone 47 (Maravilla Estates)	0.00	414.22	0.00	0%
Zone 48 (San Jacinto Valley Academy) [2]	2,215.64	5,769.99	4,615.99	80%
Zone 49 (Pheasant Run)	110,409.76	1,130.53	1,130.53	100%
Zone 50 (The Trails)	0.00	1,369.78	0.00	0%
Zone 51 (SJ Retail)	41,553.86	1,488.92	1,042.25	70%
Zone 52 (Graciella Court)	2,295.18	1,275.20	255.04	20%
Zone 53 (The Cove)	181,152.72	1,677.37	1,677.37	100%
Zone 54 (Santa Fe Apartments)	3,390.68	5,651.19	3,390.71	60%
Zone 55 (The Cove)	173,860.68	1,679.86	1,259.89	75%
Zone 56 (SW Corner of 7th & Lyon - Annexation Not Completed)	0.00	0.00	0.00	0%
Zone 57 (7th Ave. East of Kirby)	2,912.32	910.25	182.05	20%
Zone 58 (SE Corner of 7th & Lyon)	0.00	1,607.43	0.00	0%
Zone 59 (Rite Aide)	49,326.96	2,216.36	1,773.09	80%
Zone 60 (Stater Bros)	0.00	2,128.69	0.00	0%
Zone 61 (Oostdam Dr. & Ivy Crest Dr.)	29,933.00	951.83	809.05	85%
Zone 62 (Meadowbrook II)	91,374.42	1,603.09	1,603.09	100%
Zone 63 (Palisades Ranch/Catalpa Park)	235,285.12	2,253.73	2,028.36	90%
Zone 64 (The Enclave)	5,698.40	1,424.63	1,139.70	80%
Zone 65 (Cheyenne)	52,963.28	1,922.48	1,826.36	95%
Zone 66 (Palm/Cottonwood)	5,457.32	1,240.51	248.10	20%
Zone 67 (Park Avenue Estates)	39,942.70	1,521.67	1,141.25	75%
Zone 68 (Shaver East of Los Banos)	6,805.60	1,237.43	680.59	55%

Zone	2026/27 Levy Amount	2026/27 Maximum Rate	2026/27 Actual Rate	% of Maximum (1)
Zone 69 (Calvary Chapel)	$0.00	$501.68	$0.00	0%
Zone 70 (Wateka/DeAnza)	0.00	1,678.06	0.00	0%
Zone 71 (Edelbrock)	0.00	3,289.65	0.00	0%
Zone 72 (Thayer Animal Hospital)	0.00	3,820.48	0.00	0%
Zone 73 (San Jacinto Villas)	10,285.34	1,437.51	718.76	50%
Zone 74 (Ramona Crossings)	0.00	825.00	0.00	0%
Zone 75 (SJUSD Nutrition Center)	941.66	1,353.02	135.30	10%
Zone 76 (Luz del Sol)	507,661.50	2,108.72	1,581.54	75%
Zone 77 (Kalpesh Homes)	6,061.50	1,347.44	134.74	10%
Zone 78 (Carolino Homes)	0.00	1,130.34	0.00	0%
Zone 79 (State Street Auto Body)	0.00	3,128.95	0.00	0%
Zone 80 (AutoZone)	0.00	3,616.76	0.00	0%
Zone 81 (Maravilla - Commercial - Annexation Not Completed)	0.00	0.00	0.00	0%
Zone 82 (SJ West Congregation)	0.00	3,517.62	0.00	0%
Zone 83 (790 S. State Street)	0.00	5,116.03	0.00	0%
Zone 84 (Parkside Medical Center)	0.00	1,106.97	0.00	0%
Zone 85 (Gupta Medical Center)	4,720.46	3,685.02	1,289.76	35%
Zone 86 (CVS Pharmacy)	30,419.32	3,157.85	2,999.95	95%
Zone 87 (County Animal Shelter - Annexation Not Completed)	0.00	0.00	0.00	0%
Zone 88 (Family Dollar)	11,795.26	2,792.45	2,233.96	80%
Zone 89 (Kirby Village)	0.00	500.15	0.00	0%
Zone 90 (Circle K)	0.00	5,965.89	0.00	0%
Zone 91 (O' Reilly Auto Parts)	1,766.70	4,298.62	429.86	10%
Total	**$6,022,974.94**			

(1) Percentages are approximate.

(2) The actual rate is greater than the 2026/27 levy amount due to the total AU being less than one AU.

5. ESTIMATE OF COSTS

The following pages provide an estimate of the costs of the improvements for Fiscal Year 2026/27 for each zone, to include the maximum amounts and actual amounts that will be levied. The City determines the percentage of the maximum amount to be levied in each zone based on the District's budget. These costs can include a reserve fund to cover a six-month portion of maintenance and servicing costs as well as an amount of surplus or deficit in the improvement fund from a previous fiscal year.

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**1**
Common Name/Location:	**Sagecrest Development (State/Chase/Sagecrest)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$93.13
Actual Rate Per Assessment Unit	$93.13
Maximum Total	**$23,519.76**
Actual Total	**$23,519.76**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$451.42
Actual Rate Per Assessment Unit	$451.42
Maximum Total	**$112,403.26**
Actual Total	**$112,403.26**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$32.88
Actual Rate Per Assessment Unit	$32.88
Maximum Total	**$8,187.35**
Actual Total	**$8,187.35**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$352.23
Actual Rate Per Assessment Unit	$352.23
Maximum Total	**$88,956.33**
Actual Total	**$88,956.33**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**252.55**
TOTALS	
Maximum Rate Per Assessment Unit	$929.66
Zone Maximum	$233,066.70
Actual Rate Per Assessment Unit	$929.66
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$929.66**
Balance to Levy (Actual Amount Levied)	**$233,061.36**

*3.55 AU not assessed for Park and Landscape Maintenance

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**1A**
Common Name/Location:	**Sagecrest Development (State/Chase/Sagecrest)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$137.55
Actual Rate Per Assessment Unit	$137.55
Maximum Total	**$825.30**
Actual Total	**$825.30**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$415.31
Actual Rate Per Assessment Unit	$415.31
Maximum Total	**$2,491.86**
Actual Total	**$2,491.86**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$30.23
Actual Rate Per Assessment Unit	$30.23
Maximum Total	**$181.40**
Actual Total	**$181.40**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$327.45
Actual Rate Per Assessment Unit	$327.45
Maximum Total	**$1,964.68**
Actual Total	**$1,964.68**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**6**
TOTALS	
Maximum Rate Per Assessment Unit	$910.54
Zone Maximum	$5,463.24
Actual Rate Per Assessment Unit	$910.54
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$910.54**
Balance to Levy (Actual Amount Levied)	**$5,463.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**2**
Common Name/Location:	**Meridian Estates (Washington/Meridian)**
Percentage of Maximum Rate to be Levied:	**75%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$113.58
Actual Rate Per Assessment Unit	$85.19
Maximum Total	**$10,279.30**
Actual Total	**$7,709.48**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$190.51
Actual Rate Per Assessment Unit	$142.88
Maximum Total	**$17,145.72**
Actual Total	**$12,859.29**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$42.71
Actual Rate Per Assessment Unit	$32.03
Maximum Total	**$3,865.22**
Actual Total	**$2,898.91**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$150.74
Actual Rate Per Assessment Unit	$113.05
Maximum Total	**$13,641.52**
Actual Total	**$10,231.14**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$50.24
Actual Rate Per Assessment Unit	$37.68
Maximum Total	**$4,546.58**
Actual Total	**$3,409.94**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**90.5**
TOTALS	
Maximum Rate Per Assessment Unit	$547.77
Zone Maximum	$49,478.35
Actual Rate Per Assessment Unit	$410.83
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$410.82**
Balance to Levy (Actual Amount Levied)	**$37,105.94**

*.50 AU not assessed for Park Maintenance

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**3**
Common Name/Location:	**San Jacinto Ranch (Cottonwood/Kirby)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$100.02
Actual Rate Per Assessment Unit	$85.02
Maximum Total	**$6,901.63**
Actual Total	**$5,866.38**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,168.32
Actual Rate Per Assessment Unit	$993.07
Maximum Total	**$80,613.74**
Actual Total	**$68,521.68**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$19.71
Actual Rate Per Assessment Unit	$16.75
Maximum Total	**$1,359.93**
Actual Total	**$1,155.94**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$226.99
Actual Rate Per Assessment Unit	$192.94
Maximum Total	**$15,662.28**
Actual Total	**$13,312.94**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$35.73
Actual Rate Per Assessment Unit	$30.37
Maximum Total	**$2,465.55**
Actual Total	**$2,095.72**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**69**
TOTALS	
Maximum Rate Per Assessment Unit	$1,550.77
Zone Maximum	$107,003.12
Actual Rate Per Assessment Unit	$1,318.15
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,318.14**
Balance to Levy (Actual Amount Levied)	**$90,950.28**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**4**
Common Name/Location:	**Timothy Lane (Evans/Las Rosas)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$139.97
Actual Rate Per Assessment Unit	$139.97
Maximum Total	**$5,179.03**
Actual Total	**$5,179.03**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$152.59
Actual Rate Per Assessment Unit	$152.59
Maximum Total	**$5,645.75**
Actual Total	**$5,645.75**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$51.50
Actual Rate Per Assessment Unit	$51.50
Maximum Total	**$1,905.49**
Actual Total	**$1,905.49**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$445.37
Actual Rate Per Assessment Unit	$445.37
Maximum Total	**$16,478.55**
Actual Total	**$16,478.55**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$49.49
Actual Rate Per Assessment Unit	$49.49
Maximum Total	**$1,831.11**
Actual Total	**$1,831.11**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**37**
TOTALS	
Maximum Rate Per Assessment Unit	$838.92
Zone Maximum	$31,039.94
Actual Rate Per Assessment Unit	$838.92
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$838.92**
Balance to Levy (Actual Amount Levied)	**$31,038.56**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**5**
Common Name/Location:	**Sunset Ranch (Ramona Blvd/Savory Lane)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$62.83
Actual Rate Per Assessment Unit	$50.27
Maximum Total	**$4,084.12**
Actual Total	**$3,267.29**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$346.05
Actual Rate Per Assessment Unit	$276.84
Maximum Total	**$22,493.39**
Actual Total	**$17,994.71**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$9.52
Actual Rate Per Assessment Unit	$7.62
Maximum Total	**$618.77**
Actual Total	**$495.01**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$493.38
Actual Rate Per Assessment Unit	$394.70
Maximum Total	**$32,069.54**
Actual Total	**$25,655.63**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$42.65
Actual Rate Per Assessment Unit	$34.12
Maximum Total	**$2,772.28**
Actual Total	**$2,217.82**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**65**
TOTALS	
Maximum Rate Per Assessment Unit	$954.43
Zone Maximum	$62,038.09
Actual Rate Per Assessment Unit	$763.55
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$763.54**
Balance to Levy (Actual Amount Levied)	**$49,628.80**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**6**
Common Name/Location:	**Heritage Ranch (Cottonwood/Palm)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$101.32
Actual Rate Per Assessment Unit	$101.32
Maximum Total	**$6,687.41**
Actual Total	**$6,687.41**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$144.19
Actual Rate Per Assessment Unit	$144.19
Maximum Total	**$9,516.65**
Actual Total	**$9,516.65**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$203.71
Actual Rate Per Assessment Unit	$203.71
Maximum Total	**$13,445.06**
Actual Total	**$13,445.06**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$453.05
Actual Rate Per Assessment Unit	$453.05
Maximum Total	**$29,901.48**
Actual Total	**$29,901.48**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$41.94
Actual Rate Per Assessment Unit	$41.94
Maximum Total	**$2,768.10**
Actual Total	**$2,768.10**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**66**
TOTALS	
Maximum Rate Per Assessment Unit	$944.22
Zone Maximum	$62,318.71
Actual Rate Per Assessment Unit	$944.22
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$944.22**
Balance to Levy (Actual Amount Levied)	**$62,317.20**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**7**
Common Name/Location:	**Tesoro (Cottonwood/Kirby)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$84.77
Actual Rate Per Assessment Unit	$72.05
Maximum Total	**$21,107.42**
Actual Total	**$17,941.31**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$504.83
Actual Rate Per Assessment Unit	$429.10
Maximum Total	**$125,702.29**
Actual Total	**$106,846.95**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$49.49
Actual Rate Per Assessment Unit	$42.07
Maximum Total	**$12,322.89**
Actual Total	**$10,474.45**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$363.81
Actual Rate Per Assessment Unit	$309.24
Maximum Total	**$90,588.69**
Actual Total	**$77,000.38**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$47.76
Actual Rate Per Assessment Unit	$40.59
Maximum Total	**$11,891.02**
Actual Total	**$10,107.37**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**249**
TOTALS	
Maximum Rate Per Assessment Unit	$1,050.65
Zone Maximum	$261,612.31
Actual Rate Per Assessment Unit	$893.05
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$893.04**
Balance to Levy (Actual Amount Levied)	**$222,361.98**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**8**
Common Name/Location:	**Meadowbrook/Solano (Kirby/7th Street)**
Percentage of Maximum Rate to be Levied:	**90%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$120.93
Actual Rate Per Assessment Unit	$108.84
Maximum Total	**$40,754.87**
Actual Total	**$36,679.38**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$286.93
Actual Rate Per Assessment Unit	$258.24
Maximum Total	**$96,695.94**
Actual Total	**$87,026.35**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$112.00
Actual Rate Per Assessment Unit	$100.80
Maximum Total	**$37,744.53**
Actual Total	**$33,970.08**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$255.06
Actual Rate Per Assessment Unit	$229.55
Maximum Total	**$85,954.79**
Actual Total	**$77,359.31**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$51.01
Actual Rate Per Assessment Unit	$45.91
Maximum Total	**$17,190.96**
Actual Total	**$15,471.86**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**337**
TOTALS	
Maximum Rate Per Assessment Unit	$825.94
Zone Maximum	$278,341.09
Actual Rate Per Assessment Unit	$743.34
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$743.34**
Balance to Levy (Actual Amount Levied)	**$250,498.84**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**9**
Common Name/Location:	**Goldencrest (San Jacinto St./Ramona Expr.)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$90.58
Actual Rate Per Assessment Unit	$77.00
Maximum Total	**$20,109.42**
Actual Total	**$17,093.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$170.40
Actual Rate Per Assessment Unit	$144.84
Maximum Total	**$37,829.85**
Actual Total	**$32,155.37**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$139.38
Actual Rate Per Assessment Unit	$118.48
Maximum Total	**$30,942.95**
Actual Total	**$26,301.50**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$530.10
Actual Rate Per Assessment Unit	$450.58
Maximum Total	**$117,681.21**
Actual Total	**$100,029.03**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$49.98
Actual Rate Per Assessment Unit	$42.48
Maximum Total	**$11,096.06**
Actual Total	**$9,431.65**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**222**
TOTALS	
Maximum Rate Per Assessment Unit	$980.45
Zone Maximum	$217,659.48
Actual Rate Per Assessment Unit	$833.38
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$833.38**
Balance to Levy (Actual Amount Levied)	**$185,001.48**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**10A**
Common Name/Location:	**Maravilla**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$55.46
Actual Rate Per Assessment Unit	$44.37
Maximum Total	**$5,102.24**
Actual Total	**$4,081.79**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$337.15
Actual Rate Per Assessment Unit	$269.72
Maximum Total	**$31,017.35**
Actual Total	**$24,813.88**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$15.70
Actual Rate Per Assessment Unit	$12.56
Maximum Total	**$1,444.29**
Actual Total	**$1,155.44**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$82.64
Actual Rate Per Assessment Unit	$66.11
Maximum Total	**$7,602.65**
Actual Total	**$6,082.12**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$31.89
Actual Rate Per Assessment Unit	$25.51
Maximum Total	**$2,934.05**
Actual Total	**$2,347.24**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**92**
TOTALS	
Maximum Rate Per Assessment Unit	$522.83
Zone Maximum	$48,100.58
Actual Rate Per Assessment Unit	$418.27
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$418.26**
Balance to Levy (Actual Amount Levied)	**$38,476.24**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**10B**
Common Name/Location:	**Sendera**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$57.99
Actual Rate Per Assessment Unit	$46.39
Maximum Total	**$4,928.89**
Actual Total	**$3,943.11**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$317.91
Actual Rate Per Assessment Unit	$254.33
Maximum Total	**$27,022.45**
Actual Total	**$21,617.96**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$35.05
Actual Rate Per Assessment Unit	$28.04
Maximum Total	**$2,978.98**
Actual Total	**$2,383.18**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$82.05
Actual Rate Per Assessment Unit	$65.64
Maximum Total	**$6,974.11**
Actual Total	**$5,579.29**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$29.84
Actual Rate Per Assessment Unit	$23.87
Maximum Total	**$2,536.33**
Actual Total	**$2,029.07**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**85**
TOTALS	
Maximum Rate Per Assessment Unit	$522.83
Zone Maximum	$44,440.75
Actual Rate Per Assessment Unit	$418.27
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$418.26**
Balance to Levy (Actual Amount Levied)	**$35,548.70**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**11**
Common Name/Location:	**Sandalwood (Cottonwood Ave.)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$86.77
Actual Rate Per Assessment Unit	$73.75
Maximum Total	**$10,933.00**
Actual Total	**$9,293.05**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$800.61
Actual Rate Per Assessment Unit	$680.52
Maximum Total	**$100,877.21**
Actual Total	**$85,745.63**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$22.67
Actual Rate Per Assessment Unit	$19.27
Maximum Total	**$2,857.04**
Actual Total	**$2,428.48**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$324.44
Actual Rate Per Assessment Unit	$275.77
Maximum Total	**$40,879.35**
Actual Total	**$34,747.45**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$76.48
Actual Rate Per Assessment Unit	$65.00
Maximum Total	**$9,635.94**
Actual Total	**$8,190.55**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**126**
TOTALS	
Maximum Rate Per Assessment Unit	$1,310.97
Zone Maximum	$165,182.54
Actual Rate Per Assessment Unit	$1,114.33
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,114.32**
Balance to Levy (Actual Amount Levied)	**$140,401.80**

City of San Jacinto
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Estimate of Costs

Zone:	**12**
Common Name/Location:	**Windmill Plaza (Esplanade/Santa Fe)**
Percentage of Maximum Rate to be Levied:	**65%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$125.56
Actual Rate Per Assessment Unit	$81.61
Maximum Total	**$3,133.86**
Actual Total	**$2,037.01**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$57.61
Actual Rate Per Assessment Unit	$37.45
Maximum Total	**$1,437.91**
Actual Total	**$934.64**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**24.96**
TOTALS	
Maximum Rate Per Assessment Unit	$183.16
Zone Maximum	$4,571.77
Actual Rate Per Assessment Unit	$119.06
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$119.06**
Balance to Levy (Actual Amount Levied)	**$2,971.60**

City of San Jacinto
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Estimate of Costs

Zone:	**13**
Common Name/Location:	**Park Meadows (7th Street/Lyon)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$119.83
Actual Rate Per Assessment Unit	$95.87
Maximum Total	**$20,371.44**
Actual Total	**$16,297.15**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$649.03
Actual Rate Per Assessment Unit	$519.23
Maximum Total	**$110,335.33**
Actual Total	**$88,268.26**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$331.50
Actual Rate Per Assessment Unit	$265.20
Maximum Total	**$56,355.06**
Actual Total	**$45,084.05**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$107.36
Actual Rate Per Assessment Unit	$85.89
Maximum Total	**$18,251.90**
Actual Total	**$14,601.52**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$43.92
Actual Rate Per Assessment Unit	$35.14
Maximum Total	**$7,466.83**
Actual Total	**$5,973.47**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**170**
TOTALS	
Maximum Rate Per Assessment Unit	$1,251.65
Zone Maximum	$212,780.56
Actual Rate Per Assessment Unit	$1,001.32
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,001.32**
Balance to Levy (Actual Amount Levied)	**$170,217.60**

City of San Jacinto
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Fiscal Year 2025/26
Estimate of Costs

Zone:	**14**
Common Name/Location:	**MSJC (Eagle Dr/Country Village Dr)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$916.03
Actual Rate Per Assessment Unit	$732.82
Maximum Total	**$916.03**
Actual Total	**$732.82**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**1**
TOTALS	
Maximum Rate Per Assessment Unit	$916.03
Zone Maximum	$916.03
Actual Rate Per Assessment Unit	$732.82
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$732.82**
Balance to Levy (Actual Amount Levied)	**$732.80**

City of San Jacinto
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Estimate of Costs

Zone:	**15**
Common Name/Location:	**Willow Creek Apts. (S. Santa Fe/Esplanade)**
Percentage of Maximum Rate to be Levied:	**60%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,987.06
Actual Rate Per Assessment Unit	$1,192.24
Maximum Total	**$1,987.06**
Actual Total	**$1,192.24**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$4,557.51
Actual Rate Per Assessment Unit	$2,734.51
Maximum Total	**$4,557.51**
Actual Total	**$2,734.51**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$2,629.42
Actual Rate Per Assessment Unit	$1,577.65
Maximum Total	**$2,629.42**
Actual Total	**$1,577.65**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,314.71
Actual Rate Per Assessment Unit	$788.83
Maximum Total	**$1,314.71**
Actual Total	**$788.83**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**1**
TOTALS	
Maximum Rate Per Assessment Unit	$10,488.71
Zone Maximum	$10,488.71
Actual Rate Per Assessment Unit	$6,293.23
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$6,293.22**
Balance to Levy (Actual Amount Levied)	**$6,293.18**

City of San Jacinto
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Zone:	**16**
Common Name/Location:	**La Perla (7th Street/Santa Fe)**
Percentage of Maximum Rate to be Levied:	**65%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$106.47
Actual Rate Per Assessment Unit	$69.21
Maximum Total	**$2,022.95**
Actual Total	**$1,314.92**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$213.84
Actual Rate Per Assessment Unit	$138.99
Maximum Total	**$4,062.87**
Actual Total	**$2,640.86**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$25.09
Actual Rate Per Assessment Unit	$16.31
Maximum Total	**$476.67**
Actual Total	**$309.83**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$270.09
Actual Rate Per Assessment Unit	$175.56
Maximum Total	**$5,131.76**
Actual Total	**$3,335.64**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$202.56
Actual Rate Per Assessment Unit	$131.67
Maximum Total	**$3,848.73**
Actual Total	**$2,501.67**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**19**
TOTALS	
Maximum Rate Per Assessment Unit	$818.05
Zone Maximum	$15,542.96
Actual Rate Per Assessment Unit	$531.73
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$531.72**
Balance to Levy (Actual Amount Levied)	**$10,102.30**

City of San Jacinto
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Zone:	**17**
Common Name/Location:	**Cloverdale (Evans/Katrina Lane)**
Percentage of Maximum Rate to be Levied:	**50%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$76.52
Actual Rate Per Assessment Unit	$38.26
Maximum Total	**$2,295.53**
Actual Total	**$1,147.76**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$173.47
Actual Rate Per Assessment Unit	$86.73
Maximum Total	**$5,204.00**
Actual Total	**$2,602.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$40.67
Actual Rate Per Assessment Unit	$20.34
Maximum Total	**$1,220.18**
Actual Total	**$610.09**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$416.32
Actual Rate Per Assessment Unit	$208.16
Maximum Total	**$12,489.71**
Actual Total	**$6,244.85**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$69.39
Actual Rate Per Assessment Unit	$34.70
Maximum Total	**$2,081.71**
Actual Total	**$1,040.86**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**30**
TOTALS	
Maximum Rate Per Assessment Unit	$776.37
Zone Maximum	$23,291.12
Actual Rate Per Assessment Unit	$388.19
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$388.18**
Balance to Levy (Actual Amount Levied)	**$11,644.80**

City of San Jacinto
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Zone:	**18**
Common Name/Location:	**500 S. State Street**
Percentage of Maximum Rate to be Levied:	**55%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$61.58
Actual Rate Per Assessment Unit	$33.87
Maximum Total	**$1,261.70**
Actual Total	**$693.94**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$59.36
Actual Rate Per Assessment Unit	$32.65
Maximum Total	**$1,216.20**
Actual Total	**$668.91**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**20.49**
TOTALS	
Maximum Rate Per Assessment Unit	$120.93
Zone Maximum	$2,477.91
Actual Rate Per Assessment Unit	$66.51
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$66.50**
Balance to Levy (Actual Amount Levied)	**$1,362.80**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**19-1**
Common Name/Location:	**Walmart (State/Idyllwild,San Jacinto/Commonwealth)**
Percentage of Maximum Rate to be Levied:	**50%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$244.41
Actual Rate Per Assessment Unit	$122.20
Maximum Total	**$17,905.21**
Actual Total	**$8,952.60**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$128.53
Actual Rate Per Assessment Unit	$64.27
Maximum Total	**$9,416.34**
Actual Total	**$4,708.17**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$888.22
Actual Rate Per Assessment Unit	$444.11
Maximum Total	**$65,070.86**
Actual Total	**$32,535.43**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$110.12
Actual Rate Per Assessment Unit	$55.06
Maximum Total	**$8,067.20**
Actual Total	**$4,033.60**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**73.26**
TOTALS	
Maximum Rate Per Assessment Unit	$1,371.27
Zone Maximum	$100,459.60
Actual Rate Per Assessment Unit	$685.64
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$685.64**
Balance to Levy (Actual Amount Levied)	**$50,229.36**

City of San Jacinto
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Estimate of Costs

Zone:	**19-2**
Common Name/Location:	**Cali Coffee – Santana's (State/Idyllwild,San Jacinto/Commonwealth)**
Percentage of Maximum Rate to be Levied:	**60%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$874.55
Actual Rate Per Assessment Unit	$524.73
Maximum Total	**$3,358.26**
Actual Total	**$2,014.96**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$837.34
Actual Rate Per Assessment Unit	$502.40
Maximum Total	**$3,215.37**
Actual Total	**$1,929.22**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**3.84**
TOTALS	
Maximum Rate Per Assessment Unit	$1,711.88
Zone Maximum	$6,573.64
Actual Rate Per Assessment Unit	$1,027.13
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,027.12**
Balance to Levy (Actual Amount Levied)	**$3,944.14**

City of San Jacinto
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Zone:	**20**
Common Name/Location:	**Durango (Main/Ramona Exp.)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$140.45
Actual Rate Per Assessment Unit	$140.45
Maximum Total	**$18,680.30**
Actual Total	**$18,680.30**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$452.81
Actual Rate Per Assessment Unit	$452.81
Maximum Total	**$60,224.37**
Actual Total	**$60,224.37**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$84.48
Actual Rate Per Assessment Unit	$84.48
Maximum Total	**$11,235.98**
Actual Total	**$11,235.98**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$387.36
Actual Rate Per Assessment Unit	$387.36
Maximum Total	**$51,518.69**
Actual Total	**$51,518.69**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$47.86
Actual Rate Per Assessment Unit	$47.86
Maximum Total	**$6,364.95**
Actual Total	**$6,364.95**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**133**
TOTALS	
Maximum Rate Per Assessment Unit	$1,112.96
Zone Maximum	$148,024.29
Actual Rate Per Assessment Unit	$1,112.96
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,112.96**
Balance to Levy (Actual Amount Levied)	**$148,021.02**

City of San Jacinto
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Estimate of Costs

Zone:	**21**
Common Name/Location:	**Arterra (Palm/7th Street)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$137.58
Actual Rate Per Assessment Unit	$137.58
Maximum Total	**$20,087.19**
Actual Total	**$20,087.19**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$319.72
Actual Rate Per Assessment Unit	$319.72
Maximum Total	**$46,678.64**
Actual Total	**$46,678.64**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$83.40
Actual Rate Per Assessment Unit	$83.40
Maximum Total	**$12,176.07**
Actual Total	**$12,176.07**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$88.45
Actual Rate Per Assessment Unit	$88.45
Maximum Total	**$12,914.18**
Actual Total	**$12,914.18**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$68.04
Actual Rate Per Assessment Unit	$68.04
Maximum Total	**$9,933.99**
Actual Total	**$9,933.99**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**146**
TOTALS	
Maximum Rate Per Assessment Unit	$697.19
Zone Maximum	$101,790.06
Actual Rate Per Assessment Unit	$697.19
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$697.18**
Balance to Levy (Actual Amount Levied)	**$101,785.36**

City of San Jacinto
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Estimate of Costs

Zone:	**22**
Common Name/Location:	**Park Hill (Park/Hewitt)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$115.56
Actual Rate Per Assessment Unit	$92.44
Maximum Total	**$15,484.46**
Actual Total	**$12,387.57**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$234.78
Actual Rate Per Assessment Unit	$187.82
Maximum Total	**$31,460.45**
Actual Total	**$25,168.36**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$475.31
Actual Rate Per Assessment Unit	$380.24
Maximum Total	**$63,691.01**
Actual Total	**$50,952.81**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$403.30
Actual Rate Per Assessment Unit	$322.64
Maximum Total	**$54,042.80**
Actual Total	**$43,234.24**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$43.66
Actual Rate Per Assessment Unit	$34.93
Maximum Total	**$5,849.97**
Actual Total	**$4,679.97**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**134**
TOTALS	
Maximum Rate Per Assessment Unit	$1,272.60
Zone Maximum	$170,528.69
Actual Rate Per Assessment Unit	$1,018.08
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,018.08**
Balance to Levy (Actual Amount Levied)	**$136,420.04**

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Zone:	**23**
Common Name/Location:	**Summerfield Ranch (7th Street/Palm)**
Percentage of Maximum Rate to be Levied:	**45%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$146.19
Actual Rate Per Assessment Unit	$65.79
Maximum Total	**$11,987.84**
Actual Total	**$5,394.53**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$111.60
Actual Rate Per Assessment Unit	$50.22
Maximum Total	**$9,151.40**
Actual Total	**$4,118.13**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$80.98
Actual Rate Per Assessment Unit	$36.44
Maximum Total	**$6,640.69**
Actual Total	**$2,988.31**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$486.04
Actual Rate Per Assessment Unit	$218.72
Maximum Total	**$39,855.04**
Actual Total	**$17,934.77**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$60.34
Actual Rate Per Assessment Unit	$27.15
Maximum Total	**$4,948.18**
Actual Total	**$2,226.68**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**82**
TOTALS	
Maximum Rate Per Assessment Unit	$885.16
Zone Maximum	$72,583.14
Actual Rate Per Assessment Unit	$398.32
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$398.32**
Balance to Levy (Actual Amount Levied)	**$32,660.60**

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Zone:	**24**
Common Name/Location:	**El Toro Market (670 S. State Street)**
Percentage of Maximum Rate to be Levied:	**55%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$174.81
Actual Rate Per Assessment Unit	$96.14
Maximum Total	**$2,087.21**
Actual Total	**$1,147.96**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$125.48
Actual Rate Per Assessment Unit	$69.01
Maximum Total	**$1,498.19**
Actual Total	**$824.01**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**11.94**
TOTALS	
Maximum Rate Per Assessment Unit	$300.28
Zone Maximum	$3,585.40
Actual Rate Per Assessment Unit	$165.16
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$165.16**
Balance to Levy (Actual Amount Levied)	**$1,971.94**

City of San Jacinto
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Estimate of Costs

Zone:	**25**
Common Name/Location:	**Stallions Crossing (Cottonwood/Lyon)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$191.96
Actual Rate Per Assessment Unit	$182.36
Maximum Total	**$19,771.80**
Actual Total	**$18,783.21**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$277.62
Actual Rate Per Assessment Unit	$263.74
Maximum Total	**$28,594.73**
Actual Total	**$27,164.99**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$140.34
Actual Rate Per Assessment Unit	$133.32
Maximum Total	**$14,454.95**
Actual Total	**$13,732.20**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$164.44
Actual Rate Per Assessment Unit	$156.22
Maximum Total	**$16,937.19**
Actual Total	**$16,090.33**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$73.99
Actual Rate Per Assessment Unit	$70.29
Maximum Total	**$7,620.95**
Actual Total	**$7,239.91**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**103**
TOTALS	
Maximum Rate Per Assessment Unit	$848.35
Zone Maximum	$87,379.63
Actual Rate Per Assessment Unit	$805.93
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$805.92**
Balance to Levy (Actual Amount Levied)	**$83,007.70**

City of San Jacinto
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Zone:	**26**
Common Name/Location:	**The Ranch (Cottonwood/Cawston/7th Street)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$120.65
Actual Rate Per Assessment Unit	$102.55
Maximum Total	**$35,591.53**
Actual Total	**$30,252.80**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$491.19
Actual Rate Per Assessment Unit	$417.51
Maximum Total	**$144,900.35**
Actual Total	**$123,165.30**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$69.56
Actual Rate Per Assessment Unit	$59.13
Maximum Total	**$20,520.63**
Actual Total	**$17,442.54**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$330.46
Actual Rate Per Assessment Unit	$280.89
Maximum Total	**$97,484.23**
Actual Total	**$82,861.59**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$45.33
Actual Rate Per Assessment Unit	$38.53
Maximum Total	**$13,372.05**
Actual Total	**$11,366.24**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**295**
TOTALS	
Maximum Rate Per Assessment Unit	$1,057.18
Zone Maximum	$311,868.79
Actual Rate Per Assessment Unit	$898.60
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$898.60**
Balance to Levy (Actual Amount Levied)	**$265,075.20**

City of San Jacinto
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Estimate of Costs

Zone:	**27**
Common Name/Location:	**Potter Ranch (Ramona Blvd/Potter Rd.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$138.34
Actual Rate Per Assessment Unit	$131.42
Maximum Total	**$36,382.84**
Actual Total	**$34,563.70**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$423.37
Actual Rate Per Assessment Unit	$402.20
Maximum Total	**$111,346.52**
Actual Total	**$105,779.20**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$41.79
Actual Rate Per Assessment Unit	$39.70
Maximum Total	**$10,990.05**
Actual Total	**$10,440.54**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$275.34
Actual Rate Per Assessment Unit	$261.57
Maximum Total	**$72,413.80**
Actual Total	**$68,793.11**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$47.80
Actual Rate Per Assessment Unit	$45.41
Maximum Total	**$12,571.07**
Actual Total	**$11,942.52**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**263**
TOTALS	
Maximum Rate Per Assessment Unit	$926.63
Zone Maximum	$243,704.28
Actual Rate Per Assessment Unit	$880.30
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$880.30**
Balance to Levy (Actual Amount Levied)	**$231,508.38**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**28**
Common Name/Location:	**Mountain View Business Park (Main Street/Dillon Ave.)**
Percentage of Maximum Rate to be Levied:	**30%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$656.24
Actual Rate Per Assessment Unit	$196.87
Maximum Total	**$629.99**
Actual Total	**$189.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,771.84
Actual Rate Per Assessment Unit	$531.55
Maximum Total	**$1,700.97**
Actual Total	**$510.29**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**0.96**
TOTALS	
Maximum Rate Per Assessment Unit	$2,428.08
Zone Maximum	$2,330.96
Actual Rate Per Assessment Unit	$728.42
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$728.42**
Balance to Levy (Actual Amount Levied)	**$699.24**

*The amount levied is less than the actual rate due to the assignment of .96 AU, which is not a whole AU.

City of San Jacinto
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Estimate of Costs

Zone:	**29**
Common Name/Location:	**Creekside (Cottonwood/Palm Ave.)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$152.73
Actual Rate Per Assessment Unit	$152.73
Maximum Total	**$21,839.68**
Actual Total	**$21,839.68**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$371.81
Actual Rate Per Assessment Unit	$371.81
Maximum Total	**$53,169.53**
Actual Total	**$53,169.53**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$97.72
Actual Rate Per Assessment Unit	$97.72
Maximum Total	**$13,974.46**
Actual Total	**$13,974.46**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$424.76
Actual Rate Per Assessment Unit	$424.76
Maximum Total	**$60,741.21**
Actual Total	**$60,741.21**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$45.18
Actual Rate Per Assessment Unit	$45.18
Maximum Total	**$6,460.44**
Actual Total	**$6,460.44**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**143**
TOTALS	
Maximum Rate Per Assessment Unit	$1,092.21
Zone Maximum	$156,185.32
Actual Rate Per Assessment Unit	$1,092.21
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,092.20**
Balance to Levy (Actual Amount Levied)	**$156,181.74**

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Estimate of Costs

Zone:	**30**
Common Name/Location:	**Almaden (Lyon/DeAnza Ave.)**
Percentage of Maximum Rate to be Levied:	**75%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$115.59
Actual Rate Per Assessment Unit	$86.69
Maximum Total	**$10,172.19**
Actual Total	**$7,629.14**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$419.72
Actual Rate Per Assessment Unit	$314.79
Maximum Total	**$36,935.68**
Actual Total	**$27,701.76**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$128.90
Actual Rate Per Assessment Unit	$96.67
Maximum Total	**$11,343.11**
Actual Total	**$8,507.33**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$581.94
Actual Rate Per Assessment Unit	$436.46
Maximum Total	**$51,210.93**
Actual Total	**$38,408.20**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$64.13
Actual Rate Per Assessment Unit	$48.10
Maximum Total	**$5,643.33**
Actual Total	**$4,232.50**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**88**
TOTALS	
Maximum Rate Per Assessment Unit	$1,310.29
Zone Maximum	$115,305.24
Actual Rate Per Assessment Unit	$982.72
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$982.72**
Balance to Levy (Actual Amount Levied)	**$86,475.84**

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Estimate of Costs

Zone:	**31**
Common Name/Location:	**Belicia (Washington/Mountain Ave.)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$112.18
Actual Rate Per Assessment Unit	$112.18
Maximum Total	**$6,843.23**
Actual Total	**$6,843.23**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$247.77
Actual Rate Per Assessment Unit	$247.77
Maximum Total	**$15,114.14**
Actual Total	**$15,114.14**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$8.43
Actual Rate Per Assessment Unit	$8.43
Maximum Total	**$514.28**
Actual Total	**$514.28**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$754.06
Actual Rate Per Assessment Unit	$754.06
Maximum Total	**$45,997.55**
Actual Total	**$45,997.55**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$73.64
Actual Rate Per Assessment Unit	$73.64
Maximum Total	**$4,492.09**
Actual Total	**$4,492.09**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**61**
TOTALS	
Maximum Rate Per Assessment Unit	$1,196.09
Zone Maximum	$72,961.29
Actual Rate Per Assessment Unit	$1,196.09
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,196.08**
Balance to Levy (Actual Amount Levied)	**$72,959.66**

City of San Jacinto
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Estimate of Costs

Zone:	**32**
Common Name/Location:	**Cottonwood Ranch (Cottonwood/Kirby Ave.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$131.10
Actual Rate Per Assessment Unit	$124.54
Maximum Total	**$17,173.88**
Actual Total	**$16,315.19**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$476.32
Actual Rate Per Assessment Unit	$452.50
Maximum Total	**$62,397.87**
Actual Total	**$59,277.98**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$49.56
Actual Rate Per Assessment Unit	$47.08
Maximum Total	**$6,492.13**
Actual Total	**$6,167.52**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$454.40
Actual Rate Per Assessment Unit	$431.68
Maximum Total	**$59,526.36**
Actual Total	**$56,550.04**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$44.61
Actual Rate Per Assessment Unit	$42.38
Maximum Total	**$5,843.87**
Actual Total	**$5,551.68**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**131**
TOTALS	
Maximum Rate Per Assessment Unit	$1,155.99
Zone Maximum	$151,434.11
Actual Rate Per Assessment Unit	$1,098.19
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,098.18**
Balance to Levy (Actual Amount Levied)	**$143,858.96**

City of San Jacinto
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Estimate of Costs

Zone:	**33**
Common Name/Location:	**Daybreak (Esplanade/Meridian Ave.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$123.46
Actual Rate Per Assessment Unit	$117.28
Maximum Total	**$12,715.93**
Actual Total	**$12,080.14**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$536.27
Actual Rate Per Assessment Unit	$509.46
Maximum Total	**$55,235.78**
Actual Total	**$52,473.99**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$46.90
Actual Rate Per Assessment Unit	$44.56
Maximum Total	**$4,830.77**
Actual Total	**$4,589.23**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$83.08
Actual Rate Per Assessment Unit	$78.93
Maximum Total	**$8,557.20**
Actual Total	**$8,129.34**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**103**
TOTALS	
Maximum Rate Per Assessment Unit	$789.71
Zone Maximum	$81,339.69
Actual Rate Per Assessment Unit	$750.22
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$750.22**
Balance to Levy (Actual Amount Levied)	**$77,270.60**

City of San Jacinto
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Zone:	**34**
Common Name/Location:	**Palmilla (Washington/Arroyo Viejo)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$104.03
Actual Rate Per Assessment Unit	$104.03
Maximum Total	**$6,657.81**
Actual Total	**$6,657.81**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$540.30
Actual Rate Per Assessment Unit	$540.30
Maximum Total	**$34,579.31**
Actual Total	**$34,579.31**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$47.25
Actual Rate Per Assessment Unit	$47.25
Maximum Total	**$3,023.93**
Actual Total	**$3,023.93**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$85.72
Actual Rate Per Assessment Unit	$85.72
Maximum Total	**$5,486.01**
Actual Total	**$5,486.01**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**64**
TOTALS	
Maximum Rate Per Assessment Unit	$777.30
Zone Maximum	$49,747.06
Actual Rate Per Assessment Unit	$777.30
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$777.30**
Balance to Levy (Actual Amount Levied)	**$49,744.64**

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Zone:	**35**
Common Name/Location:	**Terragon (Washington/Berringer)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$75.03
Actual Rate Per Assessment Unit	$75.03
Maximum Total	**$5,477.47**
Actual Total	**$5,477.47**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$548.11
Actual Rate Per Assessment Unit	$548.11
Maximum Total	**$40,011.99**
Actual Total	**$40,011.99**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$47.95
Actual Rate Per Assessment Unit	$47.95
Maximum Total	**$3,500.01**
Actual Total	**$3,500.01**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$87.13
Actual Rate Per Assessment Unit	$87.13
Maximum Total	**$6,360.50**
Actual Total	**$6,360.50**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**73**
TOTALS	
Maximum Rate Per Assessment Unit	$758.22
Zone Maximum	$55,349.96
Actual Rate Per Assessment Unit	$758.22
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$758.22**
Balance to Levy (Actual Amount Levied)	**$55,347.14**

City of San Jacinto
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Zone:	**36**
Common Name/Location:	**Cypress (Washington/Arroyo Viejo)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$104.43
Actual Rate Per Assessment Unit	$83.55
Maximum Total	**$8,772.24**
Actual Total	**$7,017.79**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$539.06
Actual Rate Per Assessment Unit	$431.24
Maximum Total	**$45,280.66**
Actual Total	**$36,224.53**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$47.16
Actual Rate Per Assessment Unit	$37.73
Maximum Total	**$3,961.21**
Actual Total	**$3,168.97**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$86.10
Actual Rate Per Assessment Unit	$68.88
Maximum Total	**$7,232.71**
Actual Total	**$5,786.17**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**84**
TOTALS	
Maximum Rate Per Assessment Unit	$776.75
Zone Maximum	$65,246.83
Actual Rate Per Assessment Unit	$621.40
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$621.40**
Balance to Levy (Actual Amount Levied)	**$52,195.92**

City of San Jacinto
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Zone:	**37**
Common Name/Location:	**Cypress/Daybreak (Washington/Villines)**
Percentage of Maximum Rate to be Levied:	**90%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$109.05
Actual Rate Per Assessment Unit	$98.15
Maximum Total	**$5,125.35**
Actual Total	**$4,612.82**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$538.62
Actual Rate Per Assessment Unit	$484.75
Maximum Total	**$25,314.94**
Actual Total	**$22,783.44**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$47.10
Actual Rate Per Assessment Unit	$42.39
Maximum Total	**$2,213.81**
Actual Total	**$1,992.43**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$91.42
Actual Rate Per Assessment Unit	$82.28
Maximum Total	**$4,296.68**
Actual Total	**$3,867.01**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**47**
TOTALS	
Maximum Rate Per Assessment Unit	$786.19
Zone Maximum	$36,950.78
Actual Rate Per Assessment Unit	$707.57
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$707.56**
Balance to Levy (Actual Amount Levied)	**$33,254.38**

City of San Jacinto
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Estimate of Costs

Zone:	**38**
Common Name/Location:	**Coventry Acres (Palm Ave/De Anza Dr)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$88.77
Actual Rate Per Assessment Unit	$88.77
Maximum Total	**$17,398.83**
Actual Total	**$17,398.83**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$518.48
Actual Rate Per Assessment Unit	$518.48
Maximum Total	**$101,622.14**
Actual Total	**$101,622.14**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$22.24
Actual Rate Per Assessment Unit	$22.24
Maximum Total	**$4,359.08**
Actual Total	**$4,359.08**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$232.31
Actual Rate Per Assessment Unit	$232.31
Maximum Total	**$45,533.48**
Actual Total	**$45,533.48**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$44.92
Actual Rate Per Assessment Unit	$44.92
Maximum Total	**$8,803.37**
Actual Total	**$8,803.37**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**196**
TOTALS	
Maximum Rate Per Assessment Unit	$906.72
Zone Maximum	$177,716.90
Actual Rate Per Assessment Unit	$906.72
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$906.72**
Balance to Levy (Actual Amount Levied)	**$177,709.28**

City of San Jacinto
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Fiscal Year 2025/26
Estimate of Costs

Zone:	**39**
Common Name/Location:	**The Trails (Washington/Meridian)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$107.69
Actual Rate Per Assessment Unit	$102.31
Maximum Total	**$9,907.83**
Actual Total	**$9,412.44**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$527.20
Actual Rate Per Assessment Unit	$500.84
Maximum Total	**$48,502.17**
Actual Total	**$46,077.06**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$46.11
Actual Rate Per Assessment Unit	$43.81
Maximum Total	**$4,242.36**
Actual Total	**$4,030.24**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$85.19
Actual Rate Per Assessment Unit	$80.93
Maximum Total	**$7,837.24**
Actual Total	**$7,445.37**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**92**
TOTALS	
Maximum Rate Per Assessment Unit	$766.19
Zone Maximum	$70,489.59
Actual Rate Per Assessment Unit	$727.88
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$727.88**
Balance to Levy (Actual Amount Levied)	**$66,961.28**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**40**
Common Name/Location:	**Winners Circle (7th Street/Kirby)**
Percentage of Maximum Rate to be Levied:	**50%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$269.22
Actual Rate Per Assessment Unit	$134.61
Maximum Total	**$3,499.81**
Actual Total	**$1,749.91**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$188.13
Actual Rate Per Assessment Unit	$94.07
Maximum Total	**$2,445.75**
Actual Total	**$1,222.87**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$27.22
Actual Rate Per Assessment Unit	$13.61
Maximum Total	**$353.82**
Actual Total	**$176.91**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$289.45
Actual Rate Per Assessment Unit	$144.73
Maximum Total	**$3,762.85**
Actual Total	**$1,881.43**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$217.07
Actual Rate Per Assessment Unit	$108.54
Maximum Total	**$2,821.96**
Actual Total	**$1,410.98**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**13**
TOTALS	
Maximum Rate Per Assessment Unit	$991.09
Zone Maximum	$12,884.18
Actual Rate Per Assessment Unit	$495.55
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$495.54**
Balance to Levy (Actual Amount Levied)	**$6,441.50**

City of San Jacinto
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Estimate of Costs

Zone:	**41**
Common Name/Location:	**Mosaico (Lyon Ave)**
Percentage of Maximum Rate to be Levied:	**90%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$98.51
Actual Rate Per Assessment Unit	$88.66
Maximum Total	**$8,964.56**
Actual Total	**$8,068.10**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$474.16
Actual Rate Per Assessment Unit	$426.74
Maximum Total	**$43,148.29**
Actual Total	**$38,833.46**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$54.23
Actual Rate Per Assessment Unit	$48.81
Maximum Total	**$4,935.09**
Actual Total	**$4,441.58**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$209.25
Actual Rate Per Assessment Unit	$188.32
Maximum Total	**$19,041.55**
Actual Total	**$17,137.40**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$407.54
Actual Rate Per Assessment Unit	$366.78
Maximum Total	**$37,085.74**
Actual Total	**$33,377.17**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**91**
TOTALS	
Maximum Rate Per Assessment Unit	$1,243.68
Zone Maximum	$113,175.23
Actual Rate Per Assessment Unit	$1,119.32
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,119.32**
Balance to Levy (Actual Amount Levied)	**$101,854.48**

City of San Jacinto
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Estimate of Costs

Zone:	**42**
Common Name/Location:	**Santa Bella (Commonwealth Ave.)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$143.45
Actual Rate Per Assessment Unit	$121.93
Maximum Total	**$5,164.24**
Actual Total	**$4,389.61**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$529.49
Actual Rate Per Assessment Unit	$450.07
Maximum Total	**$19,061.58**
Actual Total	**$16,202.35**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$46.31
Actual Rate Per Assessment Unit	$39.37
Maximum Total	**$1,667.31**
Actual Total	**$1,417.21**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$96.00
Actual Rate Per Assessment Unit	$81.60
Maximum Total	**$3,456.03**
Actual Total	**$2,937.62**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**36**
TOTALS	
Maximum Rate Per Assessment Unit	$815.25
Zone Maximum	$29,349.16
Actual Rate Per Assessment Unit	$692.97
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$692.96**
Balance to Levy (Actual Amount Levied)	**$24,945.84**

City of San Jacinto
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Zone:	**43**
Common Name/Location:	**Remington/Lyndon Trails (Esplanade Ave.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$99.48
Actual Rate Per Assessment Unit	$94.51
Maximum Total	**$20,195.04**
Actual Total	**$19,185.29**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$500.42
Actual Rate Per Assessment Unit	$475.40
Maximum Total	**$101,585.39**
Actual Total	**$96,506.12**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$169.66
Actual Rate Per Assessment Unit	$161.18
Maximum Total	**$34,440.96**
Actual Total	**$32,718.91**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$169.77
Actual Rate Per Assessment Unit	$161.28
Maximum Total	**$34,463.28**
Actual Total	**$32,740.12**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$46.68
Actual Rate Per Assessment Unit	$44.35
Maximum Total	**$9,476.19**
Actual Total	**$9,002.38**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**203**
TOTALS	
Maximum Rate Per Assessment Unit	$986.01
Zone Maximum	$200,160.87
Actual Rate Per Assessment Unit	$936.71
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$936.70**
Balance to Levy (Actual Amount Levied)	**$190,146.04**

City of San Jacinto
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Zone:	**44**
Common Name/Location:	**Lyon/Shadow Canyon Trail (Lyon Ave.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$134.87
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$13,487.38**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$189.66
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$18,965.55**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$282.21
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$28,221.06**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$146.99
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$14,698.85**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$53.10
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,309.55**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**100**
TOTALS	
Maximum Rate Per Assessment Unit	$806.82
Zone Maximum	$80,682.38
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
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Estimate of Costs

Zone:	**45**
Common Name/Location:	**Tamarisk (Cottonwood Ave.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$94.35
Actual Rate Per Assessment Unit	$89.63
Maximum Total	**$23,870.86**
Actual Total	**$22,677.31**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$817.23
Actual Rate Per Assessment Unit	$776.37
Maximum Total	**$206,760.19**
Actual Total	**$196,422.18**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$61.01
Actual Rate Per Assessment Unit	$57.96
Maximum Total	**$15,436.30**
Actual Total	**$14,664.49**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$333.62
Actual Rate Per Assessment Unit	$316.94
Maximum Total	**$84,405.83**
Actual Total	**$80,185.53**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$45.76
Actual Rate Per Assessment Unit	$43.48
Maximum Total	**$11,578.39**
Actual Total	**$10,999.47**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**253**
TOTALS	
Maximum Rate Per Assessment Unit	$1,351.98
Zone Maximum	$342,051.56
Actual Rate Per Assessment Unit	$1,284.38
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,284.38**
Balance to Levy (Actual Amount Levied)	**$324,938.02**

City of San Jacinto
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Estimate of Costs

Zone:	**46**
Common Name/Location:	**Parkside Village (Sanderson Ave.)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$95.41
Actual Rate Per Assessment Unit	$95.41
Maximum Total	**$13,357.99**
Actual Total	**$13,357.99**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$253.00
Actual Rate Per Assessment Unit	$253.00
Maximum Total	**$35,419.46**
Actual Total	**$35,419.46**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$191.05
Actual Rate Per Assessment Unit	$191.05
Maximum Total	**$26,746.77**
Actual Total	**$26,746.77**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$513.27
Actual Rate Per Assessment Unit	$513.27
Maximum Total	**$71,857.57**
Actual Total	**$71,857.57**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$47.01
Actual Rate Per Assessment Unit	$47.01
Maximum Total	**$6,581.49**
Actual Total	**$6,581.49**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**140**
TOTALS	
Maximum Rate Per Assessment Unit	$1,099.74
Zone Maximum	$153,963.29
Actual Rate Per Assessment Unit	$1,099.74
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,099.74**
Balance to Levy (Actual Amount Levied)	**$153,958.00**

City of San Jacinto
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Fiscal Year 2025/26
Estimate of Costs

Zone:	**47**
Common Name/Location:	**Maravilla Estates (Ramona Expressway)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$65.47
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$14,599.51**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$261.23
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$58,254.55**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$87.52
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$19,516.42**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**223**
TOTALS	
Maximum Rate Per Assessment Unit	$414.22
Zone Maximum	$92,370.47
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
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Zone:	**48**
Common Name/Location:	**San Jacinto Valley Academy (San Jacinto Ave.)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,398.20
Actual Rate Per Assessment Unit	$1,118.56
Maximum Total	**$671.14**
Actual Total	**$536.91**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$2,573.72
Actual Rate Per Assessment Unit	$2,058.97
Maximum Total	**$1,235.38**
Actual Total	**$988.31**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,798.07
Actual Rate Per Assessment Unit	$1,438.46
Maximum Total	**$863.07**
Actual Total	**$690.46**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**0.48**
TOTALS	
Maximum Rate Per Assessment Unit	$5,769.99
Zone Maximum	$2,769.59
Actual Rate Per Assessment Unit	$4,615.99
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$4,615.98**
Balance to Levy (Actual Amount Levied)	**$2,215.64**

*The amount levied is less than the actual rate due to the assignment of .48 AU, which is not a whole AU.

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Zone:	**49**
Common Name/Location:	**Pheasant Run (Main Street/Camino Los Banos)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$109.06
Actual Rate Per Assessment Unit	$109.06
Maximum Total	**$10,847.33**
Actual Total	**$10,847.33**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$239.93
Actual Rate Per Assessment Unit	$239.93
Maximum Total	**$21,833.63**
Actual Total	**$21,833.63**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$135.74
Actual Rate Per Assessment Unit	$135.74
Maximum Total	**$13,500.36**
Actual Total	**$13,500.36**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$573.10
Actual Rate Per Assessment Unit	$573.10
Maximum Total	**$57,000.36**
Actual Total	**$57,000.36**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$72.70
Actual Rate Per Assessment Unit	$72.70
Maximum Total	**$7,230.98**
Actual Total	**$7,230.98**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**99.46**
TOTALS	
Maximum Rate Per Assessment Unit	$1,130.53
Zone Maximum	$110,412.65
Actual Rate Per Assessment Unit	$1,130.53
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,130.52**
Balance to Levy (Actual Amount Levied)	**$110,409.76**

*1 AU not assessed for Park Maintenance.

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Zone:	**50**
Common Name/Location:	**The Trails (Blodgett St.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$106.66
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$62,149.09**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$774.03
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$451,001.35**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$212.89
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$124,044.88**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$231.81
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$135,068.38**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$44.39
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$25,866.75**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**582.67**
TOTALS	
Maximum Rate Per Assessment Unit	$1,369.78
Zone Maximum	$798,130.44
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

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Zone:	**51**
Common Name/Location:	**SJ Retail (Esplanade/Sanderson)**
Percentage of Maximum Rate to be Levied:	**70%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$323.46
Actual Rate Per Assessment Unit	$226.42
Maximum Total	**$12,896.45**
Actual Total	**$9,027.52**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$398.66
Actual Rate Per Assessment Unit	$279.06
Maximum Total	**$15,894.55**
Actual Total	**$11,126.19**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$346.29
Actual Rate Per Assessment Unit	$242.41
Maximum Total	**$13,806.77**
Actual Total	**$9,664.74**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$420.51
Actual Rate Per Assessment Unit	$294.35
Maximum Total	**$16,765.55**
Actual Total	**$11,735.89**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**39.87**
TOTALS	
Maximum Rate Per Assessment Unit	$1,488.92
Zone Maximum	$59,363.33
Actual Rate Per Assessment Unit	$1,042.25
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,042.24**
Balance to Levy (Actual Amount Levied)	**$41,553.86**

City of San Jacinto
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Estimate of Costs

Zone:	**52**
Common Name/Location:	**Graciella Court (6th Street)**
Percentage of Maximum Rate to be Levied:	**20%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$379.68
Actual Rate Per Assessment Unit	$75.94
Maximum Total	**$3,417.15**
Actual Total	**$683.43**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$263.46
Actual Rate Per Assessment Unit	$52.69
Maximum Total	**$2,371.11**
Actual Total	**$474.22**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$46.62
Actual Rate Per Assessment Unit	$9.32
Maximum Total	**$419.57**
Actual Total	**$83.91**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$292.72
Actual Rate Per Assessment Unit	$58.54
Maximum Total	**$2,634.50**
Actual Total	**$526.90**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$292.72
Actual Rate Per Assessment Unit	$58.54
Maximum Total	**$2,634.50**
Actual Total	**$526.90**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**9**
TOTALS	
Maximum Rate Per Assessment Unit	$1,275.20
Zone Maximum	$11,476.83
Actual Rate Per Assessment Unit	$255.04
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$255.04**
Balance to Levy (Actual Amount Levied)	**$2,295.18**

City of San Jacinto
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Zone: 53

Common Name/Location: The Cove (Cottonwood Ave.)

Percentage of Maximum Rate to be Levied: 100%

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$122.57
Actual Rate Per Assessment Unit	$122.57
Maximum Total	**$13,237.91**
Actual Total	**$13,237.91**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$514.57
Actual Rate Per Assessment Unit	$514.57
Maximum Total	**$55,573.33**
Actual Total	**$55,573.33**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$597.29
Actual Rate Per Assessment Unit	$597.29
Maximum Total	**$64,506.90**
Actual Total	**$64,506.90**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$405.11
Actual Rate Per Assessment Unit	$405.11
Maximum Total	**$43,751.41**
Actual Total	**$43,751.41**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$37.84
Actual Rate Per Assessment Unit	$37.84
Maximum Total	**$4,086.49**
Actual Total	**$4,086.49**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**108**
TOTALS	
Maximum Rate Per Assessment Unit	$1,677.37
Zone Maximum	$181,156.05
Actual Rate Per Assessment Unit	$1,677.37
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,677.36**
Balance to Levy (Actual Amount Levied)	**$181,152.72**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**54**
Common Name/Location:	**Santa Fe Apartments (Santa Fe Ave.)**
Percentage of Maximum Rate to be Levied:	**60%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,004.91
Actual Rate Per Assessment Unit	$602.95
Maximum Total	**$1,004.91**
Actual Total	**$602.95**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,659.41
Actual Rate Per Assessment Unit	$995.64
Maximum Total	**$1,659.41**
Actual Total	**$995.64**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$1,866.79
Actual Rate Per Assessment Unit	$1,120.07
Maximum Total	**$1,866.79**
Actual Total	**$1,120.07**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,120.08
Actual Rate Per Assessment Unit	$672.05
Maximum Total	**$1,120.08**
Actual Total	**$672.05**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**1**
TOTALS	
Maximum Rate Per Assessment Unit	$5,651.19
Zone Maximum	$5,651.19
Actual Rate Per Assessment Unit	$3,390.71
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$3,390.70**
Balance to Levy (Actual Amount Levied)	**$3,390.68**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone: 55

Common Name/Location: The Cove (Cottonwood Ave.)

Percentage of Maximum Rate to be Levied: 75%

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$126.56
Actual Rate Per Assessment Unit	$94.92
Maximum Total	**$17,464.63**
Actual Total	**$13,098.47**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$514.19
Actual Rate Per Assessment Unit	$385.64
Maximum Total	**$70,957.57**
Actual Total	**$53,218.18**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$596.83
Actual Rate Per Assessment Unit	$447.63
Maximum Total	**$82,363.09**
Actual Total	**$61,772.32**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$404.79
Actual Rate Per Assessment Unit	$303.59
Maximum Total	**$55,861.39**
Actual Total	**$41,896.04**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$37.49
Actual Rate Per Assessment Unit	$28.12
Maximum Total	**$5,173.64**
Actual Total	**$3,880.23**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**138**
TOTALS	
Maximum Rate Per Assessment Unit	$1,679.86
Zone Maximum	$231,820.32
Actual Rate Per Assessment Unit	$1,259.89
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,259.88**
Balance to Levy (Actual Amount Levied)	**$173,860.68**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**56**
Common Name/Location:	**SW Corner of 7th & Lyon (Annexation Not Completed)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**N/A**
TOTALS	
Maximum Rate Per Assessment Unit	$0.00
Zone Maximum	$0.00
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**57**
Common Name/Location:	**7th Ave. East of Kirby (Sanderson Ave.)**
Percentage of Maximum Rate to be Levied:	**20%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$285.14
Actual Rate Per Assessment Unit	$57.03
Maximum Total	**$4,562.25**
Actual Total	**$912.45**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$298.95
Actual Rate Per Assessment Unit	$59.79
Maximum Total	**$4,783.16**
Actual Total	**$956.63**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$45.91
Actual Rate Per Assessment Unit	$9.18
Maximum Total	**$734.50**
Actual Total	**$146.90**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$280.25
Actual Rate Per Assessment Unit	$56.05
Maximum Total	**$4,484.07**
Actual Total	**$896.81**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**16**
TOTALS	
Maximum Rate Per Assessment Unit	$910.25
Zone Maximum	$14,563.98
Actual Rate Per Assessment Unit	$182.05
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$182.04**
Balance to Levy (Actual Amount Levied)	**$2,912.32**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**58**
Common Name/Location:	**SE Corner of 7th & Lyon (Kirby St.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$139.77
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$7,268.08**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$232.77
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$12,103.82**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$205.78
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$10,700.48**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$989.02
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$51,429.03**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$40.10
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,085.12**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**52**
TOTALS	
Maximum Rate Per Assessment Unit	$1,607.43
Zone Maximum	$83,586.53
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**59**
Common Name/Location:	**Rite Aide (State St./Ramona Expwy)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$332.00
Actual Rate Per Assessment Unit	$265.60
Maximum Total	**$9,236.31**
Actual Total	**$7,389.05**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$963.24
Actual Rate Per Assessment Unit	$770.59
Maximum Total	**$26,797.38**
Actual Total	**$21,437.91**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$518.13
Actual Rate Per Assessment Unit	$414.50
Maximum Total	**$14,414.28**
Actual Total	**$11,531.42**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$402.99
Actual Rate Per Assessment Unit	$322.39
Maximum Total	**$11,211.20**
Actual Total	**$8,968.96**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**27.82**
TOTALS	
Maximum Rate Per Assessment Unit	$2,216.36
Zone Maximum	$61,659.18
Actual Rate Per Assessment Unit	$1,773.09
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,773.08**
Balance to Levy (Actual Amount Levied)	**$49,326.96**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**60**
Common Name/Location:	**Stater Bros (State St./Ramona Expwy)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$243.72
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$9,746.34**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$790.53
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$31,613.30**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$684.03
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$27,354.21**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$410.42
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$16,412.53**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**39.99**
TOTALS	
Maximum Rate Per Assessment Unit	$2,128.69
Zone Maximum	$85,126.37
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**61**
Common Name/Location:	**Oostdam Dr. & Ivy Crest Dr. (Sanderson Ave./Kirby St.)**
Percentage of Maximum Rate to be Levied:	**85%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$179.36
Actual Rate Per Assessment Unit	$152.46
Maximum Total	**$6,636.50**
Actual Total	**$5,641.03**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$163.65
Actual Rate Per Assessment Unit	$139.10
Maximum Total	**$6,054.88**
Actual Total	**$5,146.65**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$55.94
Actual Rate Per Assessment Unit	$47.55
Maximum Total	**$2,069.77**
Actual Total	**$1,759.30**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$464.42
Actual Rate Per Assessment Unit	$394.76
Maximum Total	**$17,183.49**
Actual Total	**$14,605.97**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$88.46
Actual Rate Per Assessment Unit	$75.19
Maximum Total	**$3,272.89**
Actual Total	**$2,781.96**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**37**
TOTALS	
Maximum Rate Per Assessment Unit	$951.83
Zone Maximum	$35,217.54
Actual Rate Per Assessment Unit	$809.05
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$809.04**
Balance to Levy (Actual Amount Levied)	**$29,933.00**

City of San Jacinto
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Fiscal Year 2025/26
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Zone:	**62**
Common Name/Location:	**Meadowbrook II (Esplanade Ave./Kirby St.)**
Percentage of Maximum Rate to be Levied:	**100%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$150.81
Actual Rate Per Assessment Unit	$150.81
Maximum Total	**$8,596.32**
Actual Total	**$8,596.32**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$139.53
Actual Rate Per Assessment Unit	$139.53
Maximum Total	**$7,953.06**
Actual Total	**$7,953.06**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$333.50
Actual Rate Per Assessment Unit	$333.50
Maximum Total	**$19,009.43**
Actual Total	**$19,009.43**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$905.81
Actual Rate Per Assessment Unit	$905.81
Maximum Total	**$51,631.44**
Actual Total	**$51,631.44**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$73.43
Actual Rate Per Assessment Unit	$73.43
Maximum Total	**$4,185.66**
Actual Total	**$4,185.66**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**57**
TOTALS	
Maximum Rate Per Assessment Unit	$1,603.09
Zone Maximum	$91,375.91
Actual Rate Per Assessment Unit	$1,603.09
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,603.08**
Balance to Levy (Actual Amount Levied)	**$91,374.42**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**63**
Common Name/Location:	**Palisades Ranch (Catalpa Park) (Seventh St./Crawson Ave.)**
Percentage of Maximum Rate to be Levied:	**90%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$106.15
Actual Rate Per Assessment Unit	$95.54
Maximum Total	**$12,313.66**
Actual Total	**$11,082.29**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$98.82
Actual Rate Per Assessment Unit	$88.94
Maximum Total	**$11,463.43**
Actual Total	**$10,317.09**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,429.79
Actual Rate Per Assessment Unit	$1,286.81
Maximum Total	**$165,855.23**
Actual Total	**$149,269.71**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$546.14
Actual Rate Per Assessment Unit	$491.53
Maximum Total	**$63,352.80**
Actual Total	**$57,017.52**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$72.82
Actual Rate Per Assessment Unit	$65.54
Maximum Total	**$8,447.56**
Actual Total	**$7,602.81**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**116**
TOTALS	
Maximum Rate Per Assessment Unit	$2,253.73
Zone Maximum	$261,432.69
Actual Rate Per Assessment Unit	$2,028.36
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$2,028.36**
Balance to Levy (Actual Amount Levied)	**$235,285.12**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**64**
Common Name/Location:	**The Enclave (Sanderson Ave./Lyon Ave.)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$600.57
Actual Rate Per Assessment Unit	$480.46
Maximum Total	**$3,002.86**
Actual Total	**$2,402.29**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$244.02
Actual Rate Per Assessment Unit	$195.21
Maximum Total	**$1,220.08**
Actual Total	**$976.07**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$189.61
Actual Rate Per Assessment Unit	$151.69
Maximum Total	**$948.03**
Actual Total	**$758.43**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$390.43
Actual Rate Per Assessment Unit	$312.34
Maximum Total	**$1,952.15**
Actual Total	**$1,561.72**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**5**
TOTALS	
Maximum Rate Per Assessment Unit	$1,424.63
Zone Maximum	$7,123.13
Actual Rate Per Assessment Unit	$1,139.70
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,139.70**
Balance to Levy (Actual Amount Levied)	**$5,698.40**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**65**
Common Name/Location:	**Cheyenne (Sanderson Ave./Kirby St.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$172.90
Actual Rate Per Assessment Unit	$164.25
Maximum Total	**$5,013.99**
Actual Total	**$4,763.29**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$216.68
Actual Rate Per Assessment Unit	$205.85
Maximum Total	**$6,283.75**
Actual Total	**$5,969.57**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$478.82
Actual Rate Per Assessment Unit	$454.88
Maximum Total	**$13,885.68**
Actual Total	**$13,191.40**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$936.98
Actual Rate Per Assessment Unit	$890.13
Maximum Total	**$27,172.28**
Actual Total	**$25,813.67**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$117.11
Actual Rate Per Assessment Unit	$111.26
Maximum Total	**$3,396.28**
Actual Total	**$3,226.47**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**29**
TOTALS	
Maximum Rate Per Assessment Unit	$1,922.48
Zone Maximum	$55,752.00
Actual Rate Per Assessment Unit	$1,826.36
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,826.36**
Balance to Levy (Actual Amount Levied)	**$52,963.28**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**66**
Common Name/Location:	**Palm/Cottonwood (Palm Ave./De Anza Dr.)**
Percentage of Maximum Rate to be Levied:	**20%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$221.10
Actual Rate Per Assessment Unit	$44.22
Maximum Total	**$4,864.15**
Actual Total	**$972.83**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$238.59
Actual Rate Per Assessment Unit	$47.72
Maximum Total	**$5,249.00**
Actual Total	**$1,049.80**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$650.69
Actual Rate Per Assessment Unit	$130.14
Maximum Total	**$14,315.11**
Actual Total	**$2,863.02**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$130.14
Actual Rate Per Assessment Unit	$26.03
Maximum Total	**$2,863.02**
Actual Total	**$572.60**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**22**
TOTALS	
Maximum Rate Per Assessment Unit	$1,240.51
Zone Maximum	$27,291.29
Actual Rate Per Assessment Unit	$248.10
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$248.10**
Balance to Levy (Actual Amount Levied)	**$5,457.32**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**67**
Common Name/Location:	**Park Avenue Estates (Hewitt St.)**
Percentage of Maximum Rate to be Levied:	**75%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$193.21
Actual Rate Per Assessment Unit	$144.91
Maximum Total	**$6,762.49**
Actual Total	**$5,071.87**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$180.83
Actual Rate Per Assessment Unit	$135.62
Maximum Total	**$6,329.03**
Actual Total	**$4,746.77**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$362.30
Actual Rate Per Assessment Unit	$271.72
Maximum Total	**$12,680.48**
Actual Total	**$9,510.36**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$661.33
Actual Rate Per Assessment Unit	$496.00
Maximum Total	**$23,146.50**
Actual Total	**$17,359.87**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$124.00
Actual Rate Per Assessment Unit	$93.00
Maximum Total	**$4,339.86**
Actual Total	**$3,254.89**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**35**
TOTALS	
Maximum Rate Per Assessment Unit	$1,521.67
Zone Maximum	$53,258.35
Actual Rate Per Assessment Unit	$1,141.25
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$1,141.24**
Balance to Levy (Actual Amount Levied)	**$39,942.70**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**68**
Common Name/Location:	**Shaver East of Los Banos (Hewitt St.)**
Percentage of Maximum Rate to be Levied:	**55%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$352.71
Actual Rate Per Assessment Unit	$193.99
Maximum Total	**$3,527.12**
Actual Total	**$1,939.92**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$307.15
Actual Rate Per Assessment Unit	$168.93
Maximum Total	**$3,071.51**
Actual Total	**$1,689.33**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$116.83
Actual Rate Per Assessment Unit	$64.26
Maximum Total	**$1,168.35**
Actual Total	**$642.59**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$460.73
Actual Rate Per Assessment Unit	$253.40
Maximum Total	**$4,607.34**
Actual Total	**$2,534.04**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**10**
TOTALS	
Maximum Rate Per Assessment Unit	$1,237.43
Zone Maximum	$12,374.32
Actual Rate Per Assessment Unit	$680.59
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$680.58**
Balance to Levy (Actual Amount Levied)	**$6,805.60**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**69**
Common Name/Location:	**Calvary Chapel (Lyon Ave.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$136.28
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,895.38**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$178.97
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$7,742.29**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$186.43
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$8,064.86**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**43.26**
TOTALS	
Maximum Rate Per Assessment Unit	$501.68
Zone Maximum	$21,702.52
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**70**
Common Name/Location:	**Wateka/DeAnza (Ramona Blvd.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$195.19
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,147.04**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$204.07
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,244.72**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$110.08
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,210.86**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$890.47
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$9,795.12**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$278.27
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$3,060.98**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**11**
TOTALS	
Maximum Rate Per Assessment Unit	$1,678.06
Zone Maximum	$18,458.71
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**71**
Common Name/Location:	**Edelbrock (Esplanade Ave./Buena Vista St.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$423.06
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$3,020.67**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$414.52
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,959.66**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$1,671.86
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$11,937.11**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$780.20
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,570.65**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**7.14**
TOTALS	
Maximum Rate Per Assessment Unit	$3,289.65
Zone Maximum	$23,488.09
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
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Fiscal Year 2025/26
Estimate of Costs

Zone:	**72**
Common Name/Location:	**Thayer Animal Hospital (State St./Seventh St.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$333.82
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,442.10**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$2,360.02
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$10,195.27**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,126.64
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$4,867.10**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**4.32**
TOTALS	
Maximum Rate Per Assessment Unit	$3,820.48
Zone Maximum	$16,504.47
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
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Fiscal Year 2025/26
Estimate of Costs

Zone:	**73**
Common Name/Location:	**San Jacinto Villas (Santa Fe Ave.)**
Percentage of Maximum Rate to be Levied:	**50%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$116.96
Actual Rate Per Assessment Unit	$58.48
Maximum Total	**$1,673.75**
Actual Total	**$836.88**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$826.47
Actual Rate Per Assessment Unit	$413.24
Maximum Total	**$11,826.85**
Actual Total	**$5,913.43**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$65.53
Actual Rate Per Assessment Unit	$32.77
Maximum Total	**$937.79**
Actual Total	**$468.89**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$428.54
Actual Rate Per Assessment Unit	$214.27
Maximum Total	**$6,132.43**
Actual Total	**$3,066.21**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**14.31**
TOTALS	
Maximum Rate Per Assessment Unit	$1,437.51
Zone Maximum	$20,570.82
Actual Rate Per Assessment Unit	$718.76
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$718.76**
Balance to Levy (Actual Amount Levied)	**$10,285.34**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**74**
Common Name/Location:	**Ramona Crossings (State St./Ramona Blvd.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$147.61
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,032.53**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$141.93
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,954.31**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$535.47
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$7,373.40**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**13.77**
TOTALS	
Maximum Rate Per Assessment Unit	$825.00
Zone Maximum	$11,360.24
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**75**
Common Name/Location:	**SJUSD Nutrition Center (Cottonwood Ave./State St.)**
Percentage of Maximum Rate to be Levied:	**10%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$487.24
Actual Rate Per Assessment Unit	$48.72
Maximum Total	**$3,391.16**
Actual Total	**$339.12**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$865.78
Actual Rate Per Assessment Unit	$86.58
Maximum Total	**$6,025.82**
Actual Total	**$602.58**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**6.96**
TOTALS	
Maximum Rate Per Assessment Unit	$1,353.02
Zone Maximum	$9,416.98
Actual Rate Per Assessment Unit	$135.30
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$135.30**
Balance to Levy (Actual Amount Levied)	**$941.66**

City of San Jacinto
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Estimate of Costs

Zone:	**76**
Common Name/Location:	**Luz del Sol (Ramona Exwy./Ramona Blvd./Bridge Rd.)**
Percentage of Maximum Rate to be Levied:	**75%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$76.36
Actual Rate Per Assessment Unit	$57.27
Maximum Total	**$24,512.27**
Actual Total	**$18,384.20**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$927.20
Actual Rate Per Assessment Unit	$695.40
Maximum Total	**$297,630.47**
Actual Total	**$223,222.85**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$480.16
Actual Rate Per Assessment Unit	$360.12
Maximum Total	**$154,131.99**
Actual Total	**$115,599.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$557.08
Actual Rate Per Assessment Unit	$417.81
Maximum Total	**$178,822.75**
Actual Total	**$134,117.06**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$67.92
Actual Rate Per Assessment Unit	$50.94
Maximum Total	**$21,802.51**
Actual Total	**$16,351.88**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**321**
TOTALS	
Maximum Rate Per Assessment Unit	$2,108.72
Zone Maximum	$676,899.99
Actual Rate Per Assessment Unit	$1,581.54
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,581.54**
Balance to Levy (Actual Amount Levied)	**$507,661.50**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**77**
Common Name/Location:	**Kalpesh Homes (Ramona Blvd./Savi St. - Lyon Ave./De Anza Dr.)**
Percentage of Maximum Rate to be Levied:	**10%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$154.19
Actual Rate Per Assessment Unit	$15.42
Maximum Total	**$6,938.57**
Actual Total	**$693.86**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$170.40
Actual Rate Per Assessment Unit	$17.04
Maximum Total	**$7,667.98**
Actual Total	**$766.80**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$273.11
Actual Rate Per Assessment Unit	$27.31
Maximum Total	**$12,290.15**
Actual Total	**$1,229.02**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$605.84
Actual Rate Per Assessment Unit	$60.58
Maximum Total	**$27,262.93**
Actual Total	**$2,726.29**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$143.90
Actual Rate Per Assessment Unit	$14.39
Maximum Total	**$6,475.29**
Actual Total	**$647.53**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**45**
TOTALS	
Maximum Rate Per Assessment Unit	$1,347.44
Zone Maximum	$60,634.92
Actual Rate Per Assessment Unit	$134.74
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$134.74**
Balance to Levy (Actual Amount Levied)	**$6,061.50**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**78**
Common Name/Location:	**Carolino Homes – (Shaver and Anda Loop)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$299.42
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$4,191.83**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$302.58
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$4,236.18**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$139.30
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,950.13**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$389.04
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,446.55**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**14**
TOTALS	
Maximum Rate Per Assessment Unit	$1,130.34
Zone Maximum	$15,824.70
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**79**
Common Name/Location:	**State Street Auto Body (Lyon Ave./De Anza Dr.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$721.37
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,055.91**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$2,407.58
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$6,861.60**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**2.85**
TOTALS	
Maximum Rate Per Assessment Unit	$3,128.95
Zone Maximum	$8,917.51
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone: **80**

Common Name/Location: **AutoZone (San Jacinto Ave.)**

Percentage of Maximum Rate to be Levied: **0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$545.12
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,619.00**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$224.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$665.29**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$949.21
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,819.16**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,898.43
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,638.33**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**2.97**
TOTALS	
Maximum Rate Per Assessment Unit	$3,616.76
Zone Maximum	$10,741.78
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**81**
Common Name/Location:	**Maravilla - Commercial (Annexation Not Completed)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**N/A**
TOTALS	
Maximum Rate Per Assessment Unit	$0.00
Zone Maximum	$0.00
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**82**
Common Name/Location:	**SJ West Congregation**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$825.39
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,921.88**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$715.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,531.08**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,977.23
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$6,999.40**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**3.54**
TOTALS	
Maximum Rate Per Assessment Unit	$3,517.62
Zone Maximum	$12,452.36
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
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Fiscal Year 2025/26
Estimate of Costs

Zone:	**83**
Common Name/Location:	**790 S. State Street**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$535.99
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,318.53**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$224.59
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$552.49**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$2,488.83
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$6,122.53**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,866.62
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$4,591.89**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**2.46**
TOTALS	
Maximum Rate Per Assessment Unit	$5,116.03
Zone Maximum	$12,585.44
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**84**
Common Name/Location:	**Parkside Medical Center**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$105.93
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,122.54**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$381.56
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$18,452.43**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$515.41
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$24,925.22**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$104.07
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,032.98**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**48.36**
TOTALS	
Maximum Rate Per Assessment Unit	$1,106.97
Zone Maximum	$53,533.17
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**85**
Common Name/Location:	**Gupta Medical Center**
Percentage of Maximum Rate to be Levied:	**35%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$533.35
Actual Rate Per Assessment Unit	$186.67
Maximum Total	**$1,952.07**
Actual Total	**$683.22**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$361.43
Actual Rate Per Assessment Unit	$126.50
Maximum Total	**$1,322.84**
Actual Total	**$463.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$1,594.42
Actual Rate Per Assessment Unit	$558.05
Maximum Total	**$5,835.57**
Actual Total	**$2,042.45**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,195.81
Actual Rate Per Assessment Unit	$418.53
Maximum Total	**$4,376.68**
Actual Total	**$1,531.84**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**3.66**
TOTALS	
Maximum Rate Per Assessment Unit	$3,685.02
Zone Maximum	$13,487.16
Actual Rate Per Assessment Unit	$1,289.76
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$1,289.76**
Balance to Levy (Actual Amount Levied)	**$4,720.46**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**86**
Common Name/Location:	**CVS Pharmacy (Sanderson Ave.)**
Percentage of Maximum Rate to be Levied:	**95%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$584.49
Actual Rate Per Assessment Unit	$555.27
Maximum Total	**$5,926.75**
Actual Total	**$5,630.42**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$1,555.16
Actual Rate Per Assessment Unit	$1,477.40
Maximum Total	**$15,769.33**
Actual Total	**$14,980.86**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$610.92
Actual Rate Per Assessment Unit	$580.37
Maximum Total	**$6,194.69**
Actual Total	**$5,884.95**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$407.28
Actual Rate Per Assessment Unit	$386.91
Maximum Total	**$4,129.79**
Actual Total	**$3,923.30**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Number of Units/Assessment Units	**10.14**
TOTALS	
Maximum Rate Per Assessment Unit	$3,157.85
Zone Maximum	$32,020.56
Actual Rate Per Assessment Unit	$2,999.95
Adjustment Rounding	(0.01)
Actual Rate Per Assessment Unit	**$2,999.94**
Balance to Levy (Actual Amount Levied)	**$30,419.32**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**87**
Common Name/Location:	**County Animal Shelter (Annexation Not Completed)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**

Number of Units/Assessment Units	**N/A**
TOTALS	
Maximum Rate Per Assessment Unit	$0.00
Zone Maximum	$0.00
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**88**
Common Name/Location:	**Family Dollar (San Jacinto Ave.)**
Percentage of Maximum Rate to be Levied:	**80%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$307.71
Actual Rate Per Assessment Unit	$246.17
Maximum Total	**$1,624.73**
Actual Total	**$1,299.78**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$513.28
Actual Rate Per Assessment Unit	$410.62
Maximum Total	**$2,710.10**
Actual Total	**$2,168.08**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$597.95
Actual Rate Per Assessment Unit	$478.36
Maximum Total	**$3,157.20**
Actual Total	**$2,525.76**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,101.49
Actual Rate Per Assessment Unit	$881.20
Maximum Total	**$5,815.89**
Actual Total	**$4,652.71**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$272.01
Actual Rate Per Assessment Unit	$217.61
Maximum Total	**$1,436.21**
Actual Total	**$1,148.97**

Number of Units/Assessment Units	**5.28**
TOTALS	
Maximum Rate Per Assessment Unit	$2,792.45
Zone Maximum	$14,744.14
Actual Rate Per Assessment Unit	$2,233.96
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$2,233.96**
Balance to Levy (Actual Amount Levied)	**$11,795.26**

City of San Jacinto
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Estimate of Costs

Zone:	**89**
Common Name/Location:	**Kirby Village (Portal Dr. and S. Kirby St)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$133.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$4,787.82**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$98.69
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$3,552.72**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$76.20
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,743.11**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$140.37
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,053.22**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$51.90
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,868.40**
Actual Total	**$0.00**

Number of Units/Assessment Units	**36**
TOTALS	
Maximum Rate Per Assessment Unit	$500.15
Zone Maximum	$18,005.28
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
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Estimate of Costs

Zone:	**90**
Common Name/Location:	**Circle K (Sanderson Ave.)**
Percentage of Maximum Rate to be Levied:	**0%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$331.32
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$1,659.93**
Actual Total	**$0.00**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$2,971.48
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$14,887.09**
Actual Total	**$0.00**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$1,135.84
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,690.54**
Actual Total	**$0.00**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$1,009.63
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$5,058.26**
Actual Total	**$0.00**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$517.62
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$2,593.28**
Actual Total	**$0.00**

Number of Units/Assessment Units	**5.01**
TOTALS	
Maximum Rate Per Assessment Unit	$5,965.89
Zone Maximum	$29,889.10
Actual Rate Per Assessment Unit	$0.00
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$0.00**
Balance to Levy (Actual Amount Levied)	**$0.00**

City of San Jacinto
Landscaping, Lighting, and Park District No. 2
Fiscal Year 2025/26
Estimate of Costs

Zone:	**91**
Common Name/Location:	**O' Reilly Auto Parts (San Jacinto Ave.)**
Percentage of Maximum Rate to be Levied:	**10%**

Description	
Street Light and Traffic Signal Maintenance Levy	
Maximum Rate Per Assessment Unit	$461.71
Actual Rate Per Assessment Unit	$46.17
Maximum Total	**$1,897.64**
Actual Total	**$189.76**
Park Maintenance Levy	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Landscape Maintenance Levy	
Maximum Rate Per Assessment Unit	$2,585.97
Actual Rate Per Assessment Unit	$258.60
Maximum Total	**$10,628.34**
Actual Total	**$1,062.83**
Storm Drain Levy	
Maximum Rate Per Assessment Unit	$199.77
Actual Rate Per Assessment Unit	$19.98
Maximum Total	**$821.07**
Actual Total	**$82.11**
Detention Basin	
Maximum Rate Per Assessment Unit	$0.00
Actual Rate Per Assessment Unit	$0.00
Maximum Total	**$0.00**
Actual Total	**$0.00**
Graffiti Removal Levy	
Maximum Rate Per Assessment Unit	$783.43
Actual Rate Per Assessment Unit	$78.34
Maximum Total	**$3,219.89**
Actual Total	**$321.99**
Sidewalk Maintenance Levy	
Maximum Rate Per Assessment Unit	$267.73
Actual Rate Per Assessment Unit	$26.77
Maximum Total	**$1,100.37**
Actual Total	**$110.04**
Number of Units/Assessment Units	**4.11**
TOTALS	
Maximum Rate Per Assessment Unit	$4,298.62
Zone Maximum	$17,667.32
Actual Rate Per Assessment Unit	$429.86
Adjustment Rounding	0.00
Actual Rate Per Assessment Unit	**$429.86**
Balance to Levy (Actual Amount Levied)	**$1,766.70**

6. METHOD OF APPORTIONMENT

6.1 Method of Apportionment

The net amount to be assessed upon parcels within the District is apportioned by a formula and method designed to fairly distribute such amount among all assessable lots or parcels in proportion to the estimated special benefit to be received by each lot or parcel from the improvements within the District. The maintenance and servicing of public landscaping, lighting, park facilities and street trees installed and constructed in public places in the City provides a special benefit which is received by each and every lot or parcel within the specified zones of benefit in the District. Landscaping and street trees within the District enhance the aesthetic appeal of parcels within the landscaping and street tree zones. Such landscaping improves erosion resistance and dust control. Street lights improve ingress and egress of such lots or parcels by illuminating access after sunset. Such street lights, by so improving ingress and egress, improve the security of such lots or parcels by improving the nighttime visibility of such lots or parcels and improve the access of emergency vehicles thereto, and in the case of commercial lots or parcels, facilitate the opening and operation of business uses after sunset.

The primary benefits of landscaping and street trees are as set forth below.

1. Improved aesthetic appeal of nearby parcels.
2. Green space within the urban environment.
3. Enhances wind breaks.
4. Improved erosion resistance.
5. Improved dust control.
6. Tends to instill a sense of pride within the neighborhood.
7. The enhancement of the value of property which results from the foregoing benefits.

The primary benefits of municipal parks are as set forth below.

1. Designated sites where children may gather to play without danger from traffic.
2. Designated sites where adult, youth and family activities can take place (i.e., picnics, baseball and softball leagues, soccer leagues, other athletic activities, art festivals, animal shows and training, etc.)
3. Green space and open space within the urban environment.
4. Availability of public restrooms.
5. The enhancement of the value of property which results from the foregoing benefits.

The primary benefits of street lighting are set forth below:

1. Improvement to traffic circulation and reduction in nighttime accidents and attendant human misery and decrease in personal property loss.
2. The deterrence of crime and the aid to police protection.
3. Promotion of business during nighttime hours.
4. Increased nighttime safety on roads and highways.
5. The improved ability of pedestrians and motorists to see, which helps people safely find their way.
6. Improved ingress and egress to lots and parcels.
7. Reduction in vandalism and other criminal acts, and reduced damage to improvements.
8. The enhancement to the value of property which results from the foregoing benefits.

6.2 Assessment Formula

The basic formula used to calculate the amount spread to each lot or parcel within the District for each type of improvement or facility starts with an AU. The basic AU is given a value of one (1) for a single-family residential parcel. From this base, the remaining land use types are related according to their equivalent special benefit within a zone or future annexation. The purpose of this formula is to fairly equate special benefit conferred on property with differing land uses for each type of improvement or facility within a zone (e.g., single-family residential versus commercial office versus vacant property, for street lighting).

6.3 Assessment Unit Method

The following table shows the assessment formula using the AU method for common land uses:

Land Use	Landscaping Assessment Formula	Lighting Assessment Formula	Park Assessment Formula	Graffiti Removal	Drainage Assessment Formula
Residential Single Family	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit	1.0 AU per Residential Unit
Commercial/ Industrial	3.0 AU per Assessable Acre	3.0 AU per Assessable Acre	3.0 AU per Assessable Acre	3.0 AU per Assessable Acre	3.0 AU per Assessable Acre
Apartments	0.6 AU per Parcel	0.6 AU per Parcel	0.6 AU per Parcel	0.6 AU per Parcel	0.6 AU per Parcel
Public Schools	0.0 AU per Parcel	0.5 AU per Assessable Acre	0.0 AU per Parcel	0.5 AU per Assessable Acre	0.5 AU per Assessable Acre
Churches	0.5 AU per Assessable Acre	0.5 AU per Assessable Acre	0.5 AU per Assessable Acre	0.5 AU per Assessable Acre	0.5 AU per Assessable Acre

6.4 Consumer Price Index (CPI) Inflation

The original assessment formula states that the maximum assessments will be increased annually based on the change in the Los Angeles-Riverside-Orange County CPI as of January published by the United States Department of Labor, Bureau of Labor Statistics; provided, however, that any annual increase shall not exceed seven and one-half percent (7.5%).

In January 2018, the Bureau of Labor Statistics (BLS) updated their geographic areas for computing CPI. Previously, the Los Angeles-Riverside-Orange County index was made up of Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. The BLS divided this index into two areas; one that represents Los Angeles and Orange counties (Los Angeles-Long Beach-Anaheim) and another that represents Riverside and San Bernardino counties (Riverside-San Bernardino-Ontario).

On June 19, 2018 a resolution was adopted by the City determining that the CPI to be used for future calculation of the maximum assessments is the Riverside-San Bernardino-Ontario Index beginning with the Fiscal Year 2019/20 calculation.

7. ASSESSMENT DIAGRAM

The assessment diagrams for each zone have been prepared in accordance with the Landscaping and Lighting Act of 1972 and are on file with the City. The lines and dimensions shown on maps of the County Assessor for the current year are incorporated by reference herein and made part of this report. All parcels of real property included within the District are described in detail on the assessor's maps.

8. ASSESSMENT ROLL

A listing of assessor's parcels subject to the assessments for Fiscal Year 2026/27, along with the assessment amounts, is on file in the office of the City Clerk and incorporated herein by reference. Based on County Assessor's secured roll data, current assessor's parcels, including corrected and/or new assessor's parcels, will be submitted and/or resubmitted to the County Auditor/Controller. The annual assessment amount to be levied and collected for the resubmitted parcel(s) shall be determined in accordance with the method of apportionment and assessment rate approved in this report. Therefore, if a single assessor's parcel has a status change in development, other land use change, or subdivides into multiple assessor's parcels, the charge amounts applied to each of the new assessor's parcels shall be recalculated and applied according to the approved method outlined in the method of apportionment and assessment rate rather than a proportionate share of the original assessment amount

Parcel listing currently available with City Clerk or on City website upon adoption

June 2, 2026

TO:	City Council
REQUESTED BY:	Stuart McKibbin
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	The Thomsen Company, Inc. Professional Services Agreement EWA 13 for San Jacinto MDP Line E-2 Storm Drain Improvement Project (CIP# 15-003)

RECOMMENDATION:

Staff recommends the City Council take the following actions:

1. **APPROVE** the professional services agreement to The Thomsen Company, Inc. for the sum of $19,675;
2. **AUTHORIZE** the City Manager to execute the professional services agreement.

BACKGROUND:

The City of San Jacinto has been planning and designing storm drain improvements along State Street from Menlo Avenue to the Line E channel south of 9th Street (Line E-2 Storm Drain Improvements). Line E-2 Storm Drain Improvements will consist of an underground storm drain ranging in pipe diameter from 30 to 72 inches. The planning and design involve coordination with the City of Hemet and all utility purveyors as major utility conflicts have been identified. A tri-party funding agreement has been executed with Riverside County Flood Control and Water Conservation District (RCFCD).

During the design of the storm drain improvements, it was discovered that some Southern California Edison (SCE) and SoCalGas utility lines are in conflict with the proposed storm drain system. The City is working with SCE and SoCalGas to resolve the conflicts by having the the utility purveyors relocate the utility lines in conflict. In order to understand the existing conflicts and the potential solutions, the City will need to pothole the utility lines believed to be in conflict and provide the data to the utility purveyors. SCE and SoCalGas will be responsible for providing the payment and labor for relocating the utility lines in conflict.

DISCUSSION:

The Thomsen Company, Inc. has previously provided the City with professional services consisting of topographical surveying and utility potholing for Line E-2 Storm Drain Improvements. Therefore, The Thomsen Company, Inc. already has much of the relevant data for Line E-2 Storm Drain Improvements and is familiar with the existing conditions and the end goal of the project.

Timeliness is an important factor for Line E-2 Storm Drain Improvements. Therefore, considering The Thomsen Company Inc.'s familiarity with the project, a sole source proposal from The Thomsen Company, Inc. is justified given the circumstances. However, as the cumulative total of the individual service agreements exceeds $100,000 the City's procurement policy requires Council approval.

City staff recommends the City Council award the professional services agreement to The Thomsen Company, Inc. for the sum of $19,675.

FISCAL IMPACT:

RCFCD has agreed to reimburse the City only for the construction of Line E-2 Storm Drain Improvements. There will be no impact to the General Fund. Project #15-003 has $4,631,017 remaining from Fund 039 (Flood Control) and Fund 141 (DIF: Streets).

ATTACHMENTS:

Thomsen Agreement EWA 13.pdf

Attachments

Thomsen Agreement EWA 13.pdf

CITY OF SAN JACINTO
PROFESSIONAL SERVICES AGREEMENT
San Jacinto MDP Line E-2 Storm Drain Improvement

1. **Parties and Date.** This Agreement is made and entered into this 20th day of May, 2026, by and between the City of San Jacinto, a municipal corporation, organized under the laws of the State of California, with its principal place of business at 595 South San Jacinto Avenue, San Jacinto, California 92583 ("City") and he Thomsen Company, Inc., a California corporation**,** with its principal place of business at 2587 S. San Jacinto Ave, San Jacinto, CA 92583, ("Vendor"). City and Vendor are sometimes individually referred to herein as "Party" and collectively as "Parties."

2. **Terms and Conditions.** The Parties shall comply with the Terms and Conditions attached hereto as Exhibit "A" and incorporated herein by this reference.

3. **Scope of Services; Schedule.** Vendor shall be solely responsible for providing all materials, labor, tools, equipment, water, light, power, transportation, and superintendence of every nature and all other services and all facilities necessary to execute, complete, and deliver the services as particularly described in the Scope of Services ("Services") attached hereto as Exhibit "B" and incorporated herein by this reference for the City's San Jacinto MDP Line E-2 Storm Drain Improvement. The Services shall be completed timely and in accordance with the Schedule of Services set forth in Exhibit "B".

4. **Term.** The term of this Agreement shall be from the Execution Date to December 31, 2027, unless earlier terminated as provided herein.

5. **Compensation.** Vendor shall receive compensation for Services rendered under this Agreement at the rates set forth in Exhibit "B" attached hereto and incorporated herein by this reference. The total compensation shall not exceed Nineteen Thousand Six Hundred Seventy Five Dollars ($19,675) ("Agreement Price"). Vendor's invoices shall include a detailed description of the Services performed. Invoices shall be submitted to City on a monthly basis. City shall review and pay all non-disputed and approved charges on such invoices in a timely manner. Vendor shall submit its final invoice to City within thirty (30) days from the last date of Services performed and failure to do so shall result in a waiver of payment from City.

6. **Insurance.** In accordance with Section 3 of the Terms and Conditions, Vendor shall, at its expense, procure and maintain for the duration of the Agreement such insurance policies as checked below and provide proof of such insurance policies in a form satisfactory to City.

Commercial General Liability Insurance:

☒ $1,000,000 per occurrence/$2,000,000 aggregate for bodily injury, personal injury, and property damage

Automobile Liability:

☒ $1,000,000 per occurrence for bodily injury and property damage.

Workers' Compensation:

☒ Statutory Limits / Employer's Liability $1,000,000 per occurrence

Professional Liability (Errors and Omissions):

☒ Errors & Omissions liability insurance $1,000,000 per claim and in the aggregate.

SIGNATURE PAGE TO SHORT FORM SERVICES AGREEMENT BY AND BETWEEN THE CITY OF SAN JACINTO AND THE THOMSEN COMPANY, INC.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the date first written above.

CITY OF SAN JACINTO

APPROVED BY*:*

_____
Robert A. Johnson
City Manager

ATTEST*:*

_____
Julia Espinoza
City Clerk

APPROVED AS TO FORM*:*

_____
Craig Hayes
Best Best & Krieger LLP
City Attorney

THE THOMSEN COMPANY, INC.

_____
Signature

_____
Name

_____
Title

EXHIBIT A
TERMS AND CONDITIONS FOR SERVICES

1. Compliance with Law. Vendor shall comply with all applicable laws and regulations of the federal, state and local government. Vendor certifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time. By its signature hereunder, Vendor certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and agrees to comply with such provisions before commencing the performance of the Services. Vendor represents that it is an equal opportunity employer and it shall not discriminate against any subcontractor, employee or applicant for employment in violation of state or federal law. Vendor is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq. ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. If the work is being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000, Vendor agrees to fully comply with such Prevailing Wage Laws, including, along with subcontractors, being registered with the Department of Industrial Relations (Labor Code §§ 1725.1; 1771.1). It shall be mandatory upon the Vendor and all subcontractors to comply with all California Labor Code provisions, which include but are not limited to prevailing wages (Labor Code §§ 1771; 1774; 1775), employment of apprentices (Labor Code § 1777.5), certified payroll records (Labor Code §§ 1771.4; 1776), hours of labor (Labor Code §§ 1813; 1815) and debarment of contractors and subcontractors (Labor Code § 1777.1). This Agreement may be subject to compliance monitoring and enforcement.

2. Standard of Care. The Vendor shall perform the Services in accordance with generally accepted professional practices and principles and in a manner consistent with the level of care and skill ordinarily exercised by members of the profession practicing under similar conditions.

3. Insurance. If required by Section 6 of this Agreement, the Vendor shall take out and maintain during this Agreement: A. Commercial General Liability Insurance for bodily injury, personal injury and property damage, at least as broad as Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 0001); B. Automobile Liability Insurance for bodily injury and property damage including coverage for owned, non-owned and hired vehicles, at least as broad as Insurance Services Office Form Number CA 0001 (ed. 10/13) covering automobile liability, Code 1 (any auto); C. Workers' Compensation; D. Professional Liability (Errors and Omissions) coverage for a term acceptable to the City. Insurance carriers shall be licensed and authorized to do business in California. Such insurance carrier shall have not less than an "A:VII" rating according to the latest Best Key Rating unless otherwise approved by City. Vendor shall add City, its officers, officials, employees, agents, and volunteers as additional insureds on Vendor's Commercial General Liability and Automobile Liability. Coverage provided by Vendor shall be primary and any insurance or self-insurance procured or maintained by City shall not be required to contribute with it. All required insurance coverages, except for the professional liability coverage, shall contain or be endorsed to waiver of subrogation in favor of the City, its officials, officers, employees, agents, and volunteers or shall specifically allow Vendor or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Vendor hereby waives its own right of recovery against City, and shall require similar written express waivers and insurance clauses from each of its subconsultants.

4. Indemnification. To the fullest extent permitted by law, Vendor shall defend (with counsel of City's choosing), indemnify and hold the City, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death (collectively, "Claims"), in any manner arising out of, pertaining to, or incident to any acts, errors or omissions, or willful misconduct of Vendor, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of the Vendor's Services, the project, or this Agreement, including without limitation the payment of all expert witness fees, attorney's fees and other related costs and expenses except such loss or damage which is caused by the sole negligence or willful misconduct of the City. Vendor's obligation to indemnify shall survive expiration or termination of this Agreement and shall not be restricted to insurance proceeds, if any, received by Vendor or the City, its officials, officers, employees, agents, or volunteers. If Vendor's obligation to defend, indemnify, and/or hold harmless arises out of Vendor's performance as a "design professional" (as that term is defined under Civil Code § 2782.8), then, and only to the extent required by Civil Code § 2782.8, which is fully incorporated herein, Vendor's indemnification obligation shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Vendor, and, upon Vendor obtaining a final adjudication by a court of competent jurisdiction, Vendor's liability for such claim, including the cost to defend, shall not exceed the Vendor's proportionate percentage of fault.

5. Laws; Venue. This Agreement shall be interpreted in accordance with the laws of the State of California. If any action is brought to interpret or enforce any term of this Agreement, the action shall be brought in a state or federal court situated in the County of Riverside, State of California.

6. Termination. The City may terminate the whole or any part of this Agreement for any or no reason by giving three (3) calendar days written notice to Vendor. In such event, City shall be immediately given title and possession to all original field notes, drawings and specifications, written reports and other documents produced or developed for the work. The City shall pay Vendor the reasonable value as determined by City of any portion of the Services completed prior to termination. The City shall not be liable for any costs other than the charges or portions thereof which are specified herein. Vendor shall not be entitled to payment for unperformed Services and shall not be entitled to damages or compensation for termination of the Services. Vendor may terminate its obligation to provide further work under this Agreement upon thirty (30) calendar days written notice to City only in the event of City's failure to perform in accordance with the terms of this Agreement through no fault of Vendor.

7. Changes. By written notice, City may from time to time, make changes to the Services furnished to City by Vendor. If such change causes an increase or decrease in the Agreement Price or in the time required for performance, Vendor or City shall promptly notify the other party thereof and assert its claim for adjustment within fifteen (15) days after the change is ordered, and an equitable adjustment shall be made. However, nothing in this clause shall excuse the Vendor from proceeding immediately with the Agreement as changed.

8. Force Majeure. The respective duties and obligations of the Parties hereunder shall be suspended while and so long as performance hereto is prevented or impeded by a Force Majeure Event. The Vendor will not receive an adjustment to the contract price or any other compensation. A Force Majeure Event shall mean an event that materially affects a party's performance and is one or more of the following: (1) Acts of God or other natural disasters occurring at the project site; (2) terrorism or other acts of a public enemy; (3) orders of governmental authorities (including, without limitation, unreasonable and unforeseeable delay in the issuance of permits or approvals by governmental authorities that are required for the work); (4) pandemics, epidemics or quarantine restrictions; and (5) strikes and other organized labor action occurring at the project site and the effects thereof on the work, only to the extent such strikes and other organized labor action are beyond the control of Vendor and its subcontractors, of every tier, and to the extent the effects thereof cannot be avoided by use of replacement workers. For purposes of this section, "orders of governmental authorities," includes ordinances, emergency proclamations and orders, rules to protect the public health, welfare and safety, and other actions of the City in its capacity as a municipal authority. Notwithstanding the foregoing, the City may still terminate this Agreement in accordance with Section 6.

9. Miscellaneous Terms. Vendor shall not assign, sublet, or transfer this Agreement or any rights under or interest in this Agreement without the written consent of the City. This Agreement may not be modified or altered except in writing signed by the Parties. There are no intended third party beneficiaries of any right or obligation of the Parties. This is an integrated Agreement representing the entire understanding of the Parties as to those matters contained herein, and supersedes and cancels any prior oral or written understanding or representations with respect to matters covered hereunder. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. The captions of the various paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content or intent of this Agreement. The unenforceability, invalidity or illegality of any provision(s) of this Agreement shall not render the other provisions unenforceable, invalid or illegal. Notice may be given or delivered by depositing the same in any United States Post Office, certified mail, return receipt requested, postage prepaid, addressed to the Parties to the addresses set forth in this Agreement. Vendor is retained as an independent contractor and is not an employee of the City. No employee or agent of Vendor shall become an employee of City. Vendor warrants that the individual who has signed this Agreement has the legal power, right and authority to make this Agreement and bind the Vendor hereto.

EXHIBIT B

SCOPE OF SERVICES; SCHEDULE OF SERVICES; CONSULTANT RATE SCHEDULE

THE THOMSEN COMPANY, INC.
2587 S. San Jacinto Avenue
San Jacinto, CA 92583
(951) 925-3070 (951) 925-7469 FAX
www.thethomsencompany.com

"Surveying Your World..."

EXTRA WORK AUTHORIZATION NO. 13

DATE: May 6, 2026 **(REVISED 5-19-26)**

JOB NO.: 2022 - 008

CLIENT: CITY OF SAN JACINTO **(SJ-372)**

PROJECT: STATE ST. LINE E-2 STORM DRAIN

REQUESTED BY: MR. MOHANAD ALLAM, EIT

ACCOUNT NO.: 2022 – 008.013

This Extra Work Authorization **(EWA)** amends our original Agreement for Professional Services dated **May 8, 2022** and no additional work above or beyond said contract can be performed without an approved **Extra Work Authorization.**
All original Terms & Conditions of said Agreement shall remain in force as part of this EWA.

THE FOLLOWING EXTRA SERVICES HAVE BEEN REQUESTED FOR THE ADDITIONAL POT HOLES:

TASK 1- OFFICE CALCULATIONS: Conduct plan review and coordinate geometry calculations for pothole stake outs.

ESTIMATE (REDUCED) ..... $ 250.00

TASK 2- STAKE-OUT NEW GAS & SCE CROSSINGS:
Due to additional gas and SoCal Edison line crossing locations being requested, TCI shall stakeout the four (4) new locations requested by SoCal Gas and two (2) locations requested by (SCE). They are as follows:

- *Pothole #1= ¾-inch Gas service Noth of Station 14+50*
- *Pothole # 2= ½-inch Gas service South of Station 14+50*
- *Pothole #3= 8-inch Gas line at SD LAT 33 E/O State St. on Esplanade Ave.*
- *Pothole # 4=6-inch Gas line at SD LAT 33 @ 50' +/- E/O State St. on Esplanade Ave.*
- *Pothole # 5= SCE line at SD LAT 33 @ 50' +/- E/O State St. on Esplanade Ave.*
- *Pothole # 6= SCE line at SD LAT 34 @ 150'+/- E/O State St. on Esplanade Ave.*

ESTIMATE .....$ 1,120.00

TASK 3- UNDERGROUND UTILITY LOCATING: Our Consultant underground utility locators, ***ULTRA ENGINEERING CONTRACTORS, INC.***, has budgeted for the **six (6)** potholes to cover the points identified by the City Engineering Department.

The general scope for air/vacuuming excavation includes:

EXTRA WORK AUTHORIZATION NO. 13

- **Dig Alert-**Perform mark-outs & meetings and update Traffic Control Plans. **(Assumes existing permit can be used for this move-in)**

ESTIMATE ..... $ 3,280.00

- **Traffic Control-** Provide basic traffic control per **WATCH** Guidelines (Includes signs, cones, and 1 arrow board. No flaggers, message boards, etc. are included.)

ESTIMATE (for 1.5 days-REDUCED FROM 2 DAYS) $4,520.00

- **Potholing-** Includes Trucks with two technicians, equipment, excavation, documentation, and travel for **six (6)** potholes.

ESTIMATE (for 1.5 days-REDUCED FROM 2 DAYS) ..... $ 6,350.00

- **Pothole Repair-** Place "Rapid Set" concrete @ hole area only, no full panels replacement/curb replacement (Includes mix, pour, and broom finish for texture. Approx. 10 buckets of "**AquaPhalt"** for AC pavement holes. (No concrete repair is included)

ESTIMATE $1,200.00

TASK 4- SURVEY NEW POTHOLES: Per the City Project Engineer, our firm will use GPS survey equipment for this Task with an accepted standard vertical error of 0.10 of a foot. **There are six (6) potholes for this Task.**

ESTIMATE..... $ 1,120.00

TASK 5- COMPILE POTHOLE DATA: Download field survey data from the additional pothole survey and add the elevation data to the City CAD file drawing.

ESTIMATE..... $ 500.00

TASK 6- COORDINATION & MEETINGS: Attend virtual and telephone coordination meetings, as directed by City staff, to assist in on-going survey and design issues.

HOURLY (@ $175 Per hour for Principal – 2 hours are estimated-REDUCED FROM 4 HOURS) ..... $ 350.00

Ultra Engineering fuel sur-charge (2 rigs for 1.5 days) $615.00

In-House Reimbursables (survey supplies, mileage, etc.) $370.00

TOTAL ESTIMATE..... $ 19,675.00

CLIENT AUTHORIZATION:

IN ACCORDANCE WITH TITLE 16, CALIFORNIA CODE OF REGULATIONS, SECTION 463.5, NOTICE IS HEREBY GIVEN THAT THE PRINCIPALS OF THIS FIRM ARE CURRENTLY LICENSED BY THE CALIFORNIA BOARD FOR PROFESSIONAL ENGINEERS, LAND SURVEYORS AND GEOLOGISTS.

Prepared By (Signature Below)	Approved By (Signature Below)
R. F. Thomsen	Stuart E. McKibbin
Richard F. Thomsen, PLS NO. 6413	**Mr. Stuart McKibbin, P.E., City Engineer**
May 19, 2026	05/20/2026
Date Signed:	Date Signed:

EXHIBIT "B"

THE THOMSEN COMPANY, INC.

June 2, 2026

TO:	City Council
REQUESTED BY:	Stuart McKibbin
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Tri-Party Cooperative Agreement Between Riverside County Transportation Commission, County of Riverside, and City of San Jacinto for Ramona Expressway Reconstruction Project Between Warren Road and Sanderson Avenue (CIP# 26-007)

RECOMMENDATION:

Staff recommends the City Council take the following actions:

1. **APPROVE** as to form Cooperative Agreement No. 26-31-001-00;
2. **AUTHORIZE** the City Manager to execute the cooperative tri-party agreement between Riverside County Transportation Commission, County of Riverside, and the City of San Jacinto (Agreement No. 26-31-001-00) upon further review by City Attorney.

BACKGROUND:

The City of San Jacinto, County of Riverside, and Riverside County Transportation Commission (RCTC) have been planning the reconstruction of Ramona Expressway between Warren Road and Sanderson Avenue as the final phase of their Mid County Parkway construction projects. The reconstruction will consist of replacing asphalt and base to travel lanes that have not recently been rehabbed and provide a raised median while still allowing left hand turns into existing driveways. It is anticipated that there will be no right-of-way acquisition for this project. There is approximately 179,882 square feet of County right-of-way and approximately 597,655 square feet of City right-of-way within the project boundaries.

DISCUSSION:

RCTC, the County of Riverside, and the City of San Jacinto wish to enter into this Agreement No. 26-31-001-00 to establish roles and funding responsibilities of the Parties for the project. The County of Riverside will be the lead agency for the preparation of the Plans, Specifications, and Estimates (PS&E) and for the construction management of the project. The County of Riverside and the City of San Jacinto intend to enter into a subsequent service agreement to further define the roles and responsibilities of the agencies during construction. The future service agreement will be brought to City Council at a later date.

The engineer's estimate below is based on the current preliminary design plans. Final agency costs will be adjusted based on final design and actual expenditure. The County of Riverside would provide up to $2,000,000 of funding, RCTC would provide up to $8,000,000, the City of San Jacinto would provide up to $2,000,000.

PROJECT COST SHARE		
Jurisdiction of Improvements	**Total Estimated Cost**	**Maximum Agency Contribution**
County	$2,000,000	County - $2,000,000

City	$10,000,000	RCTC - $8,000,000 **City - $2,000,000**
Total	$12,000,000	

Staff recommends that the City Council approve Agreement No. 26-31-001-00 as to form and authorize City Manager to execute Agreement No. 26-31-001-00 upon further further review by City Attorney.

FISCAL IMPACT:

The City of San Jacinto is expected to pay up to $2,000,000 towards the project. This $2,000,000 will be allocated through SB 1 RMRA (Gas Tax), so it is anticipated that signing Agreement No. 26-31-001-00 will have no impact to the City's general fund.

ATTACHMENTS:

MCP Tri Party Agreement 26-31-001-00

Attachments

MCP Tri Party Agmt 26-31-001-00.pdf

Agreement No. 26-31-001-00

TRI-PARTY COOPERATIVE AGREEMENT BETWEEN

RIVERSIDE COUNTY TRANSPORTATION COMMISSION, COUNTY OF RIVERSIDE AND CITY OF SAN JACINTO

FOR RAMONA EXPRESSWAY RECONSTRUCTION PROJECT BETWEEN WARREN ROAD AND SANDERSON AVENUE

1. Parties and Date. This Agreement is made and entered into this ____ day of _____, 2026, by and between the Riverside County Transportation Commission ("RCTC"), the County of Riverside Transportation and Land Management Agency ("County") and City of San Jacinto ("City"). RCTC, the County and the City are sometimes referred to herein individually as "Party", and collectively as "Parties".

2. Recitals.

2.1 RCTC and the County have entered into a Cooperative Agreement for the Mid County Parkway Project – Construction Contract 3 ("MCP 3") (Agreement No. 22-31-045-00) for the MCP3 improvements within County jurisdiction.

2.2 RCTC and the City intend to enter into a Cooperative Agreement for the Mid County Parkway Project – Construction Contract 3 ("MCP 3") (Agreement No. 25-31-094-00) for the MCP3 improvements within City jurisdiction prior to or concurrently with entering into this Agreement. As referred to as "Future Project" in said agreement.

2.3 The limits of the MCP 3 project are from approximately one mile east of Rider Street to Warren Road.

2.4 The City has requested additional pavement improvements and related raised median safety improvements outside of the MCP 3 project limits to the east as described in Exhibit A, along Ramona Expressway between Warren Road and Sanderson Avenue. The current cost estimate only accounts for the pavement improvements. The Median Improvements will be bid as a Bid Alternate and can be deleted from the scope if it exceeds the budget threshold. All together this is referred to as the Ramona Expressway Reconstruction Project, "Project". The improvements are in both City and County jurisdictions. The improvements are referred to in this Tri-Party Cooperative Agreement as the "Project".

2.5 RCTC, the County, and the City wish to enter into this Tri-Party Cooperative Agreement, to establish roles and funding responsibilities of the Parties for the Project.

2.6 RCTC and the City have requested that the County be the lead agency for preparation of the Plans, Specifications & Estimates (PS&E) and construction phases of

DRAFT

the Project. It is anticipated that there will not be any Right of Way acquisition for this project.

2.7 The County has agreed to act as the lead agency for the preparation of the PS&E and construction phases of the Project.

2.8 The County and the City intend to enter into a subsequent Service agreement to cover the terms, conditions, and responsibilities for the Project. The roles and responsibilities of the agencies will be further defined in a future anticipated service agreement by and between County of Riverside and City of San Jacinto.

3. Terms.

3.1 Improvements Requested by the City. The Project entails the design and construction of pavement improvements and raised concrete median along Ramona Expressway between Warren Road and Sanderson Avenue. The Project limits consist of portions in both County jurisdiction and City jurisdiction, as further depicted in Exhibit "A" attached to this Agreement and incorporated herein by reference. The pavement improvements will be 0.58' Hot Mix Asphalt (HMA) over 2.10' of Class 2 Aggregate Base or equivalent as mutually approved by County and City. The pavement width will be from existing pavement to existing pavement limits. The Median Improvements will consist of demolition of asphalt pavement, openings for driveway access, and Type D-1 curb or equivalent as mutually approved by County and City. All of the improvements in Section 3.1 can be changed as mutually agreed by the parties.

3.2 Preparation of Design and Construction. The County shall be the lead agency for the preparation of the PS&E package and construction of the Project. The pavement improvements will be designed and constructed per County standards and specifications. This includes the work within the City jurisdiction.

3.3 Funding Obligations. The County has estimated the total cost of the Project to be approximately $12 million, with the work in County jurisdiction estimated at $2 million and the work in City jurisdiction estimated at $10 million. County will fund the work within County jurisdiction. RCTC will contribute 80% of the cost of the work within the City jurisdiction (approximately $8 million), with the City providing 20% of the cost of work within its jurisdiction (approximately $2 million). The funding to be provided by RCTC and City for the Project shall be adjusted based on actual costs incurred, subject to the limitations set forth below. The County will be responsible for any actual costs incurred for PS&E and construction within its jurisdiction. If Cooperative Agreement 22-31-045-00 or 25-31-094-00 is terminated due to City breach or termination, RCTC's funding obligations related to the Project shall terminate or be put on hold, as mutually agreed by the parties. If the actual costs of the Project are anticipated to exceed the above estimated amounts, the County will promptly notify RCTC and the City. The Median Improvements will be bid as a Bid Alternate and can be deleted from the scope if it exceeds the budget threshold.

A. RCTC's anticipated funding obligation to County is Eight Million Dollars ($8,000,000). County shall promptly notify RCTC if it is anticipated that RCTC's

share of Project costs will exceed said funding amount. Any increase in RCTC's anticipated funding obligation shall require written approval of RCTC's Executive Director. RCTC will not be responsible for any additional funding required in order to include the median improvements as part of the Project.

B. City's anticipated funding obligation to County is Two Million Dollars ($2,000,000). County shall promptly notify the City if it is anticipated that the City's share of Project costs will exceed said funding amount. Any increase in the City's anticipated funding obligation shall require written approval of the City Manager and City Council.

3.4 Payment; Invoices.

A. For Project work within the City jurisdiction to be funded by the County on a cost-reimbursement basis, County shall provide invoice statements to RCTC and the City, respectively, for Project expenses and supporting documentation incurred in accordance with this Cooperative Agreement, no less frequently than quarterly in any quarter in which reimbursable expenses are incurred, but not to exceed once per month. Invoice statements submitted by the County shall be in a form and include such detail and supporting documentation is reasonably requested by RCTC and the City.

B. RCTC and the City shall, respectively, timely review and pay approved invoice statements submitted by County within thirty (30) days. RCTC and the City shall, respectively, promptly notify County of any disputed charges in writing giving reasons therefor. If any invoice submitted by County is disputed by RCTC or the City, respectively, only that portion so disputed may be withheld from payment.

3.5 The City shall maintain, operate, and repair its facilities in a manner which avoids or minimizes, to the extent possible and reasonable, any impact to the Project.

3.6 Following completion of the Project work within the City jurisdiction and prior to final acceptance thereof, the City shall timely review and provide approval of the work or identify any punch list work within fifteen (15) days from the written request for the final inspection. The City shall assume responsibility of the Project facilities completed within the City jurisdiction upon final acceptance of the work by County, and shall be solely responsible and liable for the operation, maintenance and use of, including all subsequent public use of such Project facilities, at its sole cost and expense.

3.7 The City will make its best efforts to perform all obligations of the City related to the Project in such a manner as to allow the Project to progress as scheduled.

3.8 Maintenance. Upon construction completion, the County and City will be responsible for maintaining the Project within their respective jurisdictions.

3.9 Cooperation. The County, the City and RCTC agree to cooperate in the development of the Project and the implementation of this Agreement.

3.10 Indemnification.

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A. RCTC shall indemnify, defend and hold the County and the City, their councils, officials, officers, employees, agents, consultants and contractors free and harmless from any and all claims, demands, causes of action, costs, expenses, liabilities, losses, damages or injuries, in law or in equity, to property or persons, including wrongful death, in any manner arising out of or incident to any negligent acts, omissions or breach of law, or willful misconduct of RCTC, its officials, officers, employees, agents, consultants or contractors in the performance of RCTC's obligations under this Cooperative Agreement, including the payment of all reasonable attorneys' fees.

B. The County shall indemnify, defend and hold RCTC and the City, their directors, officials, officers, employees, agents, consultants and contractors free and harmless from any and all claims, demands, causes of action, costs, expenses, liabilities, losses, damages or injuries, in law or in equity, to property or persons, including wrongful death, in any manner arising out of or incident to any negligent acts, omissions or breach of law, or willful misconduct of the County, its officials, officers, employees, agents, consultants or contractors in the performance of the County's obligations under this Cooperative Agreement, including the payment of all reasonable attorneys' fees.

C. The City shall indemnify, defend and hold RCTC and the County, their directors, officials, officers, employees, agents, consultants and contractors free and harmless from any and all claims, demands, causes of action, costs, expenses, liabilities, losses, damages or injuries, in law or in equity, to property or persons, including wrongful death, in any manner arising out of or incident to any negligent acts, omissions or breach of law, or willful misconduct of the City, its officials, officers, employees, agents, consultants or contractors in the performance of the City's obligations under this Cooperative Agreement, including the payment of all reasonable attorneys' fees.

3.11 Delivery of Notices. All notices and invoices permitted or required under this Cooperative Agreement shall be given to the respective Parties at the following address, or at such other address as the respective Parties may provide in writing for this purpose:

CITY:
City of San Jacinto
Engineering Division
1221 S. San Jacinto Avenue
San Jacinto, CA 92583
Attn: City Engineer

COMMISSION:
Riverside County Transportation Commission
4080 Lemon Street, 3rd Floor
Riverside, CA 92501
Attn: Executive Director

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COUNTY:
Riverside Transportation and
Land Management Agency
4080 Lemon Street, 8th Floor
Riverside, CA 92501
Attn: Director of Transportation

Such notice shall be deemed made when personally delivered, electronically delivered to the Directors above provided that receipt of such electronic delivery is confirmed to the sending Party by the receiving Party, or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.12 Amendments. This Cooperative Agreement may be amended at any time by the mutual consent of the Parties by an instrument in writing.

3.13 Waiver. No delay or omission in the exercise of any right or remedy of a non-defaulting Party on any default shall impair such right or remedy or be construed as a waiver. No consent or approval of either Party shall be deemed to waive or render unnecessary such Party's consent to or approval of any subsequent act of the other Party. Any waiver by either Party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Cooperative Agreement.

3.14 Severability. In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Cooperative Agreement shall be declared invalid or unenforceable by valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Funding Agreement, which shall be interpreted to carry out the intent of the parties hereunder.

3.15 Survival. All rights and obligations hereunder that by their nature are to continue after any expiration or termination of this Cooperative Agreement, shall survive any such expiration or termination.

3.16 Third Party Beneficiaries. There are no third-party beneficiaries to this Cooperative Agreement.

3.17 Termination. Any Party may terminate this Cooperative Agreement by giving thirty (30) days written notice thereof.

3.18 Entire Agreement. This Cooperative Agreement contains the entire agreement of the Parties relating to the subject matter hereof and supersedes all prior negotiations, agreements or understandings.

3.19 Counterparts. This Cooperative Agreement may be signed in counterparts, each of which shall constitute an original.

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3.20 Electronically Transmitted Signatures; Electronic Signatures. A manually signed copy of this Cooperative Agreement which is transmitted by facsimile, email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Cooperative Agreement for all purposes. This Cooperative Agreement may be signed using an electronic signature.

IN WITNESS WHEREOF, the parties hereto have executed this Cooperative Agreement on the date first herein above written.

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SIGNATURE PAGE
TO
TRI-PARTY COOPERATIVE AGREEMENT

FOR PAVEMENT IMPROVEMENTS ON RAMONA EXPRESSWAY BETWEEN WARREN ROAD AND SANDERSON AVENUE

IN WITNESS WHEREOF, the parties hereto have executed the Agreement on the Effective Date.

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

By: _____
Aaron Hake, Executive Director

APPROVED AS TO FORM:

By: _____
Best Best & Krieger LLP
Counsel to the Riverside County Transportation Commission

CITY OF SAN JACINTO

By: _____

Title: _____

APPROVED AS TO FORM:

By: _____

Title: _____

ATTEST:

By: _____

Title: _____

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[Signatures continued on following page]

SIGNATURE PAGE
TO
TRI-PARTY COOPERATIVE AGREEMENT
FOR PAVEMENT IMPROVEMENTS ON RAMONA EXPRESSWAY
BETWEEN WARREN ROAD AND SANDERSON AVENUE

[continued]

COUNTY OF RIVERSIDE By: _____ Title:_____
APPROVED AS TO FORM: By: _____ Title:_____
ATTEST: By: _____ Title:_____

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EXHIBIT "A"

DEPICTION OF RAMONA EXPRESSWAY RECONSTRUCTION PROJECT

[ATTACHED BEHIND THIS PAGE]

DRAFT

June 2, 2026

TO:	City Council
REQUESTED BY:	Stuart McKibbin
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Cooperative Agreement Between Riverside County Transportation Commission and the City of San Jacinto for Construction of Mid County Parkway Project - Construction Contract 3

RECOMMENDATION:

Staff recommends the City Council take the following actions:

1. **APPROVE** as to form Cooperative Agreement No. 25-31-094-00;
2. **AUTHORIZE** the City Manager to execute the cooperative agreement between Riverside County Transportation Commission and the City of San Jacinto (Agreement No. 25-31-094-00) upon further review by City Attorney.

BACKGROUND:

Riverside County Transportation Commission (RCTC) has been widening and reconstructing segments of Ramona Expressway between Warren Road and Rider Street in a project titled Mid County Parkway Ramona Expressway Construction Contract 3 (MCP3). MCP3 is the third phase of a larger project that includes a 16-mile stretch of Ramona Expressway/Mid County Parkway from State Route 79 to Interstate 215 at Placentia Avenue in the City of Perris. MCP3 will improve approximately 8.6 miles of Ramona Expressway in eastern Riverside County, running through unincorporated county land and the city of San Jacinto.

On September 10, 2025, RCTC received and opened bids for the MCP3 project with the winning bid coming from Skanska USA Civil West California District Inc. (Skanska) with a bid of $107,382,285. Since then, Skanska has begun the construction of MCP3 and Engineering has been attending their weekly construction meetings.

DISCUSSION:

The majority of MCP3 is within the County of Riverside's jurisdiction, but an approximate 1.7 mile segment lies within the City of San Jacinto jurisdiction. RCTC and the City of San Jacinto would like to enter into Cooperative Agreement No. 25-31-094-00. This agreement would establish the responsibilities between RCTC and the City to ensure a successful completion of the project. RCTC is the lead agency for the MCP3 project. RCTC will provide all the construction management and inspection services and provide the funds directly to Skanska. When construction is complete, the City of San Jacinto will own, operate, and maintain the improvements that lie within City of San Jacinto jurisdiction upon acceptance of the improved facilities.

Staff recommends that the City Council approve Agreement No. 25-31-094-00 as to form and authorize City Manager to execute Agreement No. 25-31-094-00 upon further review by City Attorney.

FISCAL IMPACT:

Approving and executing Agreement No. 25-31-094-00 will have no fiscal impact on the City's general fund as RCTC will be funding the MCP3 entirely.

ATTACHMENTS:

MCP San Jacinto RCTC Cooperation Agreement 25-31-094-00.docx

Attachments

MCP San Jacinto RCTC Cooperation Agmt 25-31-094-00.pdf

COOPERATIVE AGREEMENT
BETWEEN
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
AND
THE CITY OF SAN JACINTO

FOR CONSTRUCTION OF MID COUNTY PARKWAY PROJECT - CONSTRUCTION CONTRACT 3

This Cooperative Agreement ("Cooperative Agreement") is made and entered into this _____ day of _____, 2026 ("Effective Date") by and between the Riverside County Transportation Commission ("RCTC") and the City of San Jacinto ("City"). RCTC and the City are sometimes referred to herein individually as "Party", and collectively as "Parties".

RECITALS

WHEREAS, RCTC is undertaking the Mid County Parkway project ("MCP").

WHEREAS, RCTC, in cooperation with the Federal Highway Administration ("FHWA"), the California Department of Transportation ("Caltrans"), and the County of Riverside Transportation and Land Management Agency ("County"), as part of the MCP proposes to build a portion of the project in the City of San Jacinto and in unincorporated Riverside County, which is referred to in this Cooperative Agreement as the "Project".

WHEREAS, the Project will include: improvements to the existing Ramona Expressway, two new mix flow lanes in the eastbound direction from approximately one mile east of Rider Street to Warren Road. The design will include one of the two ultimate MCP bridges over the San Jacinto River, which will accommodate the eastbound lanes. Also included will be improvements to existing intersections, traffic signals, drainage facilities, and wildlife crossing and associated work. Roadway widening, drainage facilities, fencing, and utility relocation work will extend through City right of way, adjacent to County improvements. The Project is further described and depicted in Exhibit "A" attached to this Cooperative Agreement and incorporated herein by reference.

WHEREAS, the completed Project roadway and intersections will be at-grade and constructed according to County standards and specifications. This roadway will not be constructed into a six (6) lane State facility as initially intended in the original environmental document and will be constructed as a County facility. This has been documented in the environmental revalidation developed as part of this project.

WHEREAS, the Project is sometimes referred to by the Parties as the Mid County Parkway Project – Construction Contract 3.

WHEREAS, it is the intent of the Parties to enter into this Cooperative Agreement to establish and coordinate the responsibilities of the Parties with respect to the Project, establish certain opportunities for cooperation and coordination and set forth various

responsibilities of the Parties all as further set forth herein.

WHEREAS, the Parties acknowledge that RCTC has or shall fully comply with the California Environmental Quality Act (CEQA) and all other applicable laws, as a precondition to construction of the Project.

WHEREAS, RCTC intends, pursuant to a public bidding process in accordance with State law, to select a construction contractor to complete the Project ("Contractor").

WHEREAS, because the Project, if constructed, may impact City owned and/or maintained facilities, coordination between the Parties prior to and during construction of the Project is crucial to provide for mitigation of potential impacts that construction may have on the City, and to ensure that improvements within the City comply with applicable standards.

WHEREAS, the Project includes the following components:

- Right of Way Acquisition and Utility Relocation
- Construction
- Acceptance by the City for Operation and Maintenance of Improvements within City's Jurisdiction

WHEREAS, at the request of the City, the Project will also provide funding to the County for certain City requested pavement improvements between Warren Road and Sanderson Avenue, as further described below and in Agreement No. 26-31-001-00.

NOW THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, it is mutually understood and agreed by RCTC and the City as follows:

TERMS

1. Definitions. In addition to the definitions set forth in the recitals above, the following terms shall have the meanings as set forth below.

1.1 As used in this Cooperative Agreement, the term "City's Jurisdiction" shall mean and refer to the areas within the Project limits either owned and/or maintained by the City. As used herein, the term "City's Jurisdiction" expressly excludes the State highway and County owned right of way.

1.2 As used in this Cooperative Agreement, the term "County Standards" shall mean and refer to the County's standard plans, specifications, policies, guidelines, and ordinances, design criteria, construction details, and testing/inspection requirements, and amendments and supplements thereto, for work within the City's Jurisdiction, approved by the County and in effect prior to approval of the design.

2. Term. This Cooperative Agreement shall be effective as of the date first set forth above, and shall continue in effect until the Project is accepted by the City as referenced in Section 5.15, unless otherwise terminated as specified in this Cooperative Agreement ("Term").

3. Agreement to Cooperate. The Parties agree to mutually cooperate in order to help ensure that the Project is successfully completed with minimum impact to both Parties, and the public, and the City agrees to reasonably support the Project as appropriate, consistent with all applicable policies, procedures, and laws.

4. Additional Improvements Requested by City. The Project will provide funding to the County for construction of certain additional City requested pavement improvements ("Pavement Improvements") and raised median safety improvements ("Median Improvements") between Warren Road and Sanderson Avenue ("Future Project"). The Median Improvements will be bid as a bid alternate and can be deleted from the scope if these improvements exceed the budget threshold. The Pavement Improvements will be 0.58' Hot Mix Asphalt (HMA) over 2.10' of Class 2 Aggregate Base or equivalent as mutually approved by County and City. The pavement width will be from existing pavement to existing pavement limits, as detailed in Exhibit "B" attached to this Agreement and incorporated herein by reference. The Median Improvements will consist of demolition of asphalt pavement, openings for driveway access, and Type D-1 curb or equivalent as mutually approved by County and City. The Future Project will be designed and constructed by the County, and will include a portion of work within the County jurisdiction. The County has estimated the cost of the Future Project to be approximately $12 million, with the work in County jurisdiction estimated at $2 million and the work in City jurisdiction estimated at $10 million. RCTC will contribute 80% of the cost of the work within the City jurisdiction (approximately $8 million), with the City to provide 20% of the funding (approximately $2 million) based on actual costs incurred. In no case shall RCTC's contribution to the Future Project exceed $8 million. A separate triparty agreement will be entered into amongst the County, City and RCTC related to the Future Project. The County will implement the Future Project and administer program management, design, construction management and construction. The parties acknowledge that successful implementation of the Future Project will require coordination among the County, City, and RCTC, and express their mutual intent to work cooperatively and in good faith to finalize and execute such triparty agreement in a timely manner. The City may request periodic updates from the County and/or RCTC regarding the status of such agreement, and the parties agree to respond to such requests in a timely and reasonable manner.

5. Obligations of the City. If consistent with all applicable local, state and federal laws and regulations, the City agrees as follows:

5.1 The City may provide a City oversight engineer to oversee the work during construction within City right of way, at its own cost.

5.2 The City shall timely review design plans for the Project work to be completed within the City Jurisdiction, and provide any approvals or comments within

thirty (30) days of receipt of the plans. If the City fails to provide any comments or its approval within said time period, RCTC shall provide notice to the Planning Manager and City Engineer of the City that the design plans shall be deemed approved by the City if no comments are received within an additional 15 days. The City shall inspect the Project work completed within the City Jurisdiction upon written notice of completion of the work by RCTC to the City, and shall provide approval or identify any punch list work within fifteen (15) days.

5.3 The City shall not directly or indirectly encourage any third parties to object, oppose, delay, frustrate, or disrupt the full and complete design, analysis, consideration, potential approval, or implementation of the Project. . Such obligation shall extend both to RCTC's processes regarding the Project, but also to any other federal, state, or local review or permitting processes.

5.4 The City shall not request any mitigation measures, conditions or exactions that are disproportionate to the Project impacts or that lack a nexus to the Project impacts, as reasonably determined by mutual agreement of City and RCTC.

5.5 The City shall not take any action with the intent or effect of unreasonably delaying or impacting the timely implementation of the Project by RCTC.

5.6 The City shall timely process the required encroachment permits to cover the Contractor's work on the Project within the City right of way. Encroachment permits shall be processed in no more than five (5) working days after receipt of a complete encroachment permit application from Contractor. The City shall not issue any encroachment permits to any other contractors if the proposed work thereunder has the potential to delay or impact the Project, without first coordinating in good faith with the Contractor and RCTC to minimize such delay or impact. All required encroachment permits to be issued by City shall be issued in the name of RCTC.

5.7 The City shall permit ingress to and egress from the Project from City-maintained roads.

The City shall have appropriate representatives regularly attend meetings of the Contractor's task forces formed for public information, traffic management and detours, local street construction, and related construction work impacting the City, and shall provide input at such meetings related to Project work that may impact City residents.

5.8 The City shall waive any and all charges and fees related to plan review and inspections for the Project.

5.9 The City shall waive any street trenching restrictions/moratoriums currently in place within the City limits with respect to the Project work, and shall waive, to the extent necessary to accommodate the Project Work, any other local requirements that prohibit or interfere with construction of the Project to the extent permitted by state or federal law.

5.10 The City shall timely, so as not to delay the Project, review, approve, and execute any necessary agreements or amendments to agreements with RCTC, County and/or the Contractor related to the Project work or any Project facilities within the City's Jurisdiction.

5.11 The City shall relocate any City-owned utility that interferes with the Project.

5.12 The City shall not approve, without advance written notification to and consultation with RCTC, any land use plans, new projects or developments within its jurisdiction that are inconsistent with, may impact, or that interfere with the Project.

5.13 The City shall not allow any encroachment within the City's right of way if such encroachment may interfere with the Project or the Project construction, without first coordinating the same with the Contractor and RCTC.

5.14 The City shall install, maintain, operate, and repair its facilities in a manner which avoids or minimizes, to the extent possible and reasonable, any impact to the Project.

5.15 City agrees to provide, at no cost to the Project, oversight of the Project within the City limits including construction inspection and to provide prompt reviews and approvals of submittals. Following completion of the Project work within the City's Jurisdiction and prior to final acceptance thereof, the City shall timely review and provide approval of the work or identify any punch list work within fifteen (15) days from the written request for the final inspection. The City shall assume responsibility of the Project facilities completed within the City's Jurisdiction upon final acceptance of the work by County, and shall be solely responsible and liable for the operation, maintenance and use of, including all subsequent public use of such Project facilities, at no cost or expense to RCTC.

5.16 The City will make its best efforts to perform all obligations of the City related to the Project in such a manner as to allow the Project to progress as scheduled.

6. Obligations of RCTC.

6.1 RCTC shall be responsible for providing all services to complete the Project, or as reasonably necessary for Project completion. RCTC shall be responsible for the process of selecting Project Contractor in compliance with all applicable local, state and federal laws. RCTC shall be responsible for obtaining all applicable environmental clearances and permits necessary to complete the Project, and for acquiring all right of way as further detailed in Article 7.

6.2 RCTC shall incorporate, with City's review and concurrence, the County Standards for work within the City's Jurisdiction into the design, and shall require that improvements within the City's Jurisdiction be completed to such standards.

6.3 RCTC shall provide the City an opportunity to inspect the Project work during construction at City cost.

6.4 As between RCTC and the City, RCTC and its consultants shall be responsible for construction inspection of the Project work to ensure conformance with the construction contract. RCTC shall allow City staff to access the Project site, upon reasonable notice, to perform observation of any Project improvements. City inspectors shall communicate any construction deficiencies during construction, including a final punch list, to RCTC for completion. County has the final authority to accept the improvements.

6.5 RCTC shall assign any warranties for the Contractor's work on the Project within the City's Jurisdiction to the City upon City's contract acceptance of the Project, and County's final acceptance.

6.6 RCTC shall require its Contractor to obtain all required permits and approvals for all Project work including encroachment permits from City for construction of any Project work within the City's Jurisdiction.

6.7 RCTC shall include, in its contract with the Contractor, a requirement that the Contractor include the City as an additional insured and as an indemnified party under said agreement.

6.8 As between RCTC and the City, RCTC shall be responsible for design, reviews, approvals, and inspection of the Project work within the City's Jurisdiction to ensure conformance with the County Standards during completion of the Project design, selection of the Contractor, and during Project construction and maintenance periods.

6.9 Except in the case of an unforeseen circumstance, RCTC shall require its Contractor to provide at least a fifteen (15) day notification to City prior to any full or partial closure of any streets within City's Jurisdiction exceeding one (1) day in duration. Short term closures less than one (1) day in duration shall require forty eight (48) hours prior notice.

6.10 RCTC will institute a public outreach campaign to keep emergency responders, School District transportation department, transit operators, the residents of the City and the general public apprised of the Project work, and any street closures and other impacts to use of the County and City right of way that may result from the Project. In addition, RCTC shall develop and maintain a written Emergency Response plan that includes emergency contact information for RCTC's Contractor, County of Riverside, City of San Jacinto, emergency responders and Contractor personnel that would be expected to respond to an emergency situation.

6.11 RCTC shall provide to City as-built plans for Project work within City's Jurisdiction within 120 days of Notice of Completion.

7. RCTC Right of Way Obligations.

7.1 RCTC is responsible for all right of way work for the Project except as expressly set forth in this Cooperative Agreement.

7.2 RCTC will make all necessary arrangements with utility owners for the timely accommodation, protection, relocation, or removal of any existing utility facilities that conflict with construction of the Project or that violate City's encroachment policy.

7.3 For utility relocations within the City's Jurisdiction, RCTC will provide City a copy of conflict maps, relocation plans, proposed notices to owner, reports of investigation, and utility agreements (if applicable) for City's concurrence prior to issuing the notices to owner and executing the utility agreement. All utility conflicts will be fully addressed prior to Right-of-Way Certification and all arrangements for the protection, relocation, or removal of all conflicting facilities will be completed prior to construction contract award and included in the Project plans, specifications, and estimate.

7.4 RCTC will provide a land surveyor licensed in the State of California to be responsible for surveying and right-of-way engineering. All survey and right-of-way engineering documents will bear the professional seal, certificate number, registration classification, expiration date of certificate, and signature of the responsible surveyor.

7.5 RCTC will utilize a properly licensed consultant for all right-of-way activities. For properties within City Jurisdiction, RCTC shall provide the City with copies of appraisal reports and acquisition documents upon request. RCTC will submit a draft Right-of-Way Certification to City prior to the schedule Right-of-Way Certification milestone date for review. RCTC will submit a final Right-of-Way Certification to the City for approval prior to the advertising the construction contract. Physical and legal possession of the right-of-way must be completed prior to advertising the construction contract, unless Parties mutually agree to other arrangements in writing.

7.6 RCTC shall be the lead agency on eminent domain activities, if required for the Project.

7.7 Title to any property to be transferred to City by RCTC shall be free of all encumbrances and liens, except as to those items which City agrees are not in conflict with use of the property for roadway purposes. Upon acceptance, RCTC will provide City with a policy of title insurance in City's name.

8. Dispute Resolution: Legal Disputes. Unless otherwise specified herein, the Parties shall comply with the following procedure in the case of a dispute, claim or controversy arising under or in relation to this Cooperative Agreement.

8.1 Submission to RCTC Executive Director and Transportation Director. The dispute shall be referred for negotiation to the RCTC Executive Director and the City of San Jacinto City Manager ("City Manager"). The RCTC Executive Director and the City Manager agree to undertake good faith attempts to resolve said dispute, claim or controversy within ten (10) calendar days after the receipt of written notice from the Party alleging that a dispute, claim or controversy exists. The Parties additionally agree to

cooperate with the other Party in scheduling negotiation sessions. However, if said matter is not resolved within thirty (30) calendar days after the first negotiating session, either Party may then request that the matter be submitted to further dispute resolution procedures, as may be agreed upon by the Parties.

8.2 If a matter is not resolved within thirty (30) calendar days after the first negotiating session between the Executive Director and the City Manager, unless otherwise agreed upon in writing by the Parties, either Party may proceed with any other remedy available in law or in equity, including specific performance as set forth in Section 8.1.

8.3 To the extent legally permissible, the Parties agree not to take any action related to the dispute that would negatively impact the Project until the dispute resolution process is completed.

9. Specific Performance.

9.1 The Parties agree that irreparable damage would occur in the event that any of the provisions of this Cooperative Agreement were not performed in accordance with their specific terms or were otherwise breached. Accordingly, each of the Parties, in addition to any other available remedy in law or in equity, shall be entitled to specific performance of the terms hereof, including the issuance of an injunction or injunctions as a remedy for any such breach, to prevent breaches of this Cooperative Agreement and to enforce specifically the terms and provisions of this Cooperative Agreement, this being in addition to any other remedy to which they are entitled at law or in equity. Each of the Parties further hereby waives (a) any defense in any action for specific performance that a remedy at law would be adequate and (b) any requirement under any law to post security as a prerequisite to obtaining equitable relief. Notwithstanding anything to the contrary contained in this Cooperative Agreement, should RCTC obtain City's specific performance, City shall not have to reimburse RCTC pursuant to Section 17 of this Cooperative Agreement. Should City have to reimburse RCTC pursuant to Section 17 of this Cooperative Agreement, RCTC shall not be entitled to City's specific performance.

9.2 Prior to either Party instituting an action for specific performance, the Parties shall comply with the dispute resolution process set forth above in Section 8.1, and consistent with Section 8.3, to the extent legally permissible, the Parties agree not to take any action related to the dispute that would negatively impact the Project until the dispute resolution process is complete.

10. Indemnification.

10.1 RCTC shall indemnify, defend and hold the City, its directors, officials, officers, employees, agents, consultants and contractors free and harmless from any and all claims, demands, causes of action, costs, expenses, liabilities, losses, damages or injuries, in law or in equity, to property or persons, including wrongful death,

in any manner arising out of or incident to any negligent acts, omissions or breach of law, or willful misconduct of RCTC, its officials, officers, employees, agents, consultants or contractors in the performance of RCTC's obligations under this Cooperative Agreement, including the payment of all reasonable attorneys' fees.

10.2 The City shall indemnify, defend and hold RCTC, its directors, officials, officers, employees, agents, consultants and contractors free and harmless from any and all claims, demands, causes of action, costs, expenses, liabilities, losses, damages or injuries, in law or in equity, to property or persons, including wrongful death, in any manner arising out of or incident to any negligent acts, omissions or breach of law, or willful misconduct of the City, its officials, officers, employees, agents, consultants or contractors in the performance of the City's obligations under this Cooperative Agreement, including the payment of all reasonable attorneys' fees.

10.3 The indemnification provisions set forth in this Section 10 shall survive any expiration or termination of this Cooperative Agreement.

11. Disclaimer. In no event shall either Party be responsible or liable for the quality, suitability, operability or condition of any design or construction by the Project consultants or the Contractor, as applicable, and RCTC expressly disclaims any and all express or implied representations or warranties with respect thereto, including any warranties of suitability or fitness for use; provided, however, that nothing in this provision shall relieve RCTC of its obligations or liability arising from its failure to exercise reasonable oversight or supervision of the Project consultants or Contractor.

12. Force Majeure. The failure of performance by either Party (except for payment obligations) hereunder shall not be deemed to be a default where delays or defaults are due to war; insurrection; strikes; lock-outs; riots; floods; earthquakes; fires; casualties; acts of God; acts of the public enemy; epidemics; quarantine restrictions; freight embargoes; lack of transportation; governmental restrictions; unusually severe weather; inability to secure necessary labor, materials or tools; delays of any contractor, subcontractor, railroad, or suppliers; acts of the other Party; acts or failure to act of any other public or governmental agency or entity (other than that acts or failure to act of the Parties); or any other causes beyond the control or without the fault of the Party claiming an extension of time to perform or relief from default. An extension of time for any such cause shall be for the period of the enforced delay and shall commence to run from the time of the commencement of the cause, if notice by the Party claiming such extension is sent to the other Party within thirty (30) days of the commencement of the cause. Times of performance under this Cooperative Agreement may also be extended in writing by mutual agreement between the Parties.

13. Amendments. This Cooperative Agreement may be amended at any time by the mutual consent of the Parties by an instrument in writing.

14. Assignment of Cooperative Agreement. Neither Party may assign or transfer its respective rights or obligations under this Cooperative Agreement without the express written consent of the other Party. Any purported assignment or transfer by one

Party without the express written consent of the other Party shall be null and void and of no force or effect.

15. Waiver. No delay or omission in the exercise of any right or remedy of a non-defaulting Party on any default shall impair such right or remedy or be construed as a waiver. No consent or approval of either Party shall be deemed to waive or render unnecessary such Party's consent to or approval of any subsequent act of the other Party. Any waiver by either Party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Cooperative Agreement.

16. Severability. In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Cooperative Agreement shall be declared invalid or unenforceable by valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Cooperative Agreement, which shall be interpreted to carry out the intent of the Parties hereunder.

17. Termination: Repayment Obligation.

17.1 Both RCTC and City shall have the right, with or without cause, to terminate this Cooperative Agreement, by giving thirty (30) calendar days written notice to the other Party, specifying the date of termination, provided that in the case of a termination for cause, prior notice and opportunity to cure, as specified below, shall first be provided to the Party in breach by the non-breaching Party. Notwithstanding the foregoing, following commencement of construction of the Project, the City may only terminate this Cooperative Agreement for cause, after providing RCTC notice of a material breach, and reasonable opportunity to cure, as specified below.

17.2 *City Termination for Convenience.* If the City terminates this Cooperative Agreement without cause, the City shall reimburse RCTC for its Project costs within the City limits only, including any Project termination costs, expended following the Effective Date of this Cooperative Agreement through the effective date of termination. In such case, the Parties shall enter into good faith negotiations to establish a reasonable repayment schedule and repayment mechanism. Upon repayment by City to RCTC in accordance with this section all Project documents (including but not limited to designs, studies, or plans). Project improvements, Project warranties, title to property for the Project, and any other deliverables or work paid by RCTC for the Project prior to the date of termination and re-paid by City shall become the sole property of City. The foregoing shall be provided subject to Section 11 of this Agreement. Except as set forth in Section 7.7, any property for the Project conveyed pursuant to this section shall be provided by RCTC "as is" and without warranty.

17.3 *RCTC Termination for Convenience.* If RCTC terminates this Cooperative Agreement without cause, RCTC shall transfer to City all Project documents (including but not limited to designs, studies, or plans), Project improvements, Project

warranties, title to property for the Project, and any other deliverables of work produced under this Agreement, to the extent procured or produced with funds provided by the City. The foregoing shall be provided by RCTC subject to Section 11 of this Agreement. Except as set forth in Section 7.7, any property for the Project conveyed pursuant to this section shall be provided by RCTC "as is" and without warranty. In the case of a RCTC's termination for convenience, the City shall have no re-payment obligation whatsoever.

17.4 *City Termination for Cause.* If RCTC materially breaches this Cooperative Agreement in a manner that impedes the ability of the Project to proceed as planned, the City may terminate this Cooperative Agreement for cause, after providing RCTC notice of such material breach and a reasonable opportunity to cure of at least sixty (60) days, subject to extension as set forth in Section 17.6 below. In the case of a termination for cause, RCTC shall transfer to City all Project documents (including but not limited to designs, studies, or plans), Project Improvements, Project warranties, title to property for the Project, and any other deliverables or work produced under this Agreement, to the extent procured or produced with funds provided by City. The foregoing shall be provided by RCTC subject to Section 11 of this Agreement. Except as set forth in Section 7.7. any property for the Project conveyed pursuant to this section shall be provide by RCTC "as is" and without warranty. The City shall notify RCTC of such material breach within thirty (30) days of the date that the City became aware of or reasonably should have become aware of the breach. In the case of termination for cause, the City shall have no re-payment obligation whatsoever. Prior to the City's termination for cause pursuant to this section, the Parties shall be required to undertake the dispute resolution process described in Section 8 above.

17.5 *RCTC Termination for Cause – Breach.* If the City refuses to issue permits for construction of the Project, takes any action in violation of the terms of this Cooperative Agreement that impedes the ability of the Project to proceed as planned, or fails to undertake its obligations under this Agreement, unless the City terminates for convenience as set forth above, RCTC may terminate this Cooperative Agreement for cause, after providing the City notice of such material breach and a reasonable opportunity to cure of at least sixty (60) days, subject to extension as set forth in Section 17.6 below, and the City shall reimburse RCTC for the Project costs expended within the City limits only following the Effective Date of this Cooperative Agreement through the effective date of termination. Such costs shall include the costs incurred by RCTC and paid to the County pursuant to Agreement No. 26-31-001-00, as referenced above, for the additional improvements requested by the City. In such case, the Parties shall enter into good faith negotiations to establish a reasonable repayment schedule and repayment mechanism. Prior to RCTC's termination for cause pursuant to this section, the Parties shall be required to undertake the dispute resolution process described in Section 8 above and RCTC shall be required to provide City with a cost estimate for the Project costs expended following the Effective Date of this Cooperative Agreement through the proposed effective date of termination. Upon repayment by City to RCTC in accordance

with this section, all Project documents (including but not limited to designs, studies, or plans), Project improvements, Project warranties, title to property for the Project, and any other deliverables or work paid by RCTC for the Project prior to the date of termination and repaid by City shall become the sole property of City. The foregoing shall be provided by RCTC subject to Section 11 of this Agreement. Except as set forth in Section 7.7, any property for the Project conveyed pursuant to this section shall be provided by RCTC “as is" and without warranty.

17.6 Cure Period Extensions. If the material breach identified by the non-breaching Party is not reasonably capable of cure within a sixty (60) day period following the non-breaching Party’s delivery of its notice of breach, then:

- The breaching Party shall, within thirty (30) days following receipt of the notice of breach, provide a written response to the non-breaching Party that (i) identifies the actions to be undertaken to cure the material breach (the “Cure Activities”) and (ii) identifies a schedule of performance for implementation and completion of the Cure Activities (the “Schedule”);

- The non-breaching Party shall review the proposed Cure Activities and Schedule for purposes of confirming the reasonableness thereof;

- At the request of the non-breaching Party, representatives of the Parties shall meet and confer for purposes of addressing any questions or concerns with respect to the Cure Activities and the Schedule;

- Upon confirming the reasonableness of the Cure Activities and Schedule (as may be adjusted to address concerns), the non-breaching Party shall grant an extension of the sixty (60) day cure period to correspond with the Schedule; and

- Provided that the breaching Party is diligently pursuing implementation of the Cure Activities in accordance with the Schedule, the breaching Party may request reasonable extensions of the Schedule, and the non-breaching Party shall not unreasonably withhold its consent to such requests.

The Parties shall continue to perform under this Cooperative Agreement during the cure period. Any dispute regarding Cure Activities or Schedule shall be subject to the dispute resolution process described in Section 8 above.

17.7 The repayment obligation set forth in this Section 17 shall survive any expiration or termination of this Cooperative Agreement.

17.8 If this Cooperative Agreement is terminated, RCTC shall, at RCTC’s expense, return the Project right-of-way within the City Jurisdiction to its original condition or to an acceptable safe and operable condition, as mutually agreed upon by the Parties.

18. Predetermination. Nothing in this Cooperative Agreement is intended by the Parties nor should be interpreted as predetermining any decisions or approvals by either Party's boards or commissions.

19. Survival. All rights and obligations hereunder that by their nature are to continue after any expiration or termination of this Cooperative Agreement, shall survive any such expiration or termination.

20. Third Party Beneficiaries. There are no third-party beneficiaries to this Cooperative Agreement.

21. Relationship of the Parties. RCTC is, for purposes relating to this Cooperative Agreement, an independent contractor of City and shall not be deemed an employee of City. It is expressly understood and agreed that RCTC (including its employees, agents, and subcontractors) shall in no event be entitled to any benefits to which City employees are entitled, including, but not limited to overtime, any retirement benefits, worker's compensation benefits, and injury leave or other leave benefits. There shall be no employer-employee relationship between the Parties and RCTC shall hold City harmless from any and all claims that may be made against City based upon any contention by third party that an employer-employee relationship exists by reason of this Cooperative Agreement.

22. Delivery of Notices. All notices permitted or required under this Cooperative Agreement shall be given to the respective Parties at the following address, or at such other address as the respective Parties may provide in writing for this purpose:

CITY:
City of San Jacinto
Engineering Division
1221 S. San Jacinto Avenue
San Jacinto, CA 92583
Attn: Director of Transportation

COMMISSION:
Riverside County Transportation Commission
4080 Lemon Street, 3rd Floor
Riverside, CA 92501
Attn: Executive Director

Such notice shall be deemed made when personally delivered, electronically delivered to the Directors above provided that receipt of such electronic delivery is confirmed to the sending Party by the receiving Party, or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

23. Counterparts. This Cooperative Agreement may be signed in counterparts, each of which shall constitute an original.

24. Electronically Transmitted Signatures; Electronic Signatures. A manually signed copy of this Cooperative Agreement which is transmitted by facsimile, email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Cooperative Agreement for all purposes. This Cooperative Agreement may be signed using an electronic signature.

25. Incorporation of Recitals. The recitals set forth above are true and correct and are incorporated into this Cooperative Agreement as though fully set forth herein.

26. Entire Agreement. This Cooperative Agreement contains the entire agreement of the Parties relating to the subject matter hereof and supersedes all prior negotiations, agreements or understanding.

SIGNATURE PAGE
TO
COOPERATIVE AGREEMENT NO. 25-31-094-00

IN WITNESS WHEREOF, the parties hereto have executed this Cooperative Agreement on the date first herein above written.

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

By:_____
Aaron Hake, Executive Director

Approved as to Form:

By: _____
Best Best & Krieger LLP
General Counsel

CITY OF SAN JACINTO

Approved by the
City Council

By: _____
Robert A. Jonson
City Manager

Recommended for approval:

By: _____
Craig Hayes, City Attorney
Best Best & Krieger LLP

ATTEST:

By: _____
Julia Espinoza
City Clerk (SEAL)

EXHIBIT "A"

PROJECT DESCRIPTION

The proposed Mid County Parkway – Construction Contract 3 Project will construct two new mix flow lanes in the eastbound direction from approximately one mile east of Rider Street to Warren Road. The design will include one of the two ultimate MCP bridges over the San Jacinto River, which will accommodate the eastbound lanes. Also included will be improvements to existing intersections, traffic signals, drainage facilities, and wildlife crossing and associated work. This work takes places in both the County and City jurisdictions. Work within the City of San Jacinto includes roadway widening, drainage facilities, fencing, and utility relocation work.

EXHIBIT "B"

MCP 3 IMPROVEMENTS WITHIN SAN JACINTO

[ATTACHED BEHIND THIS PAGE]

June 2, 2026

TO:	City Council
REQUESTED BY:	Travis Randel, Deputy City Manager
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Professional Services Agreement for a Comprehensive Update to the City's Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards

RECOMMENDATION:

That the City Council:

1. **APPROPRIATE** an additional $100,000 for the preparation of updated Citywide Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards;
2. **AUTHORIZE** the transfer of the previously budgeted $80,000 for Landscape Design Guideline updates in the Planning Division FY 2025/2026 budget, together with the additional appropriation, into CIP Project No. 26-013;
3. **AWARD** a Professional Services Agreement to Community Works Design Group in the amount of $159,615 for professional consulting services associated with the preparation of the updated standards subject to review of the City Attorney;
4. **REJECT** all other proposals; and
5. **AUTHORIZE** the City Manager to execute the Professional Services Agreement and all related contract documents.

DISCUSSION:

The City of San Jacinto is seeking to comprehensively update and consolidate its citywide landscape, irrigation, park, basin, parkway, and street tree design standards into a single coordinated and modernized standards manual. The City's current standards consist of a combination of older landscape guidelines, standard details, and project-specific requirements that have evolved over time and are dispersed across multiple documents. Many of these materials are outdated, incomplete, difficult to navigate, or inconsistent with current operational practices and regulatory requirements.

The proposed project will establish a unified set of standards governing landscaping, irrigation systems, parks, stormwater basins, parkways, trails, and related public improvements throughout the City. The resulting standards manual is intended to provide clear, practical, and enforceable guidance for City staff, developers, engineers, landscape architects, and contractors involved in the design, construction, rehabilitation, and long-term maintenance of public and private improvements associated with development projects.

The project is also intended to support implementation of several adopted City policies and planning documents, including General Plan 2040, the San Jacinto Trails Master Plan, parkland dedication requirements, and the City's adopted water efficiency requirements. In addition, the updated standards will assist the City in complying with evolving State requirements related to water conservation, including the California Model Water Efficient Landscape Ordinance (MWELO).

A primary operational objective of this project is to standardize materials, equipment, construction details, and approved design practices citywide. Standardization will improve long-term maintenance efficiency by reducing the variety of irrigation components, controllers, pumps, plant palettes, park amenities, and related infrastructure currently maintained by City staff. The updated standards will also improve compatibility between facilities, reduce lifecycle maintenance costs, streamline inventory management, and simplify future repair and replacement projects.

The standards will additionally improve the development review process by providing applicants with clear and predictable expectations early in project design. By consolidating requirements into a single user-friendly document with clearly illustrated standards, diagrams, technical details, and approved material specifications, the City anticipates reducing ambiguity during plan review and minimizing repetitive correction cycles.

To ensure a competitive and transparent consultant selection process, the City issued Request for Proposals No. SJ-PU-26-002 soliciting qualified professional consulting firms with experience in municipal landscape architecture, irrigation system design, park planning, and development standards preparation.

The City received two (2) complete and responsive proposals prior to the submission deadline. A third proposal was received but was determined to be non-responsive during the initial screening process due to missing required information.

An evaluation committee composed of City staff reviewed and scored each proposal based on the criteria identified in the Request for Proposals, including:

- Technical expertise and relevant municipal experience;
- Qualifications of the project team;
- Project understanding and technical approach;
- Ability to deliver a comprehensive and user-friendly standards document; and
- Overall value and cost effectiveness.

The proposal results are summarized below:

Consultant	Proposal Amount	Score
Community Works Design Group	$159,615.00	83
Van Dyke Landscape Architects	$120,010.00	76

Following review and evaluation of the proposals, staff recommends awarding the contract to Community Works Design Group.

Community Works Design Group demonstrated superior subject matter expertise and provided the strongest overall proposal in terms of project understanding, technical approach, municipal experience, and long-term operational value to the City. The firm demonstrated a detailed understanding of the City’s goals and operational needs and presented a comprehensive methodology for developing an accessible, searchable, and highly implementable standards manual.

In addition, Community Works Design Group possesses significant prior experience working with the City of San Jacinto, including preparation of the City’s original Landscape Design Guidelines and Parkway & Median Master Plan. Their proposal also emphasized long-term maintenance efficiency, water conservation, standardized equipment specifications, and development of practical implementation tools intended to streamline both plan review and field maintenance operations.

The proposed scope of work includes a comprehensive audit of the City's existing standards and municipal code requirements; development of updated park, landscape, irrigation, basin, and street tree standards; preparation of standard construction details and GIS-compatible plant palettes; development of residential prototype landscape plans; preparation of park amenity scoring systems; and assistance with public adoption and implementation of the final standards manual.

FISCAL IMPACT:

The FY 2025/2026 budget previously included $80,000 within the Planning Division budget, Account 011-1700-417.30-90, for preparation of updated Landscape Design Guidelines primarily focused on development-related landscape requirements. However, during development of the Request for Proposals and evaluation of the City's existing standards framework, staff identified that several additional and related standards documents are also outdated, fragmented, incomplete, or in need of consolidation and modernization. These additional areas include park development standards, irrigation standards, street tree standards, basin and stormwater facility standards, parkway standards, and related public infrastructure requirements.

Rather than addressing these documents independently over multiple future projects, staff determined that a comprehensive citywide standards update would provide the most efficient and cost-effective long-term approach. Consolidating these standards into a single coordinated manual will provide clear and consistent direction for both future development and ongoing City maintenance operations while improving internal coordination between departments responsible for planning, engineering, parks, landscape maintenance, stormwater, and public infrastructure.

Because the resulting standards will directly govern and improve the design, construction, operation, rehabilitation, and long-term maintenance of landscape improvements, irrigation systems, parks, parkways, stormwater facilities, basins, and related infrastructure maintained within the City's various landscape and maintenance assessment districts, staff anticipates proportionally allocating a portion of the additional project costs among the applicable Special Districts (LLPD-1, LLPD-2, and CFDs). These districts directly benefit from the preparation of updated and standardized maintenance and construction criteria intended to improve long-term operational efficiency, reduce maintenance costs, standardize equipment and materials, improve water efficiency, and extend the useful life of district-maintained infrastructure and facilities.

Staff is requesting an additional appropriation of $100,000, for a total project budget of $180,000 to be allocated to CIP Project No. 26-013, Account 199-9999-425.40-01.

The recommended contract amount with Community Works Design Group is $159,615. The remaining project budget will provide contingency for unforeseen additional services, document revisions, supplemental technical analysis, printing, and implementation support associated with the project.

The updated standards are also expected to reduce future maintenance expenditures associated with incompatible or inconsistent infrastructure installations and improve the City's ability to competitively bid maintenance and rehabilitation work through standardized specifications and approved materials lists.

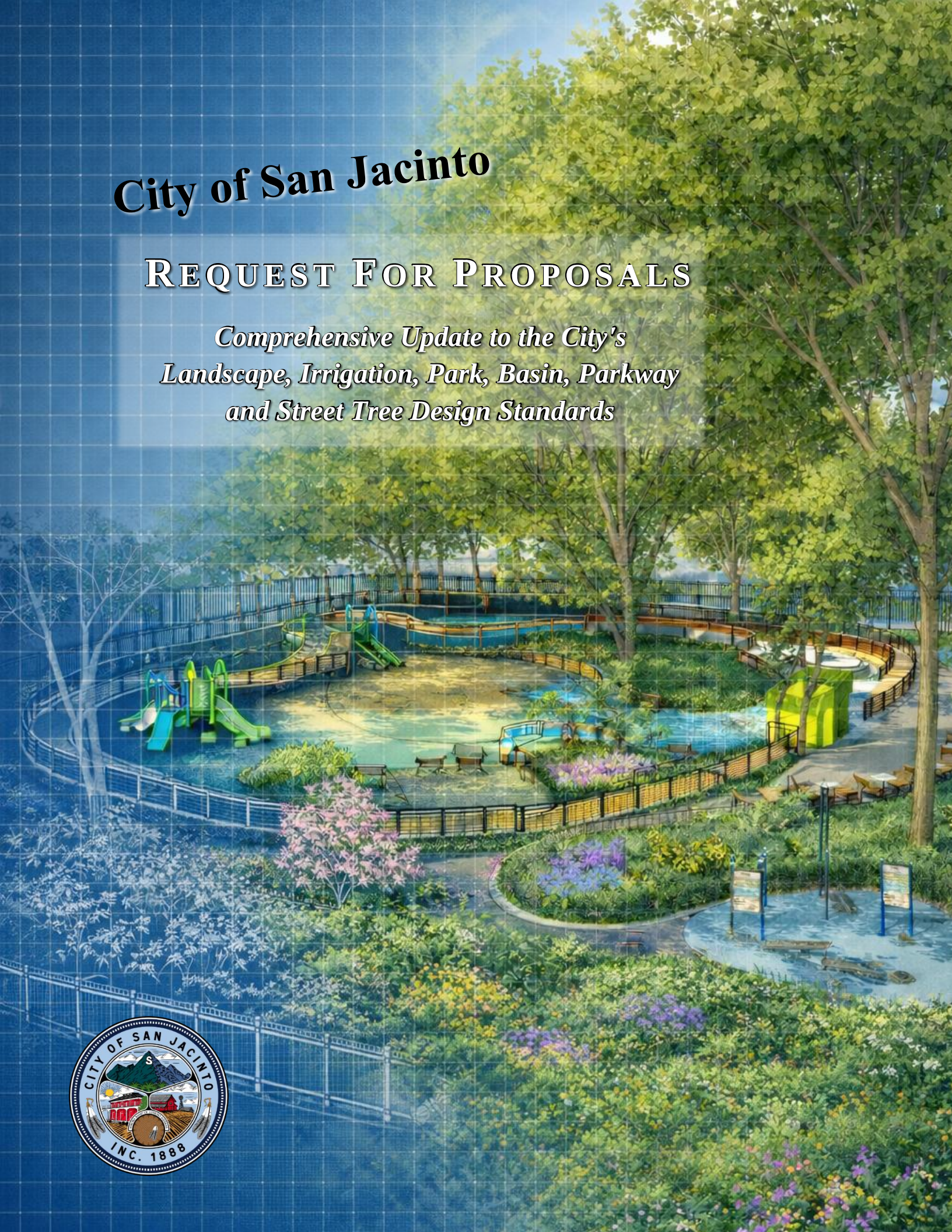
Attachments

Request for Proposals
RHA Community Works Proposal
RHA Community Works Fee Estimate
Draft Professional Services Agreement

City of San Jacinto

Request For Proposals

Comprehensive Update to the City's Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards



NOTICE INVITING PROPOSALS, RFP NO. SJ-PW-26-002

NOTICE IS HEREBY GIVEN that the City of San Jacinto ("City") is requesting proposals from qualified consultants to provide professional services as described in Request for Proposals No. **SJ-PU-26-002**.

Proposals shall be submitted electronically through the City of San Jacinto PlanetBids Portal: https://www.sanjacintoca.gov/government/bidsProposals

Copies of the Request for Proposals may be obtained through the City's PlanetBids portal. Vendors must register with PlanetBids in order to download solicitation documents and submit proposals.

The official schedule for this solicitation, including the proposal due date, question deadline, and any pre-proposal meeting information, will be posted on the PlanetBids portal. Proposers are responsible for monitoring PlanetBids for updates, addenda, and schedule information related to this RFP.

All proposals must be submitted electronically through the PlanetBids portal. Emailed, mailed, or hand-delivered submissions will not be accepted. Proposers are responsible for ensuring that their proposal is submitted prior to the deadline identified on PlanetBids. The City does not provide technical assistance for PlanetBids. You may contact PlanetBids technical support at (818) 992-1771 should you have issues accessing or submitting bids.

All requests for clarification regarding this RFP must be submitted through the PlanetBids Question and Answer (Q&A) section. Responses will be posted through PlanetBids and will be available to all registered vendors.

If a proposer intends to request exceptions to the requirements of the RFP or to the terms of the draft Professional Services Agreement, those exceptions must be clearly identified in the proposer's submission.

The City reserves the right to reject any or all proposals and to waive minor irregularities or informalities if it is determined to be in the best interest of the City.

For general questions regarding this solicitation, contact:

Simon Olivares
City of San Jacinto
solivares@sanjacintoca.gov
(951) 537-6351

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1. INTRODUCTION

The City of San Jacinto, one of the oldest communities in Riverside County, is a city rich in history, culture, and continued growth. Founded in 1870 and incorporated in 1888, San Jacinto has long served as a center for agriculture, ranching, and industry in the San Jacinto Valley. Located at the base of the San Jacinto Mountains, the City maintains a unique blend of small-town character while accommodating modern residential, commercial, and industrial development. Over the past two decades, San Jacinto has experienced substantial growth and continues to position itself as an important community within the Inland Empire.

As development continues, the City seeks to ensure that new neighborhoods, parks, streetscapes, and landscaped areas are designed in a consistent, sustainable, and maintainable manner. To support these goals, the City is seeking the services of a qualified consultant to assist in the preparation of comprehensive Citywide Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards.

This effort will build upon the City's long-range planning framework established through the adoption of Envision San Jacinto, General Plan 2040, adopted in 2022. The General Plan emphasizes sustainable development, high-quality public spaces, water conservation, and the creation of cohesive and attractive neighborhoods. Updated landscape and park design standards will serve as an important implementation tool to support these policies and guide future development throughout the community.

The purpose of this project is to develop clear, practical, and enforceable standards that will guide the design and construction of landscaping, parks, parkways, streetscapes, basins, and irrigation systems throughout the City of San Jacinto. These standards will establish consistent expectations for the design of both public and private improvements associated with development projects and City facilities. The standards will also support compliance with applicable state requirements, including the California Model Water Efficient Landscape Ordinance (MWELO), while promoting water conservation, long-term durability, and efficient maintenance practices.

The resulting standards manual is expected to include both narrative requirements and implementable technical exhibits, such as standard construction details, typical sections, approved equipment and material specifications, diagrams, and other technical guidance suitable for use during project design and plan review.

The resulting standards are intended to provide clear direction to developers, engineers, landscape architects, and City staff by establishing consistent expectations for landscaping, park development, irrigation systems, street trees, and related amenities. The standards will help streamline project review, improve long-term maintenance outcomes, and ensure that new development contributes positively to the City’s built and natural environment.

In addition to guiding the design and construction of new facilities, the preparation of standardized design criteria will also improve the City’s ability to maintain, repair, and rehabilitate landscaping, irrigation systems, basins, pumps, and related infrastructure over time. By establishing approved

materials, equipment specifications, and design details, the standards will allow the City to maintain consistency across facilities and streamline maintenance and replacement activities. When components such as irrigation equipment, pumps, controllers, or landscape elements require repair or replacement, staff will be able to rely on the adopted standards to prepare clear specifications and proceed directly to competitive bidding without first needing to evaluate or solicit acceptable equipment options. This approach will improve operational efficiency, reduce delays in maintenance projects, and help ensure that replacement components remain compatible with the City's established systems and maintenance practices.

The City of San Jacinto invites proposals from qualified firms with experience in landscape architecture, urban design, park planning, irrigation system design, and municipal development standards. The selected consultant will work closely with City staff to review existing materials, evaluate best practices from comparable jurisdictions, and prepare a comprehensive set of standards that are practical to implement and maintain.

2. PROJECT OBJECTIVES

The purpose of this project is to develop a comprehensive set of Citywide Landscape, Irrigation, Park, Basin, Parkway, and Street Tree Design Standards that will guide the design, construction, rehabilitation, and long-term maintenance of landscaping, park facilities, stormwater basins, basin pumps, and related infrastructure throughout the City of San Jacinto.

The City currently relies on a combination of older landscape guidelines, standard details, and project-specific requirements that have evolved over time. Some of these materials are outdated, incomplete, or difficult for applicants and staff to locate and interpret. As development activity continues throughout the City, there is a need to consolidate, update, and modernize these materials into a single coordinated set of standards that clearly define the City's expectations for public landscaping, park development, and streetscape improvements.

The resulting standards will apply to landscaping, park improvements, stormwater basins, basin pump facilities, parkways, streetscapes, trails, and related amenities constructed throughout the City of San Jacinto. The standards are intended to guide the design of both public and private improvements associated with development projects and City facilities. The standards will also provide guidance for the rehabilitation or replacement of existing landscaping and park facilities, ensuring that improvements installed over time remain consistent with the City's design expectations and maintenance capabilities.

The establishment of standardized materials, equipment specifications, and construction details will also improve the City's ability to maintain, repair, and rehabilitate these facilities over time. By clearly defining acceptable equipment types, park furnishings and amenities (such as playground equipment, shade structures, seating, trash receptacles, and similar features), irrigation components, pump systems, plant materials, and construction practices, the City will be able to streamline maintenance and replacement activities and prepare clear bid specifications without needing to re-evaluate acceptable design options for each project.

The project will also serve as an implementation tool for several existing City policies and plans, including the City's General Plan 2040, Subdivision regulations related to parkland dedication, and the San Jacinto Trails Master Plan. The updated standards will help ensure that future development contributes to a coordinated system of parks, landscaped corridors, and trail facilities throughout the community.

The City's intent is to develop standards that are clear, practical, and developer-friendly, allowing applicants to understand the City's expectations early in the project design process. By providing clearly defined requirements and standardized details, the City seeks to reduce ambiguity during plan review, minimize multiple plan check cycles, and improve the long-term quality and maintainability of public improvements.

This project will be managed by the City's Public Utilities Department, which will serve as the primary point of coordination for the consultant. However, the development of the standards will require close collaboration across multiple City departments and external agencies. The consultant

will be expected to work closely with staff from the Planning Division, Parks Division, Stormwater Division, the City's MS4/NPDES Program, the Building and Safety Division, and Engineering staff to ensure that the standards reflect operational needs, regulatory requirements, and development review processes. Coordination with the Police Department, Eastern Municipal Water District (EMWD), and Lake Hemet Water District may also be necessary to address public safety considerations, Crime Prevention Through Environmental Design (CPTED) principles, access requirements, recycled water use, and compatibility with EMWD irrigation and water system standards.

Key objectives of this project include:

- **Develop a comprehensive Landscape and Irrigation Standards Manual** that consolidates and updates the City's existing landscape design guidelines, plant lists, and standard construction details into a single coordinated document.

- **Review the City's existing Development Code and related municipal code provisions** governing landscape design, irrigation, park development, and subdivision improvements to ensure the proposed standards are consistent with adopted regulations. The consultant shall identify any conflicts, gaps, or outdated provisions and recommend updates or cross-references so that the Development Code and the new standards manual function as a coordinated and internally consistent framework.

- **Prepare Park Development Standards** that establish park classifications, minimum park sizes, amenity requirements, and design expectations consistent with the City's parkland dedication requirements and the Quimby Act.

- **Establish design and equipment standards** for stormwater basins and associated infrastructure, including landscape treatments, access requirements, fencing, safety features, and basin pump facilities where applicable.

- **Develop a flexible park amenity framework** that allows developers to design parks that respond to site conditions while still providing a consistent level of recreational value through minimum amenity categories and a scoring or point-based evaluation system.

- **Define standardized design criteria for park features and amenities** including playground equipment, sport courts, seating areas, shade structures, irrigation systems, lighting, drinking fountains, picnic areas, and other common park infrastructure to promote consistent design quality, durability, and maintainability across parks developed throughout the City.

- **Promote consistency in materials, equipment, and construction practices** to improve durability, reduce lifecycle costs, and support efficient long-term maintenance of City facilities.

- **Develop landscape and irrigation design standards** that are consistent with the California Model Water Efficient Landscape Ordinance (MWELO) and the City's adopted

Water Efficient Landscape Ordinance, ensuring that the resulting guidelines support compliance with existing regulatory requirements without creating conflicting or redundant standards.

- **Provide implementation guidance for the San Jacinto Trails Master Plan**, including trail classifications, cross sections, and design standards for trail facilities constructed as part of development projects.

- **Prepare prototypical water-efficient residential front yard landscape designs** that homeowners and builders may utilize when installing or rehabilitating landscaping. These designs should comply with applicable water efficiency requirements and be structured so that typical residential landscape installations can be completed without the need to retain a landscape architect.

- **Create a clear, accessible, and user-friendly standards document** that includes diagrams, standard details, graphic illustrations, photographs, and example applications to help developers, designers, homeowners, contractors, and City staff easily understand and apply the standards.

Ultimately, the goal of this project is to establish a practical and implementable set of standards that improves the quality, consistency, and long-term sustainability of landscaping, parks, basins, and streetscape facilities throughout the City of San Jacinto while supporting efficient project review, construction, and long-term maintenance operations.

The resulting documents should be organized in a manner that is highly intuitive and easy to navigate, with clearly structured sections, searchable content, cross-referenced standards, and visual examples that illustrate acceptable design solutions. The City anticipates that the standards may be organized into logical sections or chapters addressing topics such as landscape and irrigation design, park development, parkway and streetscape standards, basin facilities, and related infrastructure.

The City intends for the final standards manual to function not only as a regulatory document, but also as a practical design and implementation guide that applicants and staff can quickly reference during project planning, review, construction, and maintenance.

3. EXISTING PLANS AND REFERENCE DOCUMENTS

The City of San Jacinto has prepared and adopted several planning and design documents over time that address landscaping, parks, streetscapes, and open space development. These documents provide important background information and may inform the development of the new standards. However, many of these materials are outdated, incomplete, or lacking the intuitive design necessary for efficient use by stakeholders and City personnel.

The consultant will be expected to review these materials and evaluate their applicability to the proposed Citywide Landscape, Irrigation, Park, and Street Tree Design Standards. Where appropriate, relevant standards and design concepts may be incorporated into the updated document. In other cases, the consultant may recommend revisions, reorganization, or replacement of outdated standards.

The City recognizes that many landscape and park design standards, construction details, and technical specifications used by public agencies are based on widely accepted industry practices. The City is open to the incorporation or adaptation of proven standards, graphics, and technical details from other jurisdictions or previous consultant work where appropriate. The intent of this project is not to recreate common design details unnecessarily, but rather to assemble a practical and well-organized set of standards that reflect best practices and are tailored to the operational needs of the City of San Jacinto.

The following documents are provided for reference and will be made available to proposers through the City's PlanetBids procurement portal.

CITY OF SAN JACINTO GENERAL PLAN

The City adopted Envision San Jacinto, General Plan 2040 in 2022. The General Plan establishes the City's long-term vision for growth, land use, environmental sustainability, and community design. Policies related to parks, open space, streetscapes, sustainability, and community character should inform the development of the updated standards.

SAN JACINTO TRAILS MASTER PLAN

The San Jacinto Trails Master Plan identifies a system of multi-use trails and equestrian corridors intended to connect neighborhoods, parks, and open space areas throughout the community. The consultant shall review the Trails Master Plan and develop design standards, cross sections, and implementation guidance to support the construction of trail facilities as part of future development projects.

LANDSCAPE DESIGN GUIDELINES

The City previously adopted Landscape Design Guidelines that provide direction related to planting, parkway landscaping, wall and fence design, and other landscape elements. These

guidelines include plant palettes, planting details, and standard construction specifications. While portions of these guidelines may still be applicable, the document has not been comprehensively updated in many years and will require evaluation and modernization.

Landscape Standard Details

The City maintains a series of landscape and planting standard details that address items such as tree planting, shrub planting, irrigation components, root barriers, and related landscape construction practices. These details may serve as a starting point for the development of updated standard construction details.

Draft Landscape Guideline Update

In approximately 2017, the City initiated an effort to update its landscape design guidelines. Draft materials from that effort include proposed plant lists, irrigation guidance, and other landscape design recommendations. These materials were never formally adopted and have not been reviewed by current City staff. They are being provided to the consultant team as background reference material only. The consultant may review these materials and determine whether any elements should be incorporated, revised, or replaced as part of the new standards.

Subdivision Regulations And Parkland Dedication Requirements

The City's subdivision regulations, including parkland dedication requirements associated with residential development, are contained in Title 16 (Subdivisions) of the San Jacinto Municipal Code. Of particular relevance to this project are the provisions in Chapter 16.75 (Parkland Dedication and Fees), which implement parkland dedication requirements authorized under California Government Code Section 66477 (Quimby Act) and establish the methodology used to determine required park acreage based on projected residential population.

The updated park standards developed through this project should support the implementation of these subdivision requirements by providing clear guidance regarding park classifications, amenity expectations, and park development standards associated with new residential subdivisions.

The San Jacinto Municipal Code is available online and may be accessed at: **https://ecode360.com/47024306**.

4. SCOPE OF WORK

The City of San Jacinto is seeking a qualified consultant to assist in the preparation of comprehensive Citywide Landscape, Irrigation, Park, Basin, Parkway, and Street Tree Design Standards. The selected consultant will work collaboratively with City staff to review existing materials, evaluate best practices from comparable jurisdictions, and develop a coordinated set of standards to guide the design, construction, and rehabilitation of public landscaping and park facilities throughout the City.

The standards will primarily apply to landscaping, park improvements, stormwater basins, parkways, trails, and related amenities that will ultimately be owned, operated, or maintained by the City, including improvements constructed as part of private development projects or through Community Facilities Districts (CFDs). The standards should also provide guidance for the rehabilitation or replacement of existing City landscape and park facilities.

The consultant shall perform the tasks described below and/or may recommend modifications to the scope of work if necessary to better achieve the project objectives.

TASK 1 – PROJECT INITIATION AND COORDINATION

The consultant shall initiate the project and coordinate with City staff to confirm project objectives, scope, schedule, and deliverables. This task shall include a project kickoff meeting with City staff, review of existing plans and background materials provided by the City, and confirmation of the proposed structure and organization of the standards manual. The consultant shall also identify opportunities to incorporate best practices from comparable jurisdictions and confirm the overall work plan for completing the project.

Deliverables under this task include:

- **Project kickoff meeting** with City staff
- **Detailed work plan and project schedule** identifying key milestones and deliverables

TASK 2 – REVIEW OF EXISTING DOCUMENTS AND BEST PRACTICES

The consultant shall review existing City plans and reference documents to inform development of the updated standards. This review shall include existing landscape guidelines, plant lists, landscape standard details, and other materials previously prepared by the City. The consultant shall also review relevant planning documents, including the San Jacinto Trails Master Plan and subdivision regulations contained in Title 16 of the Municipal Code.

In addition, the consultant shall review applicable provisions of the California Model Water Efficient Landscape Ordinance (MWELO) and the City's Water Efficient Landscape Ordinance to ensure the proposed standards support compliance with existing regulatory requirements. Best

practices used by comparable jurisdictions for park development standards, irrigation systems, landscape design, and street tree programs should also be evaluated.

Deliverables under this task include:

- **A summary memorandum of findings and recommendations** to guide development of the updated standards.
- **A code and standards cross-reference matrix** identifying where the San Jacinto Municipal Code, including relevant provisions of the Development Code, references landscape, park, irrigation, basin, or related standards. The matrix shall also identify any conflicts, gaps, or recommended code cleanups or cross-reference updates necessary to ensure the Development Code and the new standards manual function as a coordinated and internally consistent framework.

TASK 3 – PARK CLASSIFICATION FRAMEWORK AND PARK DEVELOPMENT STANDARDS

The consultant shall develop a framework that establishes consistent expectations for park size, amenities, and development requirements associated with new residential development. The framework shall include development of a park classification system, which may include categories such as pocket parks, neighborhood parks, community parks, and regional parks, along with recommended park size ranges and general characteristics for each classification.

Standards should address usable park area, including treatment of slopes, drainage areas, and site constraints, and should coordinate with parkland dedication requirements established in Title 16 of the Municipal Code. Park amenity expectations should be based on the required parkland acreage associated with development rather than the total park site area when additional land is provided due to site constraints such as floodplains, fault zones, or other development limitations.

The consultant shall also develop a flexible park amenity evaluation framework that allows developers to respond to site conditions while ensuring each park provides an appropriate level of recreational value. This framework may include amenity categories, minimum amenity expectations by park classification, and a scoring or point-based system to ensure consistency across developments while allowing flexibility in park design.

Deliverables under this task include:

- **Park classification framework**
- **Park amenity evaluation** framework or scoring system

TASK 4 – PARK AMENITY DESIGN AND EQUIPMENT STANDARDS

The consultant shall develop design and construction standards for common park amenities and park infrastructure. These standards should establish consistent expectations for materials, equipment types, and construction practices that promote durability, safety, and efficient long-term maintenance by the City.

Standards should address common park features such as playground equipment and surfacing, sport courts and athletic areas, seating and picnic areas, shade structures and gazebos, drinking fountains, park utilities, lighting, and landscape and irrigation systems associated with park development.

Deliverables under this task include:

- **Design standards and preferred equipment specifications** for common park amenities.

TASK 5 – LANDSCAPE AND IRRIGATION DESIGN STANDARDS

The consultant shall prepare updated landscape and irrigation design standards applicable to public landscaping installed through development projects or rehabilitation of existing facilities. These standards shall address planting design, plant palettes appropriate for different landscape conditions, irrigation system design consistent with City maintenance practices, and preferred irrigation equipment currently utilized by the City.

Standards should include planting requirements, irrigation design criteria, root barrier requirements, and updated standard construction details for planting and irrigation systems. Landscape standards for detention basins and water quality facilities should also be included where applicable.

The standards developed under this task shall support compliance with the California Model Water Efficient Landscape Ordinance (MWELO) and the City's Water Efficient Landscape Ordinance.

Deliverables under this task include:

- **Landscape design standards** and plant palettes
- **Irrigation system standards** and standard construction details

TASK 6 – STREET TREE AND PARKWAY STANDARDS

The consultant shall prepare a Citywide street tree and parkway standards program addressing tree selection, planting design, and parkway landscaping associated with public streets. The program should identify appropriate tree species for the City's climate and soil conditions, establish spacing and placement standards, and address varying parkway widths and roadway classifications.

Standards should also address site constraints such as overhead utilities and provide guidance for layered landscaping approaches in areas such as reverse frontage parkways.

Deliverables under this task include:

- **Citywide street tree program** and parkway landscaping standards.

TASK 7 – TRAILS AND OPEN SPACE IMPLEMENTATION STANDARDS

The consultant shall prepare design standards supporting implementation of the San Jacinto Trails Master Plan. These standards should establish trail classifications, typical trail cross sections, recommended construction materials and should address integration of trail facilities within parks, subdivisions, and open space areas.

Deliverables under this task include:

- **Trail classifications and standard trail design guidance.**

TASK 8 – PROTOTYPICAL RESIDENTIAL FRONT YARD LANDSCAPE DESIGNS

The consultant shall prepare a set of prototypical water-efficient residential front yard landscape designs that homeowners and builders may utilize when installing or rehabilitating residential landscaping. These designs should incorporate water-efficient plant palettes and irrigation layouts consistent with MWELO requirements and should be designed so that typical residential installations can be implemented without requiring a landscape architect.

Deliverables under this task include:

- **At least four (4) prototypical front yard landscape designs** with corresponding irrigation layouts.

TASK 9 – BASIN AND STORMWATER FACILITY DESIGN STANDARDS

The consultant shall prepare landscape and facility design standards for stormwater detention basins and related stormwater infrastructure. These standards should address planting approaches appropriate for basin conditions, irrigation requirements where applicable, grading transitions and slopes, and integration with adjacent parks, trails, or open space areas. Standards shall be developed in coordination with the Stormwater Division and MS4/NPDES program requirements, including maintainability, access, safety, and treatment facility performance considerations.

Where basin pump systems are utilized, the consultant shall also address considerations related to maintenance access, operational functionality, preferred equipment and integration of pump infrastructure within landscaped basin environments.

Deliverables under this task include:

- **Landscape and design standards for stormwater basins** and related facilities.
- **Preferred equipment specifications** for stormwater basins.

Task 10 – Preparation of Draft and Final Standards Manual

The consultant shall prepare a comprehensive standards manual consolidating the results of the project into a coordinated, intuitive and user-friendly document. The manual shall include diagrams, illustrations, photographs, example applications, and standard construction details. The document should be organized so that users can easily locate and cross-reference applicable standards.

All graphics, standard details, and exhibits shall follow a consistent City formatting and numbering convention so the final document reads as a cohesive standards manual rather than a collection of materials from multiple sources.

Deliverables under this task include:

- **Draft standards manual** for City review
- **Final standards manual** incorporating City comments

Task 11 – Meetings and Project Coordination

The consultant shall participate in meetings necessary to complete the project and present draft and final standards to City decision makers.

Deliverables under this task include:

- **Regular coordination meetings** with City staff
- **Presentation of draft standards** to City staff
- **Attendance at one Planning Commission meeting**
- **Attendance at one City Council meeting** to present the final standards

Task 12 – Implementation and Adoption Support

The consultant shall provide limited support to assist the City with final implementation and adoption of the standards manual. This task is intended to address minor revisions, clarifications, or formatting adjustments that may arise during the final review and adoption process.

Work under this task may include refinement of graphics or standard details, clarification of standards language, preparation of supplemental materials requested by City staff, or assistance responding to comments received during Planning Commission or City Council review.

Support provided under this task shall be limited to revisions necessary to finalize the standards manual for adoption and publication and shall conclude upon City Council adoption of the standards.

Deliverables under this task may include:

- **Minor revisions** to the standards manual following City review
- **Supplemental graphics or clarification** of standards where requested by the City
- **Assistance with final document** formatting or preparation for publication

5. DELIVERABLES

The consultant shall prepare and submit the following deliverables as part of this project. Deliverables shall be provided in both digital and editable formats to allow the City to maintain and update the standards over time, including editable source files for graphics, diagrams, and standard details.

Unless otherwise directed by the City, all documents shall be submitted in electronic format. Draft deliverables will be reviewed by City staff and revised by the consultant prior to preparation of final deliverables.

1. Project Work Plan and Schedule

Within thirty (30) days of contract execution, the consultant shall prepare a detailed work plan and project schedule outlining major tasks, milestones, and anticipated deliverables.

The work plan shall include:

- Project schedule and timeline
- Key milestones, stakeholders and review periods
- Proposed meeting schedule
- Communication and coordination procedures

2. Existing Conditions and Best Practices Summary

The consultant shall prepare a technical memorandum summarizing findings from the review of existing City documents and best practices from comparable jurisdictions. The memorandum shall identify key issues, opportunities, and recommendations that will guide preparation of the updated standards.

The memorandum shall summarize relevant City plans, guidelines, and existing landscape and irrigation standards, and evaluate their applicability to the proposed standards manual.

Deliverables shall include:

- Identification of best practices and recommended approaches from comparable jurisdictions
- Key considerations that inform the development of the updated standards

3. Administrative Draft Standards Manual

The consultant shall prepare an Administrative Draft of the Citywide Landscape, Irrigation, Park, Basin, Parkway, and Street Tree Design Standards for review by City staff. The standards may be organized as a single manual or as multiple coordinated volumes or sections, as determined appropriate in consultation with City staff.

The Administrative Draft shall include all major components of the standards manual, including:

- Park classification framework and park development standards
- Park amenity standards and amenity evaluation framework
- Landscape and irrigation design standards
- Street tree and parkway standards
- Trails and open space implementation standards
- Prototypical residential front yard landscape designs
- Standard construction details and specifications
- Basin and stormwater facility design and standards

City staff will review the Administrative Draft and provide consolidated comments to the consultant.

4. Public Review Draft Standards Manual

Following incorporation of staff comments, the consultant shall prepare a Public Review Draft of the standards manual.

This version will be used for presentations to decision-making bodies and may be distributed for public review.

The Public Review Draft shall:

- Be organized in a clear, visually accessible format
- Include diagrams, graphics, and example applications
- Include cross-references and clear section headings to improve usability

5. Final Standards Manual

The consultant shall prepare a Final Standards Manual incorporating comments received from City staff, the Planning Commission, and the City Council, as applicable.

The final document shall be delivered in the following formats:

- Searchable PDF document with bookmarks and internal hyperlinks

- Editable document format (Microsoft Word or similar)
- Graphics and diagrams in editable format (Adobe Illustrator, InDesign, or similar)

All graphics, standard drawings, diagrams, and exhibits shall follow a consistent City of San Jacinto formatting, numbering, and labeling convention so that the final document appears as a cohesive standards manual rather than a compilation of materials from multiple sources. The document shall be structured to allow future updates by City staff without requiring complete reformatting.

6. Standard Construction Details

The consultant shall prepare updated standard construction details supporting the standards manual.

Deliverables shall include:

- Landscape planting details
- Irrigation system details
- Root barrier and planting installation details
- Parkway and streetscape sections
- Park amenity installation details
- Trail cross sections and construction details
- Basin landscape and facility standard details (grading transitions, pump access areas, planting zones, etc.)

All details shall be provided in:

- CAD format compatible with City systems
- PDF format for inclusion in the standards manual
- Plant palettes, street tree lists, and related data tables shall be provided in spreadsheet format compatible with the City's GIS or asset management systems.

7. Prototypical Residential Landscape Plans

The consultant shall prepare a set of prototypical residential front yard landscape plans.

Deliverables shall include:

- Graphic landscape plans
- Corresponding irrigation layouts
- Plant lists and planting schedules
- Example installation diagrams

These materials shall be prepared in a format suitable for distribution to homeowners and builders.

8. Park Planning Toolkit

The consultant shall prepare a Park Planning Toolkit to assist City staff and developers in evaluating park design proposals.

The toolkit may include:

- Park classification summary tables
- Park amenity scoring framework
- Amenity category definitions
- Example park programming layouts

This toolkit will be used by City staff during project review to evaluate compliance with park development standards.

9. Project Meetings And Presentations

The consultant shall prepare presentation materials and attend key project meetings necessary to complete the project, including:

- Project kickoff meeting
- Periodic coordination meetings with City staff
- Planning Commission presentation
- City Council presentation

Presentation materials shall be provided in digital format suitable for public meetings.

10. Final Project Files

At the completion of the project, the consultant shall provide the City with a complete set of project files including:

- Final standards manual
- Editable source files
- Graphics and diagrams
- CAD standard details
- Plant lists and data tables

All materials prepared under this contract shall become the property of the City of San Jacinto and may be used, reproduced, or modified by the City for future projects without restriction.

6. PROJECT SCHEDULE

The City anticipates completing the project within approximately six (6) to nine (9) months from contract execution. The schedule below represents the City's preliminary timeline and may be adjusted as necessary during the course of the project.

Proposers may recommend adjustments to the schedule in their proposals if necessary to successfully complete the scope of work.

Milestone	Estimated Timeline
Release of Request for Proposals	4/1/2026
Proposal Submission Deadline	4/27/26
Consultant Selection and Contract Award	5/5/26
Project Kickoff Meeting	Within 2 weeks of contract execution
Existing Conditions Review and Best Practices Summary	Month 1–2
Administrative Draft Standards Manual	Month 3–4
Staff Review and Revisions	Month 4–5
Public Review Draft Standards Manual	Month 5–6
Planning Commission Presentation	Month 6–7
City Council Presentation and Adoption	Month 7–9

The consultant shall coordinate closely with City staff throughout the project to ensure that key milestones are met and that adequate time is provided for staff review and revisions.

7. CONSULTANT QUALIFICATIONS

The City of San Jacinto is seeking proposals from qualified consulting firms or teams with demonstrated experience in the preparation of municipal landscape design standards, park planning standards, irrigation design standards, and street tree programs. The selected consultant will assist the City in developing a comprehensive set of standards that are practical to implement, consistent with applicable regulations, and compatible with the City's long-term maintenance capabilities.

Proposers should demonstrate experience with projects similar in scope and complexity to the work described in this Request for Proposals. Relevant experience includes the preparation of landscape design guidelines, park planning standards, irrigation design standards, street tree master plans, or similar development standards for municipalities. Experience working with cities experiencing residential growth and subdivision development is particularly desirable.

The consultant team should include professionals with expertise in landscape architecture, park and recreation planning, irrigation system design, and municipal development standards. Familiarity with water-efficient landscape practices and the California Model Water Efficient Landscape Ordinance (MWELO) is expected. Experience integrating park planning, landscaping, and streetscape design into subdivision development standards is also desirable. Where preparation of technical standards or construction details requires professional licensure under California law, the consultant team shall include appropriately licensed professionals, such as a California licensed Landscape Architect, Civil Engineer, or other qualified professional, as applicable.

Proposers shall identify the key personnel who will be assigned to the project and describe their qualifications and experience. The proposal should clearly identify the Project Manager and describe the roles and responsibilities of other key team members who will contribute to the project. The City expects that the Project Manager identified in the proposal will remain actively involved throughout the duration of the project.

Proposers should also demonstrate familiarity with regulatory and policy considerations relevant to this project, including parkland dedication requirements under Government Code Section 66477 (Quimby Act), municipal landscape and irrigation standards, and development review processes associated with subdivision projects.

As part of the proposal, firms should provide examples of recent projects that demonstrate relevant experience. These examples should include the project name and location, the client agency, a brief description of the work performed, and a contact person who can serve as a reference. Projects involving the preparation of municipal design standards or park planning guidelines will be given particular consideration.

8. PROPOSAL FORMAT AND SUBMISSION REQUIREMENTS

Proposals should be concise, well organized, and demonstrate the consultant's understanding of the City's objectives and ability to perform the work described in this Request for Proposals. Proposals should follow the general format outlined below so that all submissions can be evaluated consistently.

General Format Requirements

All proposals shall be formatted on 8.5" x 11" pages. Larger graphics or diagrams may be included on 11" x 17" pages where appropriate. Proposals must be submitted in PDF format and must be printable without password protection.

All proposal materials, except the Fee Proposal and sample work products, shall be combined into a single PDF file. The Fee Proposal shall be submitted as a separate PDF document. Sample work products or examples of similar projects shall be submitted as separate PDF attachments and shall not be included within the primary proposal document.

Proposals must be submitted electronically through the City's PlanetBids portal. Proposals submitted by email, mail, or in person will not be accepted.

Page limits provided below are intended to encourage concise responses. Page limits apply only to the primary proposal document and do not include the Fee Proposal or separate sample work attachments submitted in accordance with this section. The City reserves the right to disregard pages submitted in excess of the stated limits.

Proposal Content

Executive Summary (2 Pages Maximum)

Provide a brief overview of the proposing firm and a summary of the key elements of the proposal. The Executive Summary should clearly describe the firm's qualifications, understanding of the City's objectives, and the unique strengths the team brings to this project.

The summary should also identify the proposed Project Manager and briefly describe the composition of the consultant team, including key personnel and their roles on the project. Proposers should identify the primary office that will be responsible for managing the project and describe how the team will be organized to deliver the services described in this Request for Proposals.

Firm Qualifications And Relevant Experience (15 Pages Maximum)

This section should describe the qualifications of the proposing firm and demonstrate its experience with projects of similar scope and complexity. Proposers should describe their experience preparing municipal landscape design standards, irrigation standards, park planning guidelines, street tree programs, or similar planning and design standards for public agencies.

Proposers should also highlight experience developing comprehensive standards manuals or design guidelines that integrate landscaping, parks, streetscapes, trails, stormwater facilities, or other public infrastructure that will ultimately be maintained by a municipality.

Include descriptions of three to five recent projects that are most relevant to the work described in this RFP. For each project, identify the client, the general scope of work, the year completed, and the role of the firm.

If applicable, describe experience working with California cities, particularly in Southern California or in climates similar to the City of San Jacinto.

Project Team And Staffing (10 Pages Maximum)

Identify the proposed project team and describe the roles and responsibilities of key personnel. This section should demonstrate that the consultant has assembled a team with the technical expertise necessary to complete the work described in this RFP.

Provide an organizational chart showing the Project Manager and key staff who will be assigned to the project. Brief resumes should be included for key personnel who will have primary responsibility for completing the work. Resumes should identify each individual's role on the project, relevant experience, professional licenses or certifications, and office location.

Proposers should confirm the availability of key personnel identified in the proposal and describe their anticipated level of involvement throughout the project.

If subconsultants are proposed, identify their roles and explain how they will support the project team.

Project Understanding And Technical Approach (20 Pages Maximum)

This section should demonstrate the consultant's understanding of the City's goals and the scope of work described in this RFP. Proposers should describe their overall approach to developing clear, practical, and implementable standards that will guide landscape design, irrigation systems, park development, basin facilities, trails, and street tree planning within the City.

The resulting standards will be used by a range of audiences including design professionals, developers, City staff, and members of the public. Proposers should describe how they will prepare standards that maintain the technical rigor necessary for engineering and design professionals

while remaining clearly written, well organized, and understandable for users who may not have specialized technical expertise.

Proposers should describe how they will approach development of a coordinated standards manual that is practical for developers to implement, consistent with applicable regulations, and compatible with the City's long-term maintenance practices.

The proposal should explain how the consultant will approach the following key components of the project:

- Development of comprehensive landscape, irrigation, park, basin, and street tree standards that are practical and easy to implement
- Preparation of developer-friendly standards that streamline project review and reduce plan check iterations
- Development of prototypical front yard landscape concepts that allow homeowners to revitalize their landscaping and comply with water efficiency requirements without the need to hire a landscape architect
- Integration of existing City plans and policies, including the Subdivision Code, Trails Master Plan, and other planning documents
- Development of standardized details, equipment specifications, and design guidance that support efficient long-term maintenance of City facilities
- Preparation of a final document that is visually clear, searchable, well organized, and easy for developers, homeowners, and City staff to use

Proposers may also identify any additional tasks, technical considerations, or recommendations that would improve the overall quality, usability, and long-term effectiveness of the final standards manual.

Project Schedule And Work Plan (5 Pages Maximum)

Provide a proposed work plan and project schedule describing how the consultant will complete the work within the City's anticipated timeframe. The schedule should identify major project phases, key milestones, and anticipated review points with City staff.

Fee Proposal (Submitted As A Separate Document)

The Fee Proposal shall be submitted as a separate PDF document and shall include a not-to-exceed fee for completion of the project. The fee proposal should include a breakdown of costs by task or project phase and identify hourly rates for key personnel who may be assigned to the project.

The City reserves the right to negotiate the final scope and fee with the selected consultant.

Exceptions To The RFP Or Professional Services Agreement

If the proposer believes any portion of this Request for Proposals or the City's draft Professional Services Agreement requires clarification or modification, the proposer must clearly identify those items in this section of the proposal. Each requested exception shall identify the applicable section of the RFP or Professional Services Agreement and include a brief explanation of the reason for the proposed change. Where appropriate, proposers may also provide suggested alternative language.

Requests for clarification regarding the RFP requirements must be submitted through the formal question and answer process on the City's PlanetBids portal prior to the deadline for questions. The City may respond to such questions and, if necessary, issue an addendum to clarify or modify the RFP. The submission of an exception within a proposal does not substitute for the formal question and answer process.

The City reserves the right to accept or reject any proposed exception. Proposals containing significant or material exceptions to the requirements of this RFP or the Professional Services Agreement may be deemed non-responsive and may be rejected at the City's sole discretion.

If no exceptions are identified, the proposal will be interpreted to mean that the proposer accepts all terms and conditions of this Request for Proposals and the City's Professional Services Agreement.

Additional Information (Optional)

Proposers may include additional information they believe would assist the City in evaluating their proposal. Examples may include sample documents, excerpts from previously prepared standards manuals, graphic examples of similar work products, or other materials demonstrating the firm's experience with similar projects.

Examples of previous work products should be submitted as separate PDF attachments rather than included within the primary proposal document. These materials are intended to supplement the proposal and demonstrate the quality and organization of similar standards documents prepared by the proposer.

Additional materials provided under this section are optional and will not be evaluated as a separate scored component of the proposal. Any such materials will be reviewed only in conjunction with the information provided in the primary proposal document.

9. PROPOSAL EVALUATION CRITERIA

All proposals received in response to this Request for Proposals will be evaluated by a review committee composed of City staff. Proposals will be evaluated based on the consultant's qualifications, relevant experience, project approach, and ability to successfully complete the work described in this RFP.

The City reserves the right to request clarifications, conduct interviews with selected firms, or request additional information as part of the evaluation process.

Proposals will be evaluated based on the following criteria:

Evaluation Criteria	Maximum Points
Firm Qualifications and Relevant Experience	25
Project Team and Key Personnel	20
Project Understanding and Technical Approach	30
Project Schedule and Work Plan	10
Fee Proposal	15
Total Possible Points	**100**

FIRM QUALIFICATIONS AND RELEVANT EXPERIENCE

The City will evaluate the consultant's experience preparing municipal landscape standards, park planning documents, irrigation standards, or similar planning and design documents for public agencies. Consideration will also be given to experience working with California municipalities and familiarity with regulatory requirements such as the California Water Efficient Landscape Ordinance.

Project Team and Key Personnel

The City will evaluate the qualifications, experience, and availability of the proposed project manager and key staff assigned to the project, as well as the overall organization of the project team.

Project Understanding and Technical Approach

Proposals will be evaluated based on the consultant's understanding of the City's goals and the proposed approach to completing the work described in this RFP. Particular consideration will be given to the consultant's ability to develop clear, practical, and implementable standards that are easy for developers, homeowners, and City staff to use.

Project Schedule and Work Plan

The City will evaluate the proposed project schedule, including the consultant's ability to complete the work within the anticipated timeframe and to coordinate effectively with City staff throughout the project.

Fee Proposal

The City will evaluate the proposed project fee in relation to the scope of services and the value offered by the consultant.

10. CONSULTANT SELECTION PROCESS

The City will review all proposals received by the deadline and evaluate them based on the criteria outlined in Section 8 of this Request for Proposals. A review committee composed of City staff will evaluate the proposals and may prepare a shortlist of the most qualified firms.

At the City's discretion, shortlisted firms may be invited to participate in interviews or presentations to further discuss their qualifications, project approach, and ability to successfully complete the work described in this RFP. If interviews are conducted, the City may revise the evaluation scores based on the information presented during the interview process.

Following the evaluation process, the City intends to select the firm determined to be the most qualified to perform the services described in this RFP. The City will enter into negotiations with the selected consultant to finalize the scope of work, project schedule, and fee. If the City is unable to reach agreement with the selected consultant, the City reserves the right to terminate negotiations and enter into negotiations with the next highest-ranked firm.

The final selection of a consultant and approval of the Professional Services Agreement will be subject to approval by the City Council.

The City reserves the right to reject any or all proposals, to waive minor irregularities in any proposal, and to cancel this solicitation at any time if it is determined to be in the best interest of the City.

11. GENERAL CONDITIONS AND RESERVATION OF RIGHTS

The City reserves the right to modify, postpone, or cancel this Request for Proposals at any time if it is determined to be in the best interest of the City. The City also reserves the right to reject any or all proposals received and to waive minor irregularities or informalities in any proposal.

Issuance of this Request for Proposals does not obligate the City to award a contract or to pay any costs incurred by proposers in the preparation of proposals. All costs associated with the preparation and submission of proposals are the sole responsibility of the proposer.

All proposals submitted in response to this RFP become the property of the City of San Jacinto and will not be returned. Proposals may become public records subject to disclosure pursuant to the California Public Records Act following completion of the selection process. If a proposer includes information it believes to be confidential, proprietary, or a trade secret, such information must be clearly marked and identified as such. The City cannot guarantee confidentiality and will process any public records requests in accordance with applicable law.

Proposals shall remain valid for at least 120 days after the proposal due date unless extended by mutual agreement.

Proposers must disclose any actual or potential conflicts of interest, including any circumstances that could reasonably be perceived to affect the proposer's objectivity or ability to perform the services in the best interest of the City. The City reserves the right to disqualify any proposer based on a conflict of interest determination.

The City reserves the right to request clarification of any information submitted in a proposal and may request additional information from any proposer as part of the evaluation process. The City may also request interviews or presentations from selected firms if it determines that such interviews would assist in the evaluation of proposals.

The City reserves the right to negotiate the final scope of services, project schedule, and compensation with the selected consultant. If an agreement cannot be reached with the selected firm, the City reserves the right to terminate negotiations and proceed with negotiations with the next highest-ranked firm.

The City may issue written addenda to clarify or modify this Request for Proposals. All addenda will be issued through the City's PlanetBids portal. It is the responsibility of proposers to monitor the PlanetBids portal for addenda and to acknowledge receipt of all addenda in their proposal submission.

The selected consultant will be required to enter into a Professional Services Agreement with the City of San Jacinto. The draft Professional Services Agreement is provided with this RFP for review. Insurance, indemnification, and other contractual requirements will be governed by the terms of the Professional Services Agreement.

PROTEST PROCEDURE

A proposer that wishes to protest the City's notice of intent to award must submit a written protest within five (5) business days of the notice of intent to award. The protest must be submitted to the City representative identified in this RFP and must clearly describe the basis for the protest. The City Manager or their designee will review the protest and issue a written determination. The decision of the City shall be final.

12. PROFESSIONAL SERVICES AGREEMENT

A draft Professional Services Agreement (PSA) is included with this Request for Proposals as an attachment. The agreement establishes the City's standard contractual requirements, including insurance requirements, indemnification provisions, and general terms governing the performance of professional services.

The consultant selected through this RFP process will be required to enter into a Professional Services Agreement with the City of San Jacinto using the attached document. The City anticipates that the selected consultant will execute the agreement substantially in the form provided.

Proposers should carefully review the draft Professional Services Agreement prior to submitting a proposal. Any requested exceptions or proposed modifications to the agreement must be clearly identified in the proposer's response in accordance with the section titled Exceptions to the RFP or Professional Services Agreement.

The City reserves the right to reject proposals that include significant exceptions to the Professional Services Agreement. Minor modifications may be considered during contract negotiations at the City's sole discretion.

The final agreement, including scope of services, project schedule, and compensation, will be negotiated with the selected consultant and will be subject to approval by the San Jacinto City Council.

13. BACKGROUND AND REFERENCE DOCUMENTS

The following documents are available through the City's PlanetBids portal and are provided as background reference materials to assist proposers in understanding the City's existing standards, plans, and regulatory framework related to this project.

These materials are provided for informational purposes only and may not represent current policy or adopted standards. The selected consultant will be expected to review these materials and determine which elements should be retained, modified, or replaced as part of the development of the updated standards.

Reference materials available through PlanetBids may include, but are not limited to, the following:

Contract Documents

- Exhibit 1 - Draft Professional Services Agreement

City Codes and Adopted Plans

- Exhibit 2 - San Jacinto Municipal Code – Title 16 (Subdivision Regulations)
- Exhibit 3 - Envision San Jacinto – General Plan 2040
- Exhibit 4a - San Jacinto Trails Master Plan
- Exhibit 4b - San Jacinto Trails Master Plan Appendices

Existing Design Guidelines

- Exhibit 5 - City of San Jacinto Landscape Design Guidelines
- Exhibit 6 - Parkway and Median Master Plan

Previous Draft Materials (For Reference Only)

- Exhibit 7 - Draft Landscape and Irrigation Guideline Update Materials

These materials are intended to provide context regarding prior planning efforts and existing design guidance. Proposers are expected to review these materials when preparing their proposal; however, the City anticipates that the selected consultant will evaluate these documents and recommend updates or revisions as appropriate.

14. PROPOSAL SUBMISSION

Proposals must be submitted electronically through the City's PlanetBids portal by the deadline identified in the RFP schedule. The PlanetBids portal will serve as the official location for proposal submission, RFP updates, addenda, and responses to questions.

Proposers are responsible for monitoring the PlanetBids portal for any updates, clarifications, or addenda issued by the City. Failure to acknowledge issued addenda may result in the proposal being deemed non-responsive.

Proposals submitted after the deadline established in the PlanetBids portal will not be accepted. The City is not responsible for technical issues experienced by proposers during the submission process.

Questions regarding this Request for Proposals must be submitted through the PlanetBids Q&A module prior to the deadline for questions identified in the RFP schedule. Responses to questions will be posted through PlanetBids and will become part of the official procurement record.

SAN JACINTO

PROPOSAL FOR NO. SJ-PU-26-002:

COMPREHENSIVE UPDATE TO THE CITY'S LANDSCAPE, IRRIGATION, PARK, BASIN, PARKWAY AND STREET TREE DESIGN STANDARDS



APRIL 27, 2026

SUBMITTED BY:

RHA COMMUNITY WORKS

LANDSCAPE ARCHITECTURE & PARK PLANNING

7111 INDIANA AVENUE, SUITE 300
RIVERSIDE, CA 92504

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PROPOSAL FOR:

COMPREHENSIVE UPDATE TO THE CITY'S LANDSCAPE, IRRIGATION, PARK, BASIN, PARKWAY AND STREET TREE DESIGN STANDARDS

SUBMITTED BY:
RHA COMMUNITY WORKS
7111 INDIANA AVENUE, SUITE 300
RIVERSIDE, CA 92504

APRIL 27, 2026

SUBMITTED TO:
CITY OF SAN JACINTO

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April 27, 2026

City of San Jacinto
Attn: City of San Jacinto Purchasing Division
595 S. San Jacinto Avenue
San Jacinto, CA 92583

RE: Proposal for Comprehensive Update to the City's Landscape, Irrigation, Park, Basin, Parkway and Street Tree Design Standards (RFP No. SJ-PU-26-002)

Dear Members of the Selection Committee:

RHA Community Works (RHA+CW) is pleased to submit this proposal to partner with the City of San Jacinto in the development of a unified, forward-thinking set of Landscape and Park Design Standards. We understand that as San Jacinto continues to experience significant residential growth, there is a critical need to consolidate disparate guidelines into a single, user-friendly manual that reflects the City's unique character, ensures long-term maintenance sustainability, and simplifies the development review process.

Our team is uniquely qualified to deliver a manual that balances aesthetic appeal with technical rigor. We bring deep expertise in California-specific mandates, including MWELO compliance and the General Plan 2040 framework, ensuring that the new standards are not only visionary but also legally and functionally enforceable. We also have a headstart, having assisted the City with their **San Jacinto Park and Recreation Master Plan and developing the initial Landscape Design Guidelines in 2005.**

Key strengths our team brings to this project include:

- **Integrated Park Planning & Landscape Architecture:** Our firm specializes in creating "scoring systems" and classification frameworks that provide developers with clear recreational requirements while maintaining flexibility for various site conditions.
- **Technical Excellence in Water Management:** With a focus on sustainable irrigation and basin design, we ensure that public spaces are resilient and cost-effective for the City to maintain over the long term.
- **Community-Centric Design:** We recognize the importance of empowering residents. Our approach includes the development of prototypical, water-efficient front-yard designs that allow homeowners to enhance their property while supporting City-wide water conservation goals.
- **Proven Municipal Experience:** As a firm with extensive experience in Southern California municipal park planning and grant-funded revitalizations, we understand the nuances of local climate, agricultural heritage, and the specific needs of Inland Empire communities.

RHA Community Works is committed to providing a collaborative and inclusive design process. We look forward to the opportunity to help San Jacinto set a new benchmark for public space excellence. We confirm, Doug Grove and Scott Rice, Managing Partners, are authorized to represent the firm and bind the company to all commitments made in this proposal.

Respectfully submitted,

RHA Community Works
A Strategic Merger of RHA Landscape Architects + Planners and Community Works Design Group

Doug Grove ASLA, PLA, LEED AP
Managing Partner
Landscape Architect CA #2799
doug@rhacw.com
Phone: 951-781-1930 ext. 121

Scott Rice ASLA, PLA, LEED AP, CASp
Managing Partner
Landscape Architect CA #5111 / NY #2645
Certified Access Specialist CASp-709
scott@rhacw.com
Phone: 951-369-0700

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EXECUTIVE SUMMARY

The Right Partner for San Jacinto's Future

The City of San Jacinto is at a pivotal moment of growth. As residential development accelerates, the need for a unified, technically rigorous, and sustainable set of design standards has never been more critical. RHA Community Works (RHA+CW) is uniquely positioned to deliver this comprehensive update. We do not just offer landscape architecture; we offer a partnership rooted in local institutional knowledge, technical excellence, and a proven commitment to San Jacinto's community fabric.

Why RHA Community Works is the Best Choice

1. Unmatched Local Context & Continuity

Unlike outside firms that must spend weeks learning the local landscape, RHA+CW is already deeply embedded in San Jacinto's planning ecosystem. Having spearheaded the San Jacinto Parks & Recreation Master Plan, we possess an intimate understanding of the City's existing assets, maintenance challenges, and the community's vision for the future. We are not starting from scratch; we are building upon a foundation of success that we helped create.

2. A Unified Standards Manual: From Fragmentation to Clarity

Currently, San Jacinto's design guidance is spread across various documents and municipal codes. RHA+CW specializes in consolidation. Our approach will transform these disparate pieces into a single, intuitive manual. This "one-stop-shop" resource will provide:

- ***For City Staff:*** Streamlined plan-check processes and enforceable standards that reduce administrative friction.
- ***For Developers:*** Clear, predictable requirements that eliminate ambiguity and accelerate project timelines.
- ***For Residents:*** High-quality public spaces and residential tools that enhance property values and community pride.

3. Technical Leadership in Sustainability & Water Management

In the face of California's evolving environmental mandates, RHA+CW leads with technical rigor. Our team includes Certified Access Specialists (CASp) and experts in the Model Water Efficient Landscape Ordinance (MWELO). We ensure that every standard—from basin pump facilities to irrigation trenching—is engineered for long-term operational efficiency. Our "Quality Control Program" ensures that the CAD Standard Details we provide are not just drawings, but high-performance templates that minimize change orders and maintenance costs.

4. Innovative Community Empowerment Tools

A standout feature of our proposal is the development of Prototypical Residential Designs. We recognize that homeowners are vital stakeholders in San Jacinto's water conservation goals. By providing pre-calculated, MWELO-compliant templates like "Inland Desert" and "Modern Mediterranean," we empower residents to beautify their properties while simultaneously reducing the City's residential permitting burden.

EXECUTIVE SUMMARY

Strategic Approach to the Scope of Work
Our methodology is designed to deliver a completed, adopted manual within a 6–9 month window, structured around three core pillars:

- **Audit & Alignment:** We begin with a comprehensive gap analysis of the General Plan 2040 and existing codes to ensure internal consistency and legal defensibility.

- **The "Scoring System" for Parks:** We will develop a flexible classification framework for parkland and amenities. This ensures that as the City grows, developers provide the appropriate level of recreational value, regardless of site-specific constraints.

- **Consensus-Driven Adoption:** Leveraging our experience with San Jacinto's leadership, we will lead the outreach to the Planning Commission and City Council. We focus on articulating the Value Proposition: how these standards protect the City's General Fund by reducing maintenance and improving the "Living Infrastructure" of the community.

Leadership Built on Municipal Expertise
To ensure the success of this project, RHA+CW has assembled a leadership team that combines high-level strategic vision with deep technical and regulatory proficiency.

- **Strategic Vision:** Led by Doug Grove, ASLA, LEED AP With decades of experience in large-scale municipal planning, Doug Grove brings an unparalleled background in master planning and community-wide design frameworks. Having served as the Principal-in-Charge for the San Jacinto Parks & Recreation Master Plan, Doug understands the macro-level goals of the City's General Plan 2040. His expertise ensures that these new design standards are not merely a collection of technical details, but a strategic tool that supports the City's long-term recreational and economic objectives.

- **Technical Rigor:** Led by Scott Rice, PLA, ASLA, CASp Scott Rice provides the essential technical bridge between design and enforceability. Drawing on his extensive experience as a City Landscape Architect and his background in Plan Check services, Scott understands exactly what municipal staff need to effectively review and approve developer submittals. As a Certified Access Specialist (CASp), he will ensure that all updated standards—from parkway circulation to park amenities—meet the highest benchmarks for accessibility and state compliance, reducing the City's long-term liability and administrative friction.

Commitment to Excellence
Led by Doug Grove and Scott Rice, RHA Community Works brings the perfect blend of public-sector perspective and private-sector innovation. Our prior experience with the City has refined our ability to deliver documents that are as practical for the maintenance crew as they are visionary for the City Council.

We are ready to hit the ground running to help San Jacinto set a new regional benchmark for public space, sustainability, and design excellence.

FIRM QUALIFICATIONS AND RELEVANT EXPERIENCE

COMMUNITY WORKS DESIGN GROUP - LLC (CWDG)
Doing business as: RHA Community Works (RHA+CW)
Landscape Architecture - Planning
7111 Indiana Avenue, Suite 300
Riverside, California 92504
(951) 369-0700
Federal I.D. 82-1854334 / Registered Small Business # 1769579
California Department of Industrial Relations #: PW-LR-1000707823

SENIOR PRINCIPALS: Doug Grove ASLA, PLA, LEED AP- Managing Partner/ Authorized Signer
Scott Rice ASLA, PLA, LEED AP, CASp - Managing Partner/ Authorized Signer

MAIN CONTACT: Scott Rice, LLA #5111 (Licensed 20+ years since 2005; expiration date: 12/31/26)
scott@rhacw.com| (951) 369-0700 office / (909) 754-1257 cell

RHA Community Works is a landscape architecture and planning firm based in Riverside, California, with deep, multi-generational roots in the Southern California region. The firm was formed through the shared vision and meticulous craftsmanship of its founders and Managing Partners: Doug Grove, President of RHA Landscape Architects + Planners, and Scott Rice, President of Community Works Design Group. Each founder brings decades of proven leadership and industry experience. Prior to uniting their firms, both Doug and Scott served as successors to the founders of their respective, highly regarded practices.

Our team includes 20 dedicated professionals, including 12 licensed landscape architects, who work collaboratively under a team-based approach directed by the firm's principals and associates. Our multidisciplinary team bridges the gap between creative vision, technical feasibility, and environmental stewardship. RHA Community Works provides a comprehensive suite of services designed to enhance public spaces while ensuring long-term sustainability:

- **Public Works Planning & Design:** Expert development of neighborhood and community parks, sports complexes, skate parks, dog parks, and vibrant streetscapes that strengthen community branding.
- **Specialized Technical Consulting:** Targeted expertise in CASp/ADA accessibility auditing, comprehensive tree inventory and management, and advanced water conservation strategies.
- **Master Planning & Visualization:** Site-specific conceptual development supported by 3D photo-realistic rendering and inclusive community outreach programs to build local consensus.
- **Construction Support:** Delivery of meticulous construction documentation, precise cost estimating, and dedicated construction administration to ensure design intent is realized. Our team includes two **licensed C-27 landscape contractors.**
- **Plan Check & Inspection Services:** A seamless, dual-layer approach ensuring every project—from initial technical review to final field installation—meets 100% regulatory compliance and the highest construction standards.
- **Regulatory Compliance & Sustainability:** Proven success assisting Southern California municipalities in navigating complex mandates, including **SB 1383 (Organic Waste and Mulching)** and **AB 1572 (Non-Functional Turf)** requirements.

FIRM QUALIFICATIONS AND RELEVANT EXPERIENCE

Our Approach

We utilize a collaborative team approach under the direction of our principals to ensure personalized service and on-budget delivery. Whether managing small area renovations or multi-million dollar new developments, we focus on safety, equity, and sustainability. Our "FUNnel" approach to community engagement ensures that all voices are heard, resulting in designs that truly reflect the interests of the constituents we serve. Our firms feature several leaders with public sector plan check and/or park planning experience, providing our team with a unique consulting perspective since we've been on your side of the table.

Integrity & Reliability

The unified firm of RHA+CW maintains an impeccable professional record. Neither RHA nor CWDG has:

- Any failures or refusals to complete a contract.
- Financial interests in other lines of business.
- Active or past claims for money or damages.
- History of Litigation, Adverse Judgments, or "For Cause" terminations.

A selection of our current on-call contracts are listed below:

City of Highland - On-Call Landscape Architectural Services	(1990-present)
County of Riverside FM - On-Call Landscape Architectural Services	(2000-present)
Riverside County Regional Park & Open-Space District - On-Call Landscape Architectural Services	(2011-present)
City of Redlands - On-Call Landscape Architectural Services	(2012-present)
Jurupa Area Recreation & Park District - On-Call Park Plan Check Services	(2015-present)
County of Riverside EDA - On-Call Certified Access Specialist (CASp) Services	(2017-present)
City of El Segundo - On-Call Landscape Architecture Services	(2019-present)
City of Ontario - On-Call Landscape Architecture Services	(2019-present)
City of Cypress - On-Call Landscape Architecture Services	(2019-present)
City of Los Angeles - On-Call Certified Access Specialist (CASp) Services Including Recreation & Parks Department, Adaptive Sports	(2020-present)
City of Palm Springs - On-Call Landscape Architecture Services	(2021-present)
City of Orange - On-Call Plan Check Services	(2021-present)
City of Carson - On-Call Landscape Architecture Services	(2022-present)
City of Anaheim - On-Call Landscape Architecture Services	(2023-present)
City of Eastvale - On-Call Plan Check & Landscape Architecture Services Including Landscape Architecture, Plan Check and Inspections	(2023-present)
City of Laguna Beach - On-Call Landscape Architecture & Plan Check Services	(2023-present)
City of Indian Wells - On-Call Landscape Architecture Services	(2023-present)
City of Pico Rivera - On-Call Landscape Architecture Services	(2023-present)
City of Long Beach - On-Call Landscape Architecture Services	(2024-present)

FIRM QUALIFICATIONS AND RELEVANT EXPERIENCE

We offer comprehensive planning and design services tailored to the unique needs of each client and project. Our scope of services includes:

Planning and Design
- Master Planning
- Preliminary Design Development
- Program Development
- Recreation Land-Use Planning
- Site Evaluation and Selection
- Site Planning
- Consensus Building
- General Consulting
- Community Outreach Campaigns
- Landscape Plan Check and Inspection Services
- Accessibility Consulting (CASp)

Construction Documentation and Support
- Working Drawings & Specifications
- Assistance During Bidding
- Construction Observation & Consulting
- Maintenance Guidelines and Observation

Award-Winning Design

RHA Community Works has received numerous accolades from respected organizations, including:
- American Society of Landscape Architects (ASLA)
- American Planning Association (APA)
- California Park and Recreation Society (CPRS)
- American Public Works Association (APWA)
- National Association of County Parks and Recreation Officials (NACPRO)

Notable award-winning projects include:
- Frisbie Park Expansion, Rialto
- Pikes Peak Park, Norco
- Lucinda Garcia Park, Monrovia
- Dolphin Park All-Abilities Playground, Carson
- Mercado Park, Perris
- California Citrus State Historic Park, Riverside
- Horseshoe Lake Park, Jurupa Valley
- Ayala Park, Bloomington
- Pico Park, Pico Rivera
- White Park, Riverside
- Aliso Viejo Ranch, Aliso Viejo
- Enchanted Hills Park, Perris
- Bob Belt's Beach Park, Needles
- Rancho Jurupa Park Expansion, Jurupa Valley
- Joe Sampson Park, Rialto
- Piru Skate Park, Piru, Ventura County
- Sycamore Highlands Park, Riverside

FIRM QUALIFICATIONS AND RELEVANT EXPERIENCE

Proposed Communication Process:

RHA Community Works will utilize Basecamp as our primary project management and collaboration hub, ensuring that City of San Jacinto staff stay connected and informed at every stage. This platform will serve as a vibrant, digital home for all task orders, housing real-time project schedules, meeting minutes, and draft deliverables in one organized space. By inviting the City's project managers into our workspace, we will provide full visibility into our creative process, allowing for seamless feedback and ensuring that every milestone is met with clear accountability. This streamlined approach will transform coordination into a straightforward, engaging experience, replacing cluttered email chains with a clear, reliable history of all project decisions and assets.

Staff:

The RHA organizational system utilizes a team approach. Under principal management, our project assignments are organized into teams of professionals, with each team led by a managing partner and/or principal based on best fit for each task order/project.

Doug Grove, PLA, ASLA, LEED AP	Managing Partner/Landscape Architect
Scott Rice, PLA, ASLA, LEED AP, CASp	Managing Partner/Landscape Architect
Greg Meek, PLA	Principal/Landscape Architect
David Black, PLA	Associate Principal/Landscape Architect
Dan Burkhart, PLA	Associate Principal/Landscape Architect
Lauren McHugh, PLA	Associate Principal/Landscape Architect
Allison Rush, PLA. CASp	Associate Principal/Landscape Architect
Andrew Lytle, PLA	Senior Project Manager/Landscape Architect
Mike Salazar, PLA	Senior Project Manager/Landscape Architect
Andres Virata, PLA, ASLA	Production Manager/Landscape Architect
Andy Emery, PLA	Construction Administration/Landscape Architect
Jennifer Salazar	Associate /Landscape Designer
Analicia Escobar-Gomez, MPA, CPRP	Director of Community Engagement
Luke Morris, PLA	Landscape Architect/Native Plant Specialist
Arielle Talley	Landscape Designer/GIS Specialist
Brian Espinoza	Landscape Designer
Jocelyn Aguirre	Landscape Designer
Savannah Baca	Landscape Designer
Marissa Trout	Office Manager
Rebecca Rice	Executive Assistant

Personnel Training Program:

RHA Community Works maintains a rigorous personnel training and professional development program designed to ensure our team remains at the forefront of technical and regulatory standards in Southern California. Our staff of 20 professionals, which includes 12 licensed landscape architects, participates in ongoing professional education to maintain active specialized certifications, including CLARB certification, Certified Access Specialist (CASp) continued education credits, and ISA Certified Arborist credentials. Training is conducted on a quarterly basis, focusing on emerging trends in sustainable urban development, permaculture, and the integration of innovative materials. Furthermore, our team undergoes regular internal workshops on Quality Control (QC) protocols to guarantee that all project deliverables meet the high standards of technical excellence and universal design required for municipal public works projects.

Site Specific Master Planning & Concept Development:
Our team excels at developing master plans and multi-phased developments. In addition to vibrant master plan documents our team also develops photo realistic 3-D renderings as part of our design process to ensure a fully cohesive and integrated site. This process allows us to make proactive design decisions for vertical plane elements. We find the 3-D visuals also help garner excitement around important projects and are an integral tool for funding support. As a standard practice, we provide scaled 3-D modeling to help the community understand how the proposed park improvements will actually appear, to help identify any conflicts well ahead of construction.





Above: Top renderings: Dolores Huerta Park playground and thematic wind screen for Futsal Multi-Use Courts in Fresno, CA.

Community Outreach:
RHA+CW recognizes the need for all voices in a community to be heard and incorporated into thoughtful designs. Our team aims to ensure all members of the community have the opportunity to participate in community outreach and planning processes.



Our team is currently working on final touches for the design of Dolores Huerta Park for the City of Fresno. As part of the preliminary design process, CWDG, now doing business as RHA+CW worked with the City to create a community outreach campaign in 4 different languages (Spanish, Punjabi, Hmong and English), to best serve their community.

We employ what we call the "FUNnel" approach to take the multitude of "wants" and narrow them down to a final concept that reflects the best interests of the City and its constituents- and we do so in a FUN way! We typically start by gathering general information by means of online and mail-out surveys ahead of the public design meetings, with ongoing input from the City, so that we can begin to prepare informed design decisions to facilitate a conceptual design that reflects the community's interest and not OUR interests. We focus on developing a strong sense of pride for each project by focusing on a placemaking that incorporates the community's identity.

Meetings and Presentations:
Our team has experience presenting to a variety of City Staff, Boards and Commissions. Doug Grove, Scott Rice, and Analicia Escobar-Gomez all have extensive experience presenting to special commissions, City Councils and other committees. We also find commissions and committees are a great place for garnering project feedback and support. It is often a good place to start soliciting feedback by going where people are already meeting.

Accessibility Consulting
We provide comprehensive Certified Access Specialist (CASp) services to help ensure your property complies with applicable accessibility standards and regulations. Our evaluations identify potential barriers to access and offer clear, practical recommendations for achieving compliance with the Americans with Disabilities Act (ADA) and California accessibility codes. Whether for new construction, renovations, or existing facilities, we deliver detailed reports, guidance on corrective measures, and support throughout the compliance process, helping reduce legal risk while promoting inclusive and accessible environments for all users.

Feasibility Studies:
RHA+CW's most recent Feasibility Study was completed for the City of Ontario as part of our on-call services. For this our team worked with the City to identify and prioritize park amenity renovations with accessibility and available funding in mind.

Utility Search and Coordination:
Our team has extensive experience with utility coordination. In addition, our subconsultants, Design West Engineering and Civil Engineers will assist these coordination efforts.

Contract Documents:
Our team focuses on constructibility by creating Construction Drawings will include site plans and details for all aspects of demolition, construction, civil, grading, planting, irrigation and specialty plans. Our construction details are crafted from a constructibility standpoint, supplemented with item-specific notes that reduce contractor "artistic license" and reduce likelihood of RFI's. Plans will identify recommended suppliers and products, with emphasis given to local sources, sustainable concepts, recycled/ recyclable materials, and durability of products. Each member of the RHA+CW team integrates their strengths, expertise and experience to ensure the best designs and most complete, constructible, contract documents are completed on-time and within budget for each project we take on.

Cost Estimating:
We regularly prepare detailed construction plans, details, specifications and estimates for park projects, and strive to make our construction drawing packages the most biddable and buildable across the industry. Since we perform Landscape Plan Check for various agencies, our finger remains on the pulse of the industry, and are able to glean tips and tricks to making plans more readable, maintaining a good balance of notes and clarifications without overwhelming the drawings with redundant information. We are regularly receiving bids for various public work projects. Upon receiving the bid we also request from the two apparent low bidders their unit prices. We incorporate these updated unit prices into our own in-house cost estimates. This allows our firm to provide up-to date cost estimates for our clients.

Permits:
Our team has first hand plan check experience which comes in handy when it comes time to assist the City in obtaining approvals and/or permits from applicable agencies as needed. Our team has experience with the permitting processes with, USACE, CDFW, and SCAQMD.

Storm Water Best Management Practices:
We work with Civil Engineers who have extensive experience with designing using the principles of storm water best management practices (BMP). RHA+CW has also worked on many park and trail projects that feature unique and design integrated storm water BMP's. Our work with our teams also include WQMPs and SWPPPs where applicable and required.

Environmental:
In addition to Analicia Escobar-Gomez's background with CEQA/NEPA Compliance for park planning and public landscape projects, she also has background in facilitating AB52 Tribal Consultations.

Design Expertise: RHA+CW has successfully completed over 35 parks and recreation projects in the past five (5) years. Our team stays up to date on water-wise landscaping and irrigation with our Certified Irrigation Designer taking the lead in staying up to date with new techniques and technologies.

Site Specific Master Planning & Concept Development:
Our team excels at developing master plans and multi-phased developments. In addition to vibrant master plan documents our team also develops photo realistic 3-D renderings as part of our design process to ensure a fully cohesive and integrated site. This process allows us to make proactive design decisions for vertical plane elements. We find the 3-D visuals also help garner excitement around important projects and are an integral tool for funding support. As a standard practice, we provide scaled 3-D modeling to help the community understand how the proposed park improvements will actually appear, to help identify any conflicts well ahead of construction.

Leadership In Energy And Environmental Design
LEED certified and a leader in the design of energy efficient, water-wise parks and public spaces RHA Community Works actively encourages the employment of environmentally friendly sustainable design principles. We encourage clients to use green technologies and design principles to achieve innovative, resource conserving, maintenance friendly public facilities which provide long term budget savings.

Plan Checking Services
We have provided plan-checking services to various agencies for over three decades and have experienced licensed individuals on staff to provide this function. We have provided these services for the Cities of Highland, Banning, Perris, Rialto, Jurupa Valley and Corona.

Construction Support:
What sets RHA+CW during the Construction Support/Administration phase is our first hand experience as a licensed contractor, allowing us to closely monitor and track scheduling, budgets, and upcoming inspections. We work hard to drive the construction schedule and keep contractors accountable. We will participate in construction meetings when requested, and at a frequency determined by the City. Based on our observations at the site and on the contractor's application for payment, we will assist in determining the amount owed to the contractor. We will review job drawings, as-builts, RFI's, samples and other submissions of the contractor for conformance with the design of the project and for compliance with the information given in the conformance contract documents, for the project. We will review change orders and submittals for approval and issuance by the City. We will respond to requests for information from the contractor, and issue field bulletins. We will maintain updated RFI, Change Order and Submittal logs, which will be shared online via Basecamp app.

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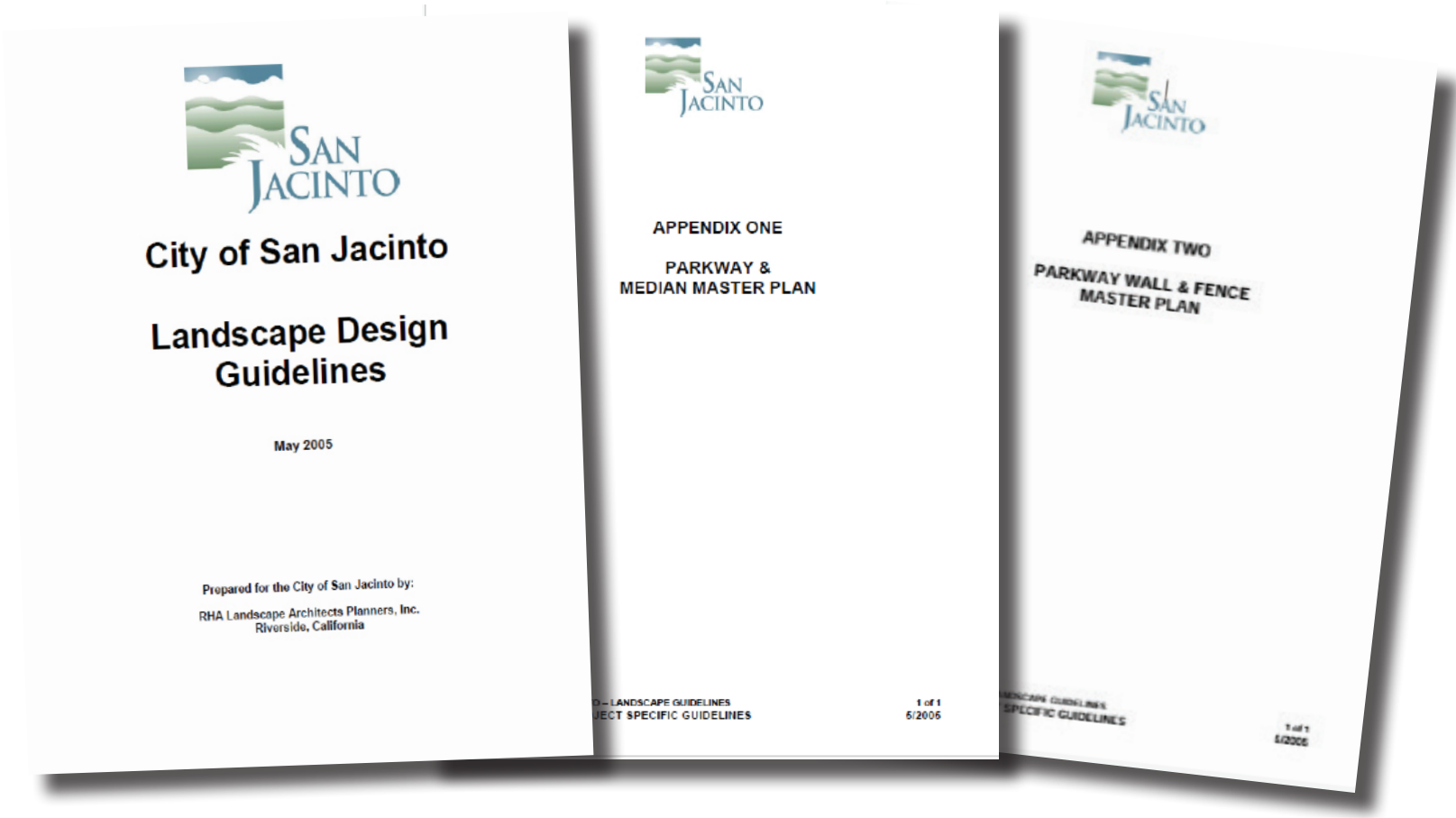


LANDSCAPE DESIGN GUIDELINES

CITY OF SAN JACINTO

RHA+CW INVOLVEMENT:
Stakeholder Outreach,
Document Development

CONTACT:
Tim Hults, City Manager
Prior to his 2017 retirement
Currently a Senior Associate at
The Collaborative
thults@thecollaborative.com

RHA, now doing business as, RHA Community Works has a long-standing history with the City of San Jacinto, having authored the City's original Landscape Design Guidelines and the Parkway & Median Master Plan. Our foundational work established the framework for the City's visual character and technical standards, covering everything from project-specific design criteria for residential front yards and commercial developments to specialized sections on slope stabilization and fire protection zones.

Beyond general standards, our team created the detailed Parkway & Median Master Plan, which provides specific planting themes and material palettes for major corridors like De Anza and Potter Road. This plan introduced water-wise strategies—such as the use of inert groundcovers and the restriction of turf in medians—well ahead of modern conservation mandates. By establishing clear requirements for street tree box sizes and wall materials, we provided the City with a durable roadmap for its public infrastructure. This deep historical knowledge of San Jacinto's existing guidelines gives us a significant head start in streamlining these documents into a modern, user-friendly comprehensive manual.









STREETSCAPE MASTER PLAN

REHABILITATION
CITY OF CARSON

RHA+CW INVOLVEMENT:
Conceptual Design, Photo Simulations, Implementation Plan and Cost Estimates

CONTACT:
Ian Holst
Associate Civil Engineer
(310) 952-1700 x 1822
iholst@carsonca.gov

The CWDG team, now doing business as RHA+CW, has teamed with Breen Design Group to prepare a Streetscape Master Plan to address median rehabilitation throughout the City of Carson. Our team is working with the City's stakeholders to develop a comprehensive City-Wide median rehabilitation conceptual plan utilizing the City's new branding and future development plans. As part of this exercise we are in the process of developing cost estimates and implementation plan.

Our team has since completed construction plans for four (4) linear miles of median improvements throughout the City. We are currently teamed with Mour Architects on city-wide facade improvements plans in preparation for the 2028 Olympics.









LAGUNA BEACH PLAYGROUND MASTER PLAN

CITY OF LAGUNA BEACH

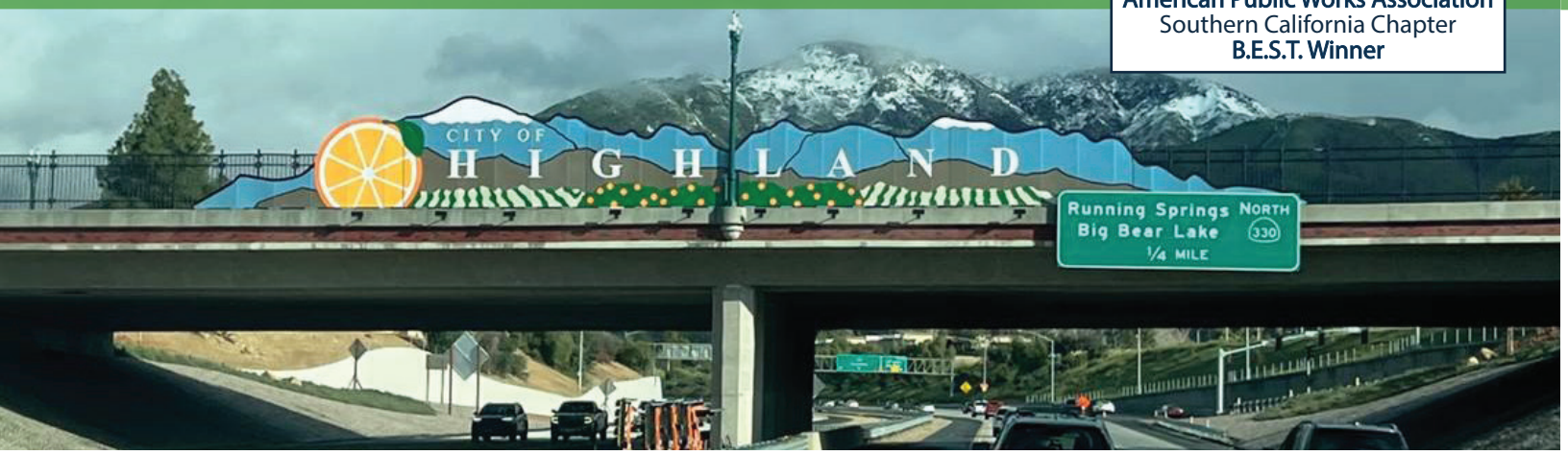
RHA+CW INVOLVEMENT:
Community Outreach,
Conceptual Design,
Photo Simulations,
Master Plan & CIP Prioritization Matrix

CONTACT:
Frank Lopez
Assistant City Engineer
flopez@lagunabeachcity.net
(949) 497-0741

CWDG, now doing businees as RHA+CW, served as the primary consultant for the City of Laguna Beach Playground Master Plan, leading the comprehensive effort to evaluate and provide a long-term strategy for the City's nine public playgrounds. CWDG's role was multifaceted, encompassing project leadership, technical analysis, and extensive community engagement to ensure the final plan was both technically sound and reflective of the community's vision.

As the lead consultant, CWDG was responsible for the overall management and delivery of the master plan. This began with meticulous on-site work, including detailed assessments of each playground's existing conditions. This was outlined in a $3.14 CIP Prioritization Matrix as part of the Playground Master Plan Approval by City Council.

2023
American Public Works Association
Southern California Chapter
B.E.S.T. Winner







Area 2: Natural Parkland Trailhead
Accessible Trailhead and Improved Trail

Natural Parkland Trail Improvements

ON-CALL SERVICES

CITY OF HIGHLAND

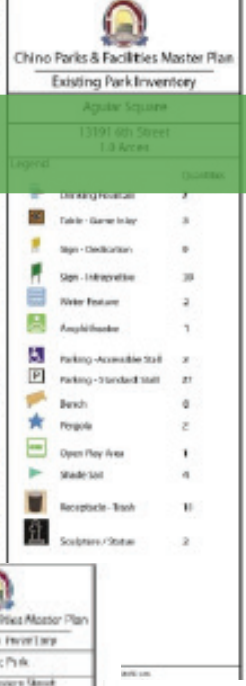
RHA+CW INVOLVEMENT:
Conceptual Design,
3D Modeling,
Construction Drawings,
Construction Administration
Plan Check & Inspections

CONTACT:
Kim Stater, Assistant Community Development Director
(909) 864-8732
kstater@cityofhighland.org

CWDG, now doing business as RHA+CW, has worked with the City of Highland since 1990 in various capacities and have highlighted a few of our favorite projects below:

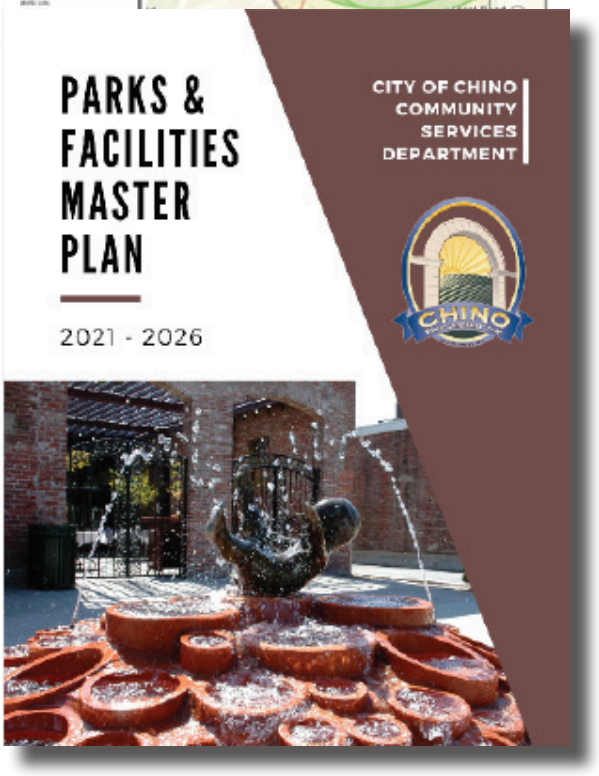
- SR210 Community Identity (APWA Award) (Pictured Far Top)
- Greenspot Iron Bridge Kiosk (Pictured Above Left)
- Natural Parkland Trail Improvements (Pictured Above Right)
- Town Center Streetscape
- Boulder Avenue Streetscape
- Aurantia Park
- City Facility Turf Removal/ Xeriscape Project at City Facilities (including City Yard, Parks, Fire Stations)
- CASp Staff Training
- SB 1383 Mulch and Compost Utilization Study
- Autumn Chase Slope Stabilization (after 2010 Storms)
- Coordination with East Valley Water District, East Highlands Ranch Master HOA











PARKS & FACILITIES MASTER PLAN

NEW DEVELOPMENT
CITY OF CHINO

RHA+CW INVOLVEMENT:

Community & Stakeholder Outreach, Conceptual Design, Photo Simulations, Plan Development

CONTACT:

Sylvia Avalos, Director
Community Services, Parks & Recreation
(909) 334-3434
savalos@cityofchino.org

RHA, now doing business as RHA+CW, served as a key technical consultant, providing critical expertise in park inventory and facility assessment. Led by Doug Grove, the firm performed detailed evaluations of Chino's extensive park system, which includes over 25 named parks such as Central Park, Monte Vista Park, and the Nature Retreat Park. RHA's role was instrumental in identifying life-cycle needs and infrastructure improvements across the city's diverse recreational assets, ensuring that the master plan's recommendations were grounded in a thorough understanding of existing physical conditions. By integrating these technical assessments with community input, RHA helped establish a strategic roadmap for the sustainable development and maintenance of Chino's public spaces for the five-year planning period.

EXPERIENCE AND REFERENCES









ON-CALL SERVICES

NEW DEVELOPMENT CITY OF EASTVALE

RHA+CW INVOLVEMENT:
Conceptual Design,
3D Modeling,
Construction Drawings,
Construction Administration
Plan Check & Inspections

CONTACT:
Yu Rhi Choi, Associate Engineer
951-361-0900
ychoi@eastvaleca.gov

CWDG, now doing business as RHA+CW, has served the City of Eastvale as a landscape architect consultant over the last decade and a half, since becoming a City. Scott Rice served as Landscape Architect for a wide variety of City contracts, including nearly all parks and trails within the City boundaries and even their Community Center. Featured above from Top Left clockwise: Entryway to Eastvale's Community Park and Sports Fields - Phase 1, 2.5 mile segment of Santa Ana River Trail, Bellegrave and Sumner City Entry Monument, and City of Eastvale Community Center.

In addition to our extensive landscape architectural work, our team most recently, serves as On-Call Plan Check and Inspection Services for their LMDD. Services provided by Dan Burkhart currently include, landscape maintenance inspection of their CFD, City tree inspection, City property damage documentation, landscape mapping, plan check and more.

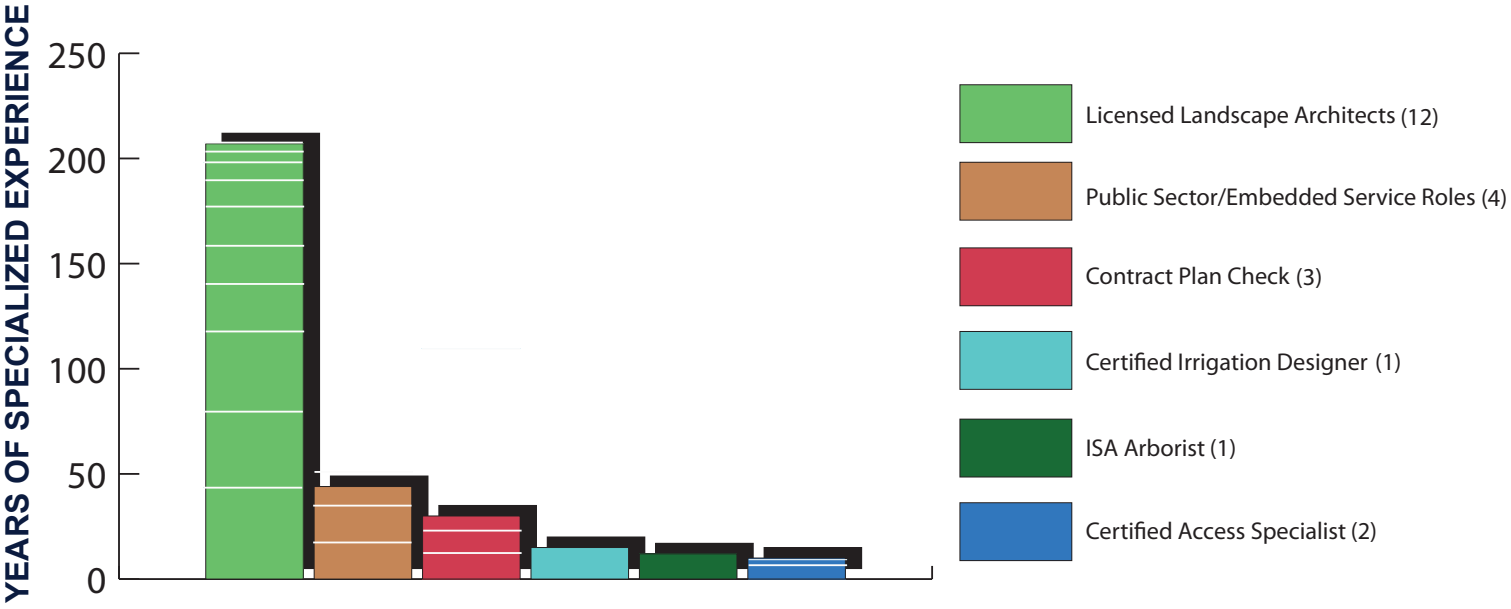
PROJECT TEAM AND STAFFING

RHA+CW confirms that key personnel identified in the Organizational Chart identified below will remain during the term of the agreement. In the event there are proposed changes during the term of the agreement we will develop a transition plan for the City's approval. We are also happy to work with any other On-Call sub-consultants already contracted with the City of San Jacinto. Managing Partners, Doug Grove and Scott Rice, will serve as the main points-of-contact for the City of San Jacinto and Project Managers will be rotated in based on the needs of each task.



PROJECT TEAM AND STAFFING

RHA+CW'S CURRENT TEAM OFFERS OVER 200 YEARS OF COMBINED PARK PLANNING EXPERIENCE IN ADDITION TO THE SPECIALTIES BELOW:



YOUR COMMITTED TEAM LEADERSHIP TEAM



Doug Grove, LLA #2799 ASLA, LEED AP

Managing Partner - Principal Landscape Architect

Doug Grove is uniquely qualified to lead this contract as he currently oversees the **City of San Jacinto's Parks and Open-Space Master Plan**, providing him with an unmatched institutional understanding of the City's specific goals, community needs, and existing infrastructure. With over four decades of experience and a former presidency of the California Park and Recreation Society (CPRS), he offers a "concept-to-completion" leadership style that ensures every on-call project aligns seamlessly with San Jacinto's long-term strategic vision. His deep-rooted familiarity with the City's regulatory landscape and stakeholder priorities allows RHA Community Works to deliver highly efficient, technically sound designs that are ready for immediate implementation.



Scott Rice, LLA #5111 ASLA, LEED AP, CASp

Managing Partner - Principal Landscape Architect

With over 25 years of experience in public works projects, Mr. Rice provides executive oversight and high-level quality assurance for all CWDG municipal projects. **His certification as a Certified Access Specialist (CASp)** is a critical asset for the City of San Jacinto, as the RFP specifically requires all documents to be reviewed for ADA compliance. Mr. Rice will ensure that every design submittal meets the most stringent federal and state accessibility standards.

PROJECT TEAM AND STAFFING

YOUR COMMITTED TEAM OF EXPERTS



Greg Meek, LLA #2484 CPSI - Principal Landscape Architect
Greg brings over 45 years of professional experience, including over a decade as a **park development coordinator and senior landscape architect for major California municipalities,** providing him with a sophisticated understanding of capital improvement budgeting, professional service agreements, and the internal operations of public agencies.



Allison Rush, LLA #6378 CASp, CPSI - Associate Principal Landscape Architect
As a Licensed Landscape Architect and Director Of Design + Creativity with over 13 years of experience, Allison provides a dual layer of technical oversight as both a **Certified Access Specialist (CASp) and a Certified Playground Safety Inspector (CPSI)**. She oversees all graphics and overall cohesion for plans and graphics for the firm.



Dan Burkhart, LLA #6092 ASLA, ISA, sUAS - Associate Principal Landscape Architect
As the Director of Implementation and Value, Dan provides an "insider" perspective rooted in his previous service as a Senior Landscape Inspector. His diverse technical toolkit as a Licensed Landscape Architect, **ISA Certified Arborist, and FAA Licensed Drone Pilot** allows him to oversee project implementation with a unique focus on budget-conscious asset management.



Lauren McHugh, LLA #5578 - Associate Principal Landscape Architect
As a Project Manager and Associate Principal with RHA Community Works, Ms. McHugh brings over 19 years of dedicated experience to the firm, managing projects from preliminary design through construction documentation. She has specialized in diverse assignments including streetscapes, and worked on the **San Jacinto Park and Recreation Master Plan for the City of San Jacinto.**



Andrew Lytle, LLA #7165 Senior Project Manager/Landscape Architect
With over a decade of experience, Andrew brings a **high level of technical proficiency in 3D visualization** and the design of complex public infrastructure, including parks, schools, and trail systems. His expertise spans the full project lifecycle, from initial conceptual rendering and budget management to the rigorous navigation of permitting and construction-phase oversight.



Mike Salazar, LLA #5166 CLIA - Senior Project Manager/Landscape Architect
With over 20 years of experience, Mike specializes in bridging the gap between innovative design and the technical requirements of large-scale capital improvement programs. As a **LEED Accredited Professional and Certified Landscape Irrigation Auditor**, he brings a rigorous focus on sustainability and operational efficiency to the firm.



Analicia Escobar-Gomez MPA, CPRP - Director Of Community Engagement
Analicia provides a multifaceted perspective to the team, drawing on her diverse background as a designer and public sector planner to develop highly implementable solutions for municipal clients. **With nearly a decade of park planning experience**, she specializes in equity-driven, community-based design and has successfully led recent outreach campaigns for numerous California cities.

PROJECT TEAM AND STAFFING: SUBCONSULTANTS

While the RHA Community Works team will perform the majority of the project scopes for the City of San Jacinto our team also includes the following subconsultants if required to consult for their expertise:

PBLA Engineering, Inc. (PBLA) is a multi-disciplinary firm that offers a robust suite of professional design services, including civil engineering, planning, and landscape architecture, making them a versatile partner for municipal services. Their expertise in site development includes critical services such as precise grading and drainage design, hydrologic and hydraulic studies, and Digital Terrain Modeling, which ensure that the creative vision of a landscape architect is grounded in functional, buildable reality. PBLA is particularly adept at navigating the complexities of municipal infrastructure, providing essential support in Water Quality Management Plans (WQMP), NPDES compliance, and dry utility coordination. By bridging the gap between innovative landscape design and rigorous engineering standards, PBLA ensures that the design standards for the City of San Jacinto are not only aesthetically impactful but also structurally sound, sustainable, and fully compliant with state and local regulations.

Years of Collaboration: 2010-Current (15+ Years)

Design West Engineering (DWE) can provide all Electrical Engineering and Dry Utility design/ coordination services for City projects. We (RHA+CW) have teamed with DWE on many successful park projects across Southern California. We plan to utilize their expertise for lighting and security standards.

Years of Collaboration: 2000 - Current (25+ Years)

DOUG GROVE ASLA, PLA, LEED AP
MANAGING PARTNER / PRINCIPAL LANDSCAPE ARCHITECT



EDUCATION:
Bachelor of Science in Landscape Architecture
California State Polytechnic University, Pomona (1985)

Years of Experience: 40+
Years with Firm: 32

LICENSES + CERTIFICATES:
Licensed Landscape Architect
California #2799 (1987-current)

LEED Accredited Professional
United States Green Building Council (USGBC)

AFFILIATIONS:
Building Industry Association of Southern California (BIASC)
Board of Directors/ Executive Committee
Riverside County Chapter
President (2024-present)
Vice President (2023-2024)
Secretary (2022-2023)
Board Member (2018-present)

Building California Park & Recreation Society (CPRS)
CPRS Administrators Section
Director of Fundraising (2024-present)
President (2023-2024)
President Elect (2022-2023)
Vice President (2021-2022)

Mr. Grove serves as the Managing Partner and Principal Landscape Architect of RHA Community Works (RHA+CW), where he leverages over four decades of technical expertise and executive leadership. A 1985 graduate of California State Polytechnic University, Pomona, with a Bachelor of Science in Landscape Architecture, Mr. Grove has dedicated his career to the stewardship of public and private land, specializing in the intersection of community functionality and aesthetic design.

Throughout his tenure, Mr. Grove has become a definitive voice in the public works sector. His portfolio includes the successful design and project management of hundreds of park projects, alongside a diverse array of streetscapes, institutional facilities, and commercial environments. Beyond public infrastructure, he is highly regarded within the home-building industry for his strategic oversight of residential developments. This dual expertise allows him to navigate the unique requirements of both public and private stakeholders with a rare level of fluency.

Mr. Grove's approach is defined by a comprehensive, "concept-to-completion" philosophy. He is known for his ability to guide complex multidisciplinary teams through every phase of project development. This includes initial site planning and conceptual design, the rigorous production of construction documents, and the critical phase of construction observation. A key hallmark of his leadership is his proficiency in the regulatory arena; he is adept at coordinating public outreach, leading community meetings, and navigating the nuances of agency approvals to ensure that final drawings translate into seamless project delivery.

His commitment to the profession extends far beyond the studio. Mr. Grove is a prominent figure in the California landscape and recreation community, having served as the 2023–2024 State Board President for the California Park and Recreation Society (CPRS). His leadership within the organization also includes a past presidency of the CPRS State Development and Operations Section. Currently, he serves as the President of the Building Industry Association (BIA) for Riverside County, reflecting his deep-rooted influence in regional development.

Representative projects include (partial list):

- **Landscape Design Guidelines, City of San Jacinto**
- **Parks and Recreation Master Plan, City of San Jacinto**
- Victoria Avenue Beautification Plan, City of Riverside
- Parks & Facilities Master Plan, City of Chino

SCOTT RICE ASLA, PLA, LEED AP, CASp
MANAGING PARTNER /PRINCIPAL LANDSCAPE ARCHITECT



EDUCATION:

Bachelor of Science in Landscape Architecture
California State Polytechnic University, Pomona (2002)

Years of Experience: 25
Years with Firm: 20+

LICENSES + CERTIFICATES:

Licensed Landscape Architect
California #5111 (2005-current)
New York #2645 (2016-current)

Certified Access Specialist
California CASp-709 (2016-current)

AFFILIATIONS:

American Society of Landscape Architects (ASLA) / Southern California Chapter
Exec. Committee member (2021-present)
Chapter President (2024-2025)

County of San Bernardino
Building and Safety Appeals Board - Chairman (2025-present)
Physically Disabled Access Appeals Board Member (2019-present)

Building Industry Association of Southern California Board of Directors
San Bernardino County Chapter Board Member (2025-present)
Riverside County Chapter Board Member (2021-2025)
Leaders of Tomorrow Committee - Chairman (2017)

Certified Access Specialist Institute
Full Member (2016-present)

Mr. Scott Rice is President and Managing Principal of Community Works Design Group (CWDG). He has managed over $150 million of park projects during his tenure at CWDG. Scott oversees the development of construction documents, plan checking, cost estimating, conceptual rendering, and construction observation and management.

Scott graduated with honors from Cal Poly Pomona, earning a Bachelor of Science Degree in Landscape Architecture. He is a full member of the American Society of Landscape Architects (ASLA). Additionally, Scott is a LEED Accredited Professional (LEED AP), as designated by the United States Green Building Council (USGBC), and a Certified Access Specialist (CASp) as issued by the State of California, Division of the State Architect. Scott is one of only three Landscape Architects in California that currently hold CASp Certification.

Scott also serves as the City Landscape Architect for the City of Highland, California, and has acted in that capacity since 2005. Scott also has served as a Consultant Park Planner/ Plan Checker for Jurupa Area Recreation and Park District (JARPD) since 2015.

Mr. Rice draws on previous work experience in graphic design and golf course maintenance to integrate high aesthetic quality in balance with functional, cost-effective design. His focus is in Public Works projects for various municipalities throughout the State, including Park Planning of various scales, including Community, Neighborhood, Sports, and Pocket Parks, as well as median and parkway landscape, and LMD/ CFD planning. Specialized areas of involvement include Skate Parks, Dog Parks, and Accessible Play. In addition to Park Planning, Scott is seasoned in the landscape architectural development of Multi-family Housing, Planned Residential Communities, Highway Aesthetic Design, Custom Residential Planning, and various private/commercial ventures.

Representative projects include (partial list):

- **Carson Streetscape Master Plan, City of Carson**
- **Perris Landscape Design Guidelines, City of Perris**
- Safer Streets Phases 1 & 2, City of Indian Wells
- Streetscape Master Plan, City of Carson
- Laguna Beach Playground Master Plan, City of Laguna Beach
- City Landscape Architect, City of Highland (2005-Present)
- Greenspot Iron Bridge Kiosk, City of Highland

GREG MEEK PLA, CPSI
PRINCIPAL LANDSCAPE ARCHITECT



EDUCATION:
Bachelor of Arts in Landscape Architecture
California Texas A&M University (1979)
Performance Leadership
DunkinWorks (2016)
Resolve - Negotiations training
Agreement Dynamics Inc. 2017

Years of Experience: 47+

LICENSES + CERTIFICATES:
Licensed Landscape Architect
California #2484 (1984-current)

Certified Playground Safety Inspector

Mr. Greg Meek is a Principal Landscape Architect at RHA Community Works with over 47 years of extensive experience in both the public and private sectors. A graduate of Texas A&M University and a licensed professional since 1984, Greg offers a rare depth of institutional knowledge, including a notable three-year tenure as the Senior Landscape Architect for the City of San Jose. His career is defined by a mastery of public works administration, having spent a decade as a park development coordinator for various California municipalities. This background allows him to expertly navigate the complexities of agency capital budgets, the management of Park Impact fees, and the strategic planning of Capital Improvement Programs (CIP) for high-stakes infrastructure projects.

Greg's specialized expertise is particularly valuable for large-scale turf reduction and water conservation contracts. His experience as a consultant plan checker for cities such as Jurupa Valley, Rialto, and Diamond Bar ensures that all design documents undergo a rigorous internal review for technical accuracy and regulatory alignment. He is highly proficient in developing requests for services, negotiating fees, and managing multi-disciplinary teams to ensure that public projects—ranging from regional sports complexes to municipal streetscapes—are delivered with fiscal transparency and strict adherence to AB 1572 and MWELO mandates.

In addition to his administrative and design leadership, Greg is a Certified Playground Safety Inspector (CPSI), reflecting a career-long commitment to public safety and accessible design. His professional toolkit is further enhanced by advanced training in performance leadership and negotiation dynamics, skills he utilizes to facilitate consensus among stakeholders and governing agencies. Whether overseeing the modernization of a neighborhood park or coordinating complex facility improvements, Greg ensures that every RHA initiative is grounded in nearly five decades of technical excellence and a deep understanding of the unique operational requirements of California's public districts.

Representative projects include (partial list):

- Mead Valley Library (LEED Silver), County of Riverside
- Casmalia and Alder Street Beautification, City of Rialto
- Mission Boulevard Revitalization, Riverside County EDA Washington Park Play Area, City of El Segundo, California
- Jurupa Valley Planning Department Plan Checking, City of Jurupa Valley,
- Lake Cunningham Bike Park/ Extreme Sports Park, San Jose, California
- Grand Terrace Fitness Park, Grand Terrace, California

DANIEL BURKHART ASLA, PLA, ISA
ASSOCIATE PRINCIPAL LANDSCAPE ARCHITECT



EDUCATION:
Bachelor of Science in Landscape Architecture
California State Polytechnic University, Pomona (2001)

Years of Experience: 25
Years with Firm: 5

LICENSES + CERTIFICATES:
Licensed Landscape Architect
California #6092 (2015-current)

ISA Certified Arborist
WE-11637A (2016-current)

FAA UAS Remote Pilot
(2017-current)

California Department of Pesticide Regulation - QAL
122282 BF (2010-current)

AFFILIATIONS:
American Society of Landscape Architects (ASLA)
Full Member

International Society of Arboriculture (ISA)
Full Member

Mr. Dan Burkhart is an Associate Landscape Architect at RHA Community Works, where he directs the firm's construction development and documentation processes with a focus on large-scale public works projects. With over 24 years of cross-disciplinary experience, Dan oversees technical plan checking, internal quality control, and comprehensive construction oversight. His professional journey, from early roles in municipal parks departments to serving as a General Superintendent for habitat restoration and mitigation, provides him with a unique "boots-on-the-ground" perspective that ensures designs are not only visionary but technically executable and maintainable.

As a specialist in sustainable infrastructure and public-sector contracts, Dan previously served as the Senior Landscape Inspector for the City of Yorba Linda. In this capacity, he managed extensive landscape maintenance assessment districts (LMAD), overseeing 500 acres of municipal landscape and a 22,000-tree urban forest. This experience on the agency side of the table is invaluable for turf reduction initiatives, as it allows him to anticipate the long-term operational needs of public districts while ensuring strict adherence to project specifications and water-efficiency mandates.

Dan holds a Bachelor of Science in Landscape Architecture from Cal Poly Pomona and maintains an elite technical toolkit, including certifications as a Licensed Contractor, Certified Arborist, FAA UAS Drone Pilot, and Qualified Applicator (QAL). Known as the "Coach" within the office, he is dedicated to mentoring staff and optimizing production efficiency to meet demanding project schedules. His diverse background in both design-build and municipal inspection makes him a key asset in delivering high-performance, AB 1572-compliant landscapes that stand up to the rigors of public use and maintenance.

Representative projects include (partial list):

- **Carson Streetscape Master Plan, City of Carson**
- **Perris Landscape Design Guidelines, City of Perris**
- Public Turf Conversion, City of Jurupa Valley
- Colton Median and Streetscape, City of Colton
- 5th Street Widening, City of Temecula
- Natural Parkland Trail, City of Highland
- 3rd and 5th Street Improvements, City of Highland

ALLISON RUSH PLA, CASp, CPSI
ASSOCIATE PRINCIPAL LANDSCAPE ARCHITECT



EDUCATION:

Bachelor of Arts in Human Geography, *The Pennsylvania State University (2010)*

Master of Landscape Architecture, *Temple University (2013)*

Years of Experience: 13+
Years with Firm: 10+

LICENSES + CERTIFICATES:

Licensed Landscape Architect: *California #6378 (2018-current)*

Certified Access Specialist: *California CASp-1080 (2023-current)*

Certified Playground Safety Inspector *California (2023-current)*

AFFILIATIONS:

American Society of Landscape Architects (ASLA) *Full Member*

Certified Access Specialist Institute *Full Member*

Mrs. Allison Rush is an Associate Principal Landscape Architect at RHA Community Works, specializing in the optimization of public spaces and the technical delivery of water-resilient infrastructure. With a Master of Landscape Architecture and a background in Architectural History, Allison excels at configuring environments that promote community health while meeting modern sustainability mandates. Her expertise is central to the firm's ability to transform underutilized areas into high-functioning, AB 1572-compliant landscapes that balance user experience with resource conservation.

With over a decade of experience in the California landscape industry, Allison has developed a sophisticated mastery of digital media and CAD-based production. She leverages advanced AutoCAD workflows, 3D modeling, and photo simulations to translate complex design guidelines into precise, constructible documents. These tools are critical in the public works sector, providing Districts with realistic visualizations of turf reduction and irrigation retrofits while ensuring that site grading and drainage plans align perfectly with local municipal standards and state water ordinances.

As a Certified Access Specialist (CASp) and Playground Safety Inspector, Allison ensures that every project exceeds universal design standards and safety requirements. Her technical fluency allows her to lead multidisciplinary teams through the intricacies of playground design and irrigation modernization, bridging the gap between creative intent and strict regulatory adherence. By maintaining a rigorous standard for construction documentation, she ensures that the firm's designs are not only visionary but technically sound and ready for seamless field implementation.

Representative projects include (partial list):

- **Carson Streetscape Master Plan, City of Carson**
- **Perris Landscape Design Guidelines, City of Perris**
- **Safer Streets Phases 1 & 2, City of Indian Wells**
- **Playground Master Plan, City of Laguna Beach**
- **Weston Park Redesign, City of Hemet**

LAUREN MCHUGH PLA
ASSOCIATE PRINCIPAL LANDSCAPE ARCHITECT



EDUCATION:

Bachelor of Arts in Landscape Architecture
California Texas A&M University (2006)

Years of Experience: 19+

Years with Firm: 19+

LICENSES + CERTIFICATES:

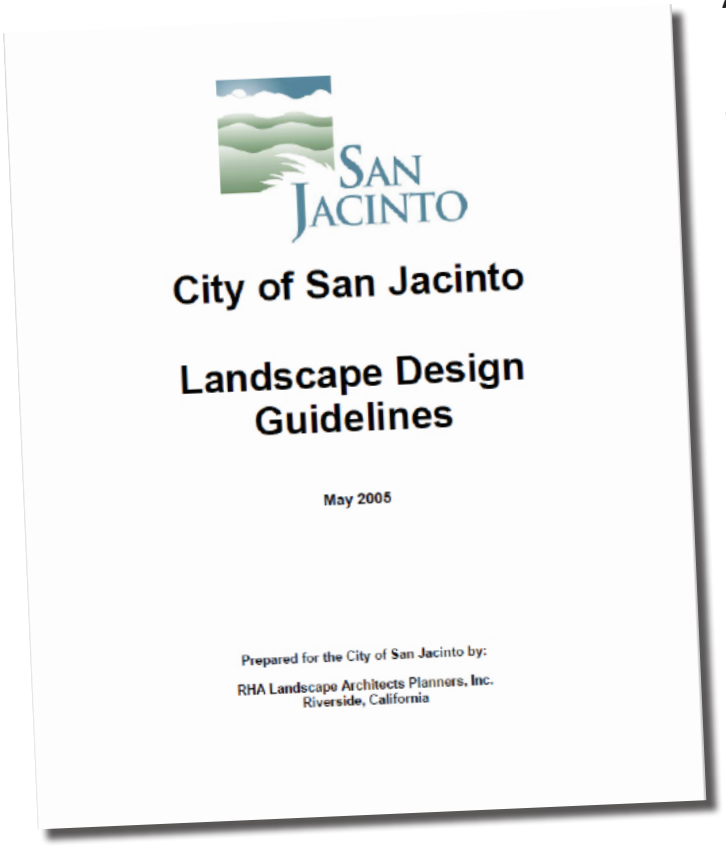
Licensed Landscape Architect
California #5578 (2009-current)

With nearly two decades of experience at RHA Community Works, Ms. McHugh has cultivated a specialized expertise in navigating the complexities of public-sector landscape architecture. As both an Associate Principal and Project Manager, she bridges the gap between high-level community planning and the technical rigor required for construction-ready documentation. Her career is defined by a versatile portfolio that transforms utilitarian infrastructure—such as roadway improvements and hospital grounds—into vibrant, functional environments. By overseeing projects from their earliest preliminary phases through to final construction, she ensures that the original design vision remains intact while meeting strict municipal standards and budgetary requirements.

Beyond her management capabilities, Ms. McHugh is a highly skilled practitioner of computer-aided graphic design, using advanced digital tools to bring conceptual landscapes to life for stakeholders and community members. Her work on large-scale regional parks and intricate pedestrian trail systems reflects a deep commitment to accessibility and ecological integration. Having earned her Bachelor of Science from California State Polytechnic University, Pomona, she applies a "learn by doing" philosophy to every assignment, ensuring that neighborhood parks and urban streetscapes are not only aesthetically pleasing but also resilient and sustainable. Her long-standing licensure and leadership within the firm serve as a testament to her dedication to the profession and the communities she serves.

Representative projects include:

- **San Jacinto Park and Recreation Master Plan, City of San Jacinto**
- Temple City Parks and Open Space Master Plan, City of Temple City
- Carlsbad Needs Assessment and Comprehensive Action Plan, City of Carlsbad
- Ladera Ranch Needs Assessment/Park and Recreation Master Plan, Ladera Ranch
- Orange Blossom Trail – Phase 1, City of Redlands
- Orange Blossom Trail – Phase 2, City of Redlands
- Arroyo Seco Pedestrian and Bicycle Trail, City of South Pasadena
- Gilman Ranch, RivCo Parks
- Celebration Park, City of Ontario
- Fergusson Park, City of Rialto
- Rancho Jurupa Regional Sports Complex, Riverside County EDA
- Rancho Jurupa Park – RV Park, Water Play & Miniature Golf, County of Riverside



A Proven Partnership for a Visionary Future

RHA Community Works has a long-standing history with the City of San Jacinto, dating back to 2005 when we authored the City's original Landscape Design Guidelines and the Parkway & Median Master Plan. Our foundational work established the framework for the City's visual character and technical standards, covering everything from project-specific design criteria for residential front yards and commercial developments to specialized sections on slope stabilization and fire protection zones. We also developed the comprehensive technical manual that governs plan submittals and review processes, ensuring a consistent and high-quality aesthetic across all municipal improvements. This deep historical knowledge of San Jacinto's existing guidelines gives us a significant head start in streamlining these documents into a modern, user-friendly comprehensive manual.

Since those initial projects, our firm has strategically merged with Community Works Design Group, significantly expanding our capacity and creative reach. This merger brings a wealth of additional experience from high-profile municipal projects, such as the development of the Playground Master Plan for the City of Laguna Beach and the Streetscape Master Plan for the City of Carson. By blending our intimate local knowledge of San Jacinto with our firm's broader expertise in stakeholder outreach and inclusive design, we are uniquely prepared to help the City refresh and simplify its various technical documents. Our goal is to consolidate these plans into a single, cohesive Comprehensive Guidance manual that serves as a functional tool for city staff, developers, and residents alike.

The continuity of our leadership is a primary asset for this undertaking. Our Principal Landscape Architect, Doug Grove, spearheaded the original Landscape Design Guideline process as well as the City's initial Park & Recreation Master Plan. His direct involvement ensures that the upcoming updates are built upon a solid understanding of the City's original intent while being expertly adapted for 21st-century needs. This "institutional memory" allows our team to bypass the typical learning curve associated with new consultants, positioning us to meet an ambitious 6–9 month completion timeframe without sacrificing the depth or quality of the final product.

Over the past 20 years, we have built on that foundation by master planning for dozens of surrounding communities and regional agencies—including the Cities of Chino, Riverside, San Clemente, and the Rim of the World Recreation and Park District. We are eager to bring this updated experience back to San Jacinto. With a talented team of 20 professional staff, we have the resources to transform dense technical data into a vibrant, graphic-heavy document. Our approach focuses on clarity and accessibility, utilizing easy-to-navigate tables, matrices, and highly visual prototypes to ensure that the City's vision is not only preserved but clearly communicated for decades to come.

Task 1: Project Initiation & Review

Success in the development of Citywide Landscape, Park, and Irrigation Design Standards begins with a shared vision and a rigorous audit of the City's existing regulatory framework. RHA Community Works views Task 1 not merely as an administrative startup, but as the foundational phase where the project's strategic alignment is secured.

Our team will initiate the project with a **Formal Kickoff Meeting involving key City stakeholders from Public Works, Planning, and Community Development.** The primary objective is to establish clear lines of communication, confirm the project schedule, and define the "Success Indicators" for the final manual. During this session, we will finalize the list of **"Stakeholder Technical Experts"** who will provide departmental oversight throughout the process.

Following the kickoff, our team will conduct a **Comprehensive Document Audit.** We will perform a "deep-dive" review of the following documents to identify "friction points" where current standards may inadvertently hinder the goals of the San Jacinto General Plan 2040:

- ***San Jacinto General Plan 2040:*** Ensuring the new standards facilitate the Land Use and Resource Management goals.
- ***San Jacinto Trails Master Plan:*** Aligning parkway and street tree standards with established trail connectivity goals.
- ***Housing Element & 2021-2029 Mandates:*** Identifying how landscape standards can support densification without sacrificing aesthetic or environmental quality.
- ***Existing Municipal Codes & Engineering Standards:*** Flagging outdated specifications that create maintenance burdens or conflict with modern irrigation technology.

This phase concludes with a **Project Review Memorandum,** which summarizes our findings and outlines the specific areas where current standards are most deficient or inconsistent. This memo serves as the roadmap for the technical updates in subsequent tasks.

Methodology Highlights

- ***Conflict Resolution:*** Identifying where Engineering requirements (e.g., utility clearances) and Landscape requirements (e.g., shade tree canopy) are at odds.

- ***Policy Mapping***: Linking every proposed standard back to a specific goal in the General Plan 2040 to ensure legal and planning defensibility.

- ***Communication Protocol:*** Establishing a project-specific portal for the seamless exchange of CAD files, GIS data, and draft documents.

Relevant Experience

City of San Jacinto Park & Recreation Master Plan and Landscape Design Guidelines

Having previously developed the City's Park & Recreation Master Plan and Landscape Design Guidelines, RHA Community Works possesses an unparalleled "head start." We are already intimately familiar with San Jacinto's park inventory and community demographics. This historical knowledge allows us to move through Task 1 with greater speed and precision than any other firm, as we are building upon a foundation we helped create.

Task 2: Gap Analysis & Internal Consistency

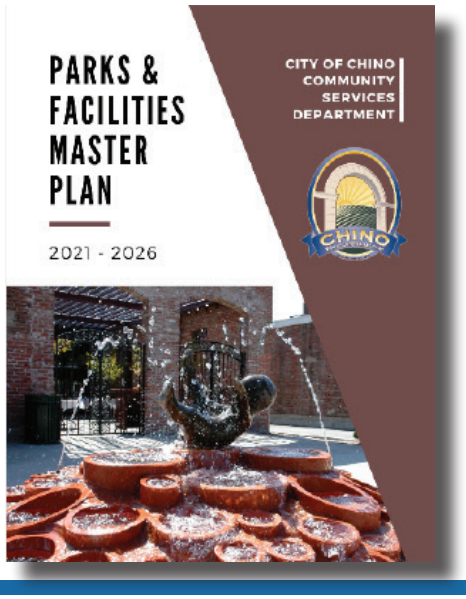
A primary challenge in municipal development is the "silo effect," where standards authored by different departments—though well-intentioned—create practical conflicts in the field. Task 2 is a rigorous technical audit designed to eliminate these contradictions before they reach the drafting phase. RHA Community Works will conduct a cross-functional analysis of San Jacinto's landscape requirements against the standards of the Public Works, Planning, and Utilities Departments.

Our team will facilitate a series of Internal Stakeholder Work Sessions to map out existing regulatory overlaps. We will focus specifically on "Competing Right-of-Way Needs." For example, we will ensure that a Planning requirement for a specific street tree canopy size does not interfere with Public Works' line-of-sight safety mandates or Utility Department clearances for overhead power lines and underground water mains. By identifying these "Gap Areas" early, we prevent the need for costly field revisions or variance requests during the private development review process.

The deliverable for this task will be an Internal Consistency Matrix. This document will list every current landscape-related mandate and flag conflicting language found in the Municipal Code, Standard Drawings, or General Plan policies. This matrix ensures that the updated Landscape and Irrigation Design Standards manual becomes the "Single Source of Truth" for the City, providing developers and staff with a clear, unified path to project approval.

Methodology Highlights

- ***Regulatory Cross-Reference:*** Auditing the City's Engineering Standard Drawings to ensure that planting setbacks are compatible with utility trenching details.
- ***Feasibility Testing:*** Verifying that required parkway widths can actually accommodate the specified tree root balls and irrigation lateral lines without compromising sidewalk integrity.
- ***Enforcement Streamlining:*** Updating "Conditions of Approval" language to ensure it is consistent across all departments, reducing the administrative burden on City Planning staff during the entitlement process.



Relevant Experience

City of Chino Parks & Facilities Master Plan

During our work for the City of Chino, RHA Community Works faced a complex regulatory environment involving multiple overlapping master plans and municipal codes. Our team led a multi-departmental effort to streamline these requirements into a cohesive set of development standards. By acting as the bridge between the Parks and Public Works departments, we eliminated redundant requirements and created a unified "Amenities Menu" that simplified the development of over 100 acres of parkland, including the regionally significant Ruben S. Ayala Park.

Task 3: Park Classifications & Amenity Standards

A cohesive park system requires a clear organizational hierarchy to ensure that diverse community needs are met efficiently across the City's geographic footprint. RHA Community Works will develop a Park Classification Framework that categorizes San Jacinto's outdoor assets into distinct tiers, such as Pocket Parks, Neighborhood Parks, Community Parks, and Regional Sports Complexes. Each classification will be defined by specific acreage targets, service area radiuses, and intended user demographics, providing the City with a data-driven tool for future land acquisition and development.

Once the hierarchy is established, our team will define ***"Signature Amenity Standards"*** for each class. This ensures a baseline of quality and "equitable distribution" of essential features across all wards of the City. We will move beyond basic requirements to incorporate modern community priorities, establishing standards for:

- ***Inclusive Play Environments:*** Moving beyond basic ADA compliance to "Universal Design" that encourages play for children of all abilities.
- ***Climate Resilience:*** Mandating shade structures, "cool" surfacing, and integrated hydration stations as standard components for every park tier.
- ***Technology Integration:*** Standards for smart lighting, Wi-Fi zones, and security infrastructure.

The final deliverable for this task will be an Amenity Matrix included in the manual. This matrix will act as a "Developer's Playbook," clearly stating which amenities are mandatory, which are preferred, and which are prohibited for each park type. This level of clarity reduces the "back-and-forth" during the design review process and ensures that new developments contribute meaningfully to the City's overall recreational fabric.

Methodology Highlights

- ***Tiered Programming:*** Establishing "minimum viable programming" for small infill lots to ensure they offer high-value recreation despite space constraints.
- ***Service Radius Mapping:*** Using the hierarchy to identify "park deserts" where future Neighborhood Parks should be prioritized.
- ***Maintenance-First Design:*** Specifying standardized materials and finishes (e.g., specific anti-graffiti coatings or playground surfacing) across all classifications to streamline the City's long-term maintenance inventory.

Relevant Experience

RHA Community Works is currently spearheading the City of Upland's Parks and Recreation Master Plan, creating a visionary "roadmap" to modernize aging park infrastructure and equitably expand recreational access for a growing community. By integrating data-driven analysis with robust public engagement, the firm developed a strategic framework that balances the preservation of Upland's local character with innovative standards for climate resilience and inclusive play.

PROJECT UNDERSTANDING AND TECHNICAL APPROACH

To move San Jacinto toward a more cohesive and sustainable park system, RHA+CW will implement a comprehensive classification framework. This system will move beyond simple acreage counts to define the functional role of every space, ensuring that future developer contributions and City investments are strategically aligned.

1. Park Classification Framework

We will categorize all existing and future City assets into a four-tiered hierarchy. This allows the City to set specific standards for maintenance, equipment quality, and service radius:

2. Standards for Inclusive Play

RHA+CW goes beyond basic ADA compliance to embrace Universal Design. Our standards will mandate that San Jacinto's play areas are "multi-generational" and "multi-ability." In addition to our two (2) in-house Certified Access Specialists (CASp), we also offer two (2) in-house Certifed Playground Safety Inspectors (CPSI), giving our team a strong edge for Inclusive Play Design Standards.

3. Climate Resilience and Sustainable Infrastructure

Given the San Jacinto Valley's heat and water constraints, resilience is a technical necessity.

4. Smart Park Technology

We will future-proof San Jacinto's parks by integrating standards for "Smart" infrastructure that improves safety and operations.

Sample Park Classification Matrix shown below:

STANDARD *Feature / Amenity*	P TIER I **Pocket Park** *Under 1 Acre*	N TIER II **Neighborhood Park** *1 – 5 Acres*	C TIER III **Community Park** *10+ Acres*
Inclusive Playground	**Small Nodes** *Intimate play elements*	**Full Primary Structure** *ADA-compliant, mixed ages*	**Destination / Themed** *Signature regional draw*
Shade Coverage	**50%** *of seating areas*	**30%** *of total park area*	**40%** *of total park area*
Sports Facilities	*— Not Applicable —*	**Multi-Use Court** *Basketball / pickleball*	**Specialized Complexes** *League-grade fields & courts*
Restroom Facilities	*— Not Applicable —*	**Optional / Standard** *Pre-cast concrete units*	**Mandatory / Enhanced** *Year-round, family-style*
Smart Technology	**Lighting Only** *LED dusk-to-dawn*	**Wi-Fi + Smart Irrigation** *Public access & ET control*	**Full Sensor Suite** *Usage, air, soil & water*
Hydration Stations	**Standard Fountain** *Single-bubbler unit*	**Bottle Filler** *Fountain + refill spout*	**High-Capacity / Pet-Friendly** *Bubbler, filler & dog bowl*
Native Planting	**100%** *Fully native palette*	**70%** *30% active turf allowance*	**80%** *20% active turf allowance*

READING THE MATRIX
Each row defines the ***minimum*** standard by tier. Developers may exceed these thresholds with City approval.

PERCENTAGE BASIS
Shade and native-planting percentages are calculated against the measurable area defined for each tier.

ENFORCEMENT
Compliance is verified at the design-review phase and confirmed before acceptance into City maintenance inventory.

Task 4: Park Amenity Design and Equipment Standards

Traditional park requirements often rely on rigid, acreage-to-population ratios that can be difficult to implement on irregularly shaped or smaller infill development sites. To address this, RHA Community Works will develop a ***"Points-Based Amenity Menu"*** designed to prioritize qualitative community impact over quantitative land area alone. This system provides developers with the flexibility to meet City requirements through a diverse combination of high-value amenities that reflect the actual recreational needs of San Jacinto's residents.

Under this system, different park features, such as fitness stations, public art installations, shade structures, or multi-use trail connections, are assigned a "point value" based on their cost, maintenance intensity, and community demand. A developer might choose to provide a smaller physical park space that is "highly activated" with high-point amenities like a splash pad or inclusive playground, rather than a larger, passive open space with lower recreational utility. This "Value Scoring" approach ensures that even as the City densifies, the recreational opportunities available to residents remain high-quality and varied.

The final deliverable for this task will be a Scoring Worksheet included in the manual. This tool will allow City Planning staff to quickly evaluate a developer's proposal, ensuring it meets the minimum threshold of "Recreational Value Points" before project approval. It transforms the negotiation process between the City and developers into a clear, transparent, and objective exercise.

Methodology Highlights

- ***Amenity Weighting:*** Collaborating with City staff to assign points based on San Jacinto's specific priorities (e.g., higher points for water-efficient features or shade).

- ***Alternative Compliance:*** Creating a pathway for developers to fulfill recreational obligations through off-site trail improvements or contributions to regional park facilities when on-site options are limited.

- ***Future-Proofing:*** Designing the scoring system to be modular, allowing the City to update point values as community trends shift (e.g., adding points for pickleball courts or EV charging stations in park lots).

Relevant Experience

City of Carlsbad Needs Assessment and Action Plan

RHA Community Works utilized a sophisticated "Needs Assessment" logic for the City of Carlsbad that served as the precursor to a scoring system. We translated broad community desires into a quantifiable "Action Plan," where specific recreational gaps were identified and weighted. By establishing a data-driven framework for what the community lacked, we enabled the City to direct developer contributions toward the most impactful projects. We will adapt this successful logic to create a San Jacinto-specific scoring menu that balances developer flexibility with guaranteed community benefit.

Weston Park Redesign and Community Engagement

Through our recent work on the Weston Park Redesign in nearby Hemet, we have gained contemporary insights into the specific recreational preferences of Inland Empire residents. We understand the high value placed on shaded gathering spaces and safe, accessible play areas. This regional knowledge ensures that the "Point Values" we assign in the San Jacinto manual will accurately reflect the amenities that local families will actually use and cherish, rather than relying on generic national averages.

Sample Points-Based Amenity Menu shown below:

CATEGORY *Amenity Class*	50–100 pts TIER A **High-Value Amenity** *Signature / capital-intensive*	20–49 pts TIER B **Medium-Value Amenity** *Programmatic / flexible*	5–19 pts TIER C **Low-Value Amenity** *Supporting / site furnishing*
Active Play	• Inclusive Playground • Splash Pad	• Half-Court Basketball • Fitness Station	• Horseshoe Pit • Tetherball
Passive / Social	• Large Group Pavilion • Amphitheater	• Individual Picnic Gazebo • Dog Park	• Bench Seating • Trash Receptacles
Connectivity	• Class I Multi-Use Trail Link	• Decomposed Granite Internal Path	• Basic Wayfinding Signage
Resilience	• Smart Irrigation / Solar Lighting	• Engineered Shade Structure	• Drought-Tolerant Tree Canopy

SCORING BASIS

Points reflect ***relative contribution*** to park program, public benefit, and long-term value — not construction cost alone.

COMBINING VALUES

Total park scores are summed across categories. A balanced mix across all four rows is preferred over concentration in one category.

REVIEW AUTHORITY

Final point assignments are confirmed by the Community Development Director during design review, with discretion to adjust within tier ranges.

Task 5: Landscape Planting & Irrigation Design Standards

In the arid climate of the San Jacinto Valley, landscape design must transcend aesthetics to become a functional tool for environmental resilience and resource conservation. RHA Community Works will develop a ***"San Jacinto Resilient"*** Planting Framework that prioritizes long-term survivability while enhancing the City's visual character. Our approach centers on creating a diversified plant palette that is specifically adapted to the local microclimate, emphasizing low-water, fire-resistant, and non-invasive species.

A critical component of this task is the implementation of Hydro-zoning Standards. We will establish clear guidelines for grouping plants with similar water needs, ensuring that irrigation schedules are optimized and water waste is eliminated. Furthermore, our standards will address the "foundation" of landscape success: Soil Health and Management. We will provide technical specifications for soil testing, organic amendments, and mulching practices that improve water retention and reduce the need for synthetic fertilizers. By focusing on the biological health of the landscape, we ensure that the City's green infrastructure can withstand regional heatwaves and prolonged drought cycles.

The final deliverable will be an **Approved Plant Palette and Design Guideline section,** based on what has worked over the last 20 years from the original palette. This will include detailed "Instructional Guides" showing proper planting techniques, minimum spacing for maturity, and clear prohibited species lists to protect local biodiversity.

Methodology Highlights

- ***Climate-Specific Selection:*** Curating species that thrive in San Jacinto's specific USDA Hardiness Zone and Sunset Climate Zone, with a focus on pollinators and native-friendly varieties.

- ***Safety & Visibility Design:*** Integrating "Crime Prevention Through Environmental Design" (CPTED) principles to ensure planting heights and placements maintain clear sightlines for public safety.

- ***MWELO Integration:*** Ensuring every planting standard is pre-aligned with the California Model Water Efficient Landscape Ordinance to streamline the documentation process for developers.

Sample of an illustrated plant palette developed for Riverside County Office of Education shown right.



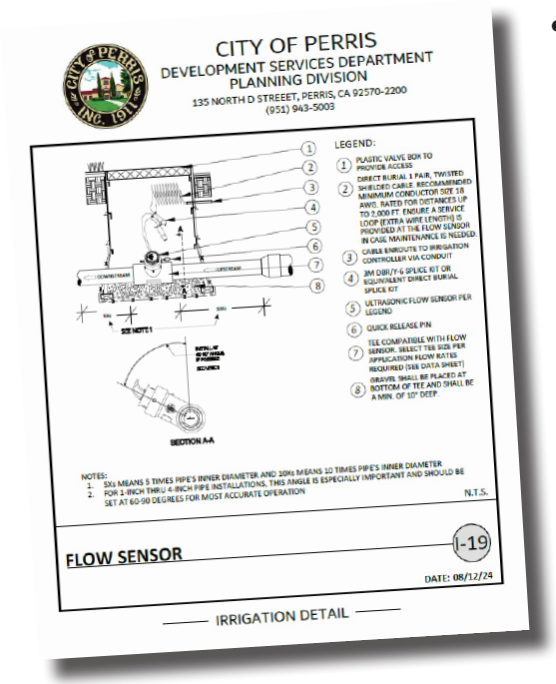
Task 5: Irrigation Design & Water Efficiency

In an era of increasing water scarcity and rigorous state mandates, irrigation design must be treated as a high-precision engineering discipline. RHA+CW will develop irrigation standards for San Jacinto that prioritize maximum efficiency, ease of maintenance, and full regulatory compliance. Our approach centers on the integration of "Smart" Irrigation Technology, moving the City away from static scheduling and toward dynamic, weather-based management. In addition to our in-house irrigation experts, David Black and Dan Burkhart, our team also has an in-house ***Certified Landscape Irrigation Auditor (CLIA).***.

Our team will mandate the use of state-of-the-art components, including:

- ***Weather-Based Irrigation Controllers (WBIC):*** Utilizing real-time evapotranspiration (ET) data to adjust watering schedules automatically.
- ***Flow Sensing and Master Valves:*** Implementing systems that detect "catastrophic" leaks or line breaks and automatically shut down the water source to prevent waste and infrastructure damage.
- ***High-Efficiency Delivery:*** Specifying pressure-regulating heads and multi-stream rotary nozzles that provide superior distribution uniformity and wind resistance.

A core deliverable of this task is ensuring that all technical specifications are 100% compliant with the California Model Water Efficient Landscape Ordinance (MWELO). We will provide the City with standardized ***"Water Budgeting"*** templates and documentation protocols that simplify the submittal process for developers while ensuring the City remains in good standing with state water-use reporting requirements.


CITY OF PERRIS
DEVELOPMENT SERVICES DEPARTMENT
PLANNING DIVISION
135 NORTH D STREEET, PERRIS, CA 92570-2200
(951) 943-5003

LEGEND:
1. PLASTIC VALVE BOX TO PROVIDE ACCESS
2. DIRECT BURIAL 3 PAIR, TWISTED SHIELDED CABLE. RECOMMENDED MINIMUM CONDUCTOR SIZE 18 AWG. RATED FOR DISTANCES UP TO 2,000 FT. ENSURE A SERVICE LOOP (EXTRA WIRE LENGTH) IS PROVIDED AT THE FLOW SENSOR IN CASE MAINTENANCE IS NEEDED
3. CABLE RUNOUTS TO IRRIGATION CONTROLLER VIA CONDUIT
4. 3M DBR/Y-6 SPLICE KIT OR EQUIVALENT DIRECT BURIAL SPLICE KIT
5. ULTRASONIC FLOW SENSOR PER LEGEND
6. QUICK RELEASE PIN
7. TEE COMPATIBLE WITH FLOW SENSOR. SELECT TEE SIZE PER APPLICATION FLOW RATES REQUIRED (SEE DATA SHEET)
8. GRAVEL SHALL BE PLACED AT BOTTOM OF TEE AND SHALL BE A MIN. OF 10" DEEP

SECTION A-A

NOTES:
1. 5XS MEANS 5 TIMES PIPE'S INNER DIAMETER AND 10XS MEANS 10 TIMES PIPE'S INNER DIAMETER
2. FOR 1-INCH THRU 4-INCH PIPE INSTALLATIONS, THIS ANGLE IS ESPECIALLY IMPORTANT AND SHOULD BE SET AT 60-90 DEGREES FOR MOST ACCURATE OPERATION

N.T.S.

FLOW SENSOR I-19
DATE: 08/12/24
IRRIGATION DETAIL

Methodology Highlights

- ***Subsurface Irrigation Standards:*** Establishing guidelines for the use of Netafim or similar dripline systems in narrow parkways and high-traffic areas to eliminate overspray and runoff.
- ***Central Control Compatibility:*** Ensuring all new irrigation hardware is compatible with the City's existing or future central control software, allowing staff to manage citywide water use from a single interface.
- ***Maintenance-Centric Specs:*** Standardizing on specific, high-durability brands and models to reduce the variety of spare parts the City must stock in its maintenance inventory.

Relevant Experience

RHA+CW developed the comprehensive landscape design guidelines and technical manual for the City of Perris, which includes a detailed approved tree list and standardized irrigation design details.

Task 6: Street Tree & Parkway Standards

Street trees and parkways are the most visible elements of a city's "living infrastructure," yet they are often the most difficult to maintain without clear, technically sound standards. RHA Community Works will update San Jacinto's approved street tree list and parkway specifications using a ***"Right Tree, Right Place, Right Way"*** philosophy. Our objective is to maximize the environmental benefits of the urban forest, such as shade-driven heat-island mitigation and improved air quality, while aggressively minimizing future liabilities like sidewalk heave, root-related utility damage, and excessive pruning costs. In addition to our in-house ISA Arborist, we also have a Certified Native Plant Specialist to help guide this task.



CLASSIFICATION *Roadway*	PARKWAY *Min. width*	CANOPY *Target %*	ROOT MANAGEMENT *Protection requirement*	IRRIGATION *Delivery standard*	SPECIES HABIT *Preferred form*
Major Arterial *e.g., San Jacinto Ave*	**10–15+** FEET	50%	3 LEVEL 3 — **Linear root barriers** (24" depth) + **structural soil** throughout tree well	**Sub-surface drip** or **high-efficiency rotors**	**High-canopy, large-stature** shade trees
Secondary Arterial *Cross-town corridors*	**8–10** FEET	40%	3 LEVEL 3 — **Linear root barriers** (24" depth)	**Sub-surface drip**	**Broad-headed**, medium-to-large stature
Collector Street *Neighborhood feeders*	**6–8** FEET	30%	2 LEVEL 2 — **Circular root guards** (18" depth)	**Bubblers** or **sub-surface drip**	**Upright / columnar** or medium stature
Residential Local *Interior neighborhood streets*	**5–6** FEET	25%	1 LEVEL 1 — **Individual tree root guards**	**Bubblers**	**Small-to-medium** stature, low-litter
Industrial / Commercial *Service & employment zones*	**6–10** FEET	30%	2 LEVEL 2 — **Linear barriers** at curb & sidewalk edges	**Sub-surface drip**	**High-durability**, pollution-tolerant

WIDTH MEASUREMENT
Minimum parkway width is measured from ***back-of-curb to back-of-sidewalk***, exclusive of any hardscape tree-well.

ROOT PROTECTION LEVELS
Level 1 = individual guards; ***Level 2*** = circular or edge barriers; ***Level 3*** = continuous linear barriers, often paired with structural soil.

SPECIES SELECTION
Preferred habit establishes scale fit; final species shall be drawn from the ***§ 3.5 Street Tree Species Matrix*** subject to utility and offset constraints.

Our team will develop standards that account for the specific technical constraints of San Jacinto's diverse street types. We will establish mandatory **Root Management Standards**, specifying the use of deep-root barriers and structural soils where appropriate. Furthermore, we will define ***"Canopy-Coverage Targets"*** for different roadway classifications (Major Arterials vs. Residential Collectors) to ensure the City meets its long-term sustainability goals.

The final deliverable will include a **Street Tree Selection Matrix**, which categorizes trees by their growth habit, water needs, and susceptibility to pests. We will also provide clear cross-sectional diagrams for parkway widths, ensuring that planting areas are correctly sized to support healthy mature growth without compromising the integrity of adjacent curb and gutter infrastructure.

Methodology Highlights

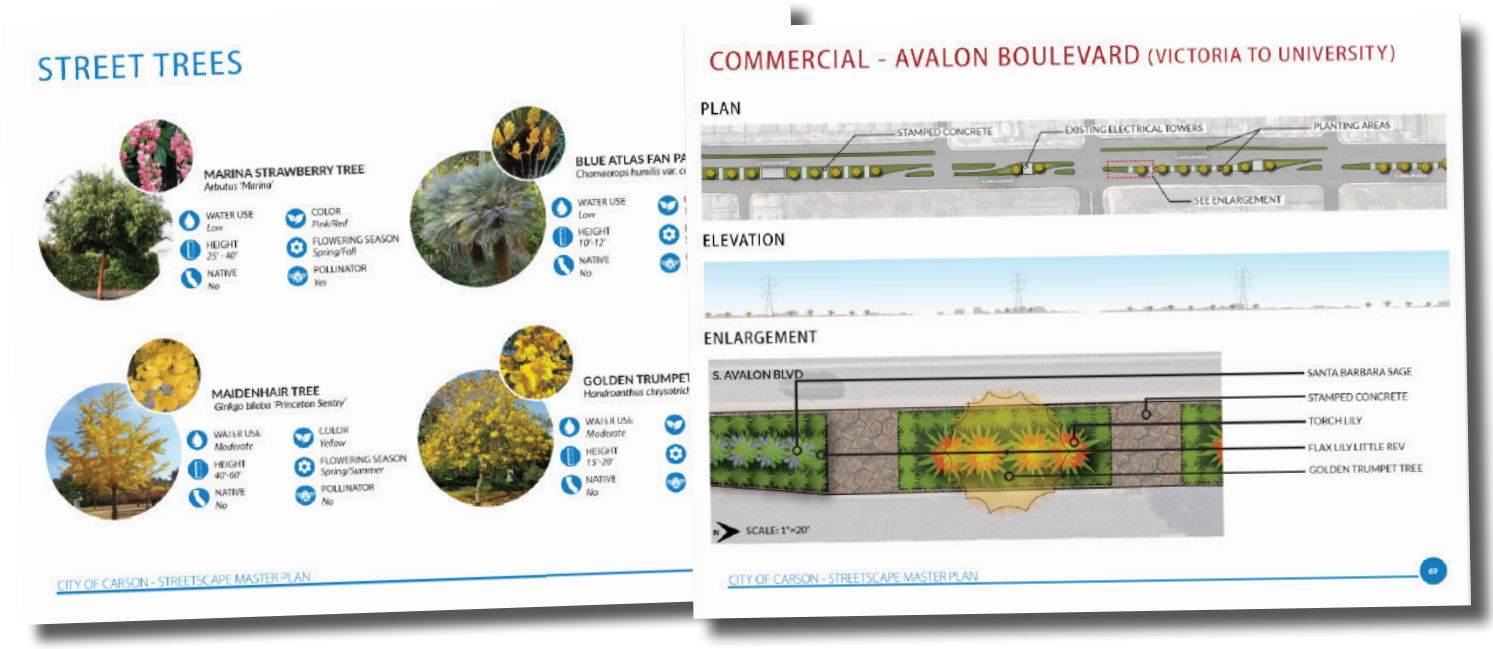
- ***Urban Heat Mitigation:*** Prioritizing high-canopy, drought-tolerant species for pedestrian-heavy corridors to create "cool routes" as identified in the General Plan 2040.
- ***Maintenance-Friendly Specifications:*** Selecting species with high "litter resistance" and structural integrity to reduce the City's annual street-sweeping and emergency pruning expenditures.
- ***Trenching and Offset Standards:*** Establishing clear setback requirements for trees relative to streetlights, fire hydrants, and underground lateral lines to ensure long-term utility access.

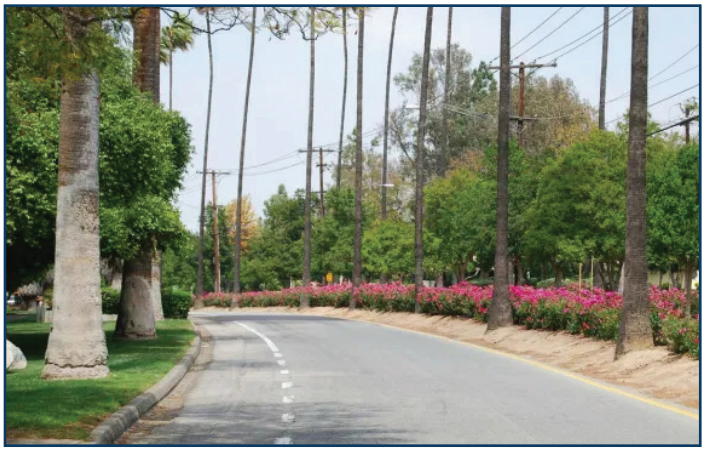
Relevant Experience

Carson Streetscape Master Plan

In our work on the Carson Streetscape Master Plan, RHA Community Works tackled the challenge of transforming a high-traffic industrial and commercial corridor into a cohesive, pedestrian-friendly environment. We developed a comprehensive palette of street trees and parkway treatments that could withstand the rigors of heavy urban use while significantly improving the City's aesthetic identity. This project required precise coordination between aesthetic goals and the technical realities of existing underground infrastructure—a direct parallel to the work required for San Jacinto.

Sample pages from Carson Streetscape Master Plan shown below:





Victoria Avenue Beautification - City of Riverside

Managing the preservation and expansion of the historic Victoria Avenue corridor required a sophisticated understanding of parkway constraints. RHA Community Works navigated complex issues involving multi-use trails, legacy irrigation systems, and the long-term health of diverse tree species in high-visibility public rights-of-way. This experience in managing "signature" city corridors ensures that the standards we develop for San Jacinto will protect the City's heritage while preparing its infrastructure for future growth.

Task 7: Trails and Open Space Implementation Standards

The City of San Jacinto's unique geography, defined by its proximity to the San Jacinto River, agricultural heritage, and growing residential footprint, requires a specialized set of standards for its trails and open space network. RHA+CW will develop implementation standards that transition the visionary goals of the San Jacinto Trails Master Plan into actionable, constructible technical requirements. Our approach to Task 7 focuses on three core pillars: Safety & Visibility, Material Durability, and Regulatory Compliance.

Multi-Modal Trail Classification

Building upon the General Plan 2040 and the Trails Master Plan, RHA+CW will establish standardized cross-sections and technical specifications for the City's diverse trail hierarchy:

- ***Class I Multi-Use Paths:*** Standards for paved, off-street paths that accommodate both pedestrians and cyclists, focusing on proper width, vertical clearance, and ADA-compliant surfacing.

- ***Nature & Perimeter Trails:*** Development of specifications for stabilized decomposed granite (DG) or natural surface trails within open space buffers, prioritizing erosion control and habitat protection.

- ***Equestrian Trails:*** Specialized standards for San Jacinto's equestrian community, including appropriate fencing (e.g., lodgepole or white vinyl), specialized trail surfacing, and "hitching" or "rest station" amenities.

Safety, Wayfinding, and Inclusive Design

Open spaces are only effective if they are accessible and safe. Our team, led by Scott Rice (CASp), will ensure every trail standard meets the latest California Building Code (Title 24) accessibility requirements for outdoor developed areas.

- ***CPTED Integration:*** We will apply "Crime Prevention Through Environmental Design" (CPTED) principles to trail standards, specifying appropriate lighting, sightline maintenance, and "defensible space" planting near trailheads.

- ***Unified Wayfinding:*** We will design a suite of standard trail signage, including mileage markers, directional kiosks, and interpretive educational panels that highlight San Jacinto's agricultural history and local ecology.

Maintenance-Driven Technical Details

To protect the City's General Fund, our standards prioritize long-term durability. We will provide AutoCAD-ready details for:

- ***Standardized Fencing & Bollards:*** Durable, low-maintenance options that clearly define public/private boundaries and prevent unauthorized vehicle access.

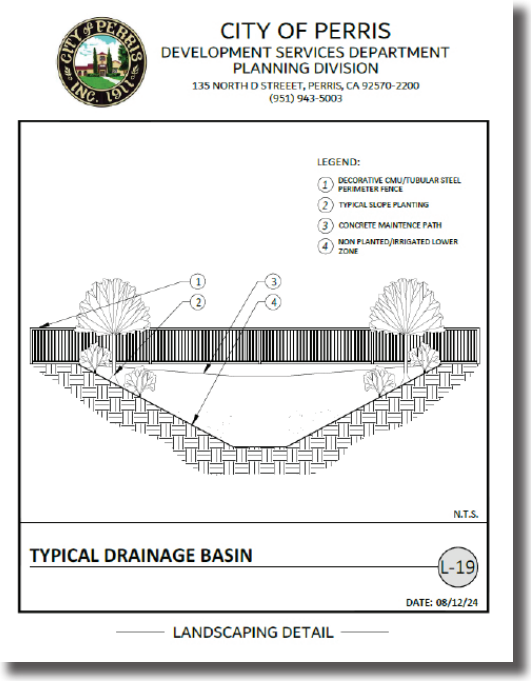
- ***Erosion & Drainage Control:*** Technical specifications for "outsloped" trails, water bars, and swales to minimize trail washouts and siltation in open space basins.

- ***Amenity "Kits":*** Pre-approved details for trail benches, waste receptacles, and pet waste stations to ensure a cohesive aesthetic across all city trails.

Task 8: Basin & Pump Station Standards

In modern municipal planning, stormwater infrastructure can no longer be viewed solely as a utilitarian necessity; it must be integrated into the community fabric as a multi-functional asset. RHA+CW will develop Integrated Basin Design Standards for San Jacinto that transform traditional dry and wet basins into aesthetic or recreational features, often referred to as "Nature-Based Infrastructure", while maintaining the highest level of engineering performance.

Our approach focuses on the "Dual-Use" potential of drainage areas. We will establish standards that allow basins to serve as passive open space, native habitat corridors, or even active recreational fields during dry weather, provided they meet strict safety and percolation requirements. Simultaneously, we will define Technical Infrastructure Specifications for the essential "hard" components of these systems, including:



- ***Pump Station Architecture:*** Creating standards for pump housing that utilize durable, anti-graffiti materials and aesthetic screening (such as decorative masonry or specialized planting) to minimize visual impact on neighboring properties.

- ***Safety and Security Fencing:*** Mandating high-quality, climb-resistant fencing that balances public safety with the City's aesthetic goals, moving away from standard chain-link in favor of more integrated, low-profile barrier designs.

- ***Erosion and Sediment Control:*** Providing technical details for forebays, energy dissipaters, and slope stabilization that utilize natural stone or reinforced vegetation to reduce long-term maintenance dredging.

The final deliverable will be a **Basin Technical Toolkit** that includes cross-sectional details for various basin types, pump station footprints, and a list of "Basin-Appropriate" vegetation that can survive periodic inundation and improve water quality through biofiltration.

Methodology Highlights

- ***Hydrological Integration:*** Working closely with City Engineers to ensure that aesthetic enhancements do not compromise the "Calculated Storage Capacity" or emergency overflow pathways of the basin.

- ***Low-Impact Development (LID):*** Aligning basin standards with regional water quality requirements to ensure they function as effective infiltration points for groundwater recharge.

- ***Accessibility and Egress:*** Establishing standards for maintenance access ramps that double as pedestrian paths or "observation points" for the community.

Task 9: Design Standards Manual Development

The most robust technical standards are ineffective if they are not accessible to the people who use them daily. RHA Community Works views the Design Standards Manual as the "User Interface" for San Jacinto's landscape policy. We will synthesize the complex technical requirements gathered in previous tasks into a visually intuitive, user-friendly document that serves as a definitive resource for City staff, private developers, and residents alike.

Our manual will move away from text-heavy, academic formats in favor of a graphically driven layout. Key features will include:

- ***"Checklist for Success" Sidebars:*** Each section will feature a summary of mandatory submittal items, allowing developers to self-audit their plans before they reach the City counter.
- ***Visual Glossaries:*** Complex technical terms and state mandates (like MWELO) will be explained through clear diagrams and "Dos and Don'ts" photography to eliminate ambiguity.
- ***Direct Code Alignment:*** The manual's organizational structure will mirror the San Jacinto Municipal Code, ensuring that users can easily cross-reference design guidelines with the underlying legal requirements.

The final deliverable will be a digitally optimized PDF with a clickable Table of Contents and indexed search capabilities, ensuring that the manual is as functional in the field on a tablet as it is in a printed binder at City Hall.

Methodology Highlights

- ***Tiered Information Design:*** Organizing the manual so that broad design principles are presented first, followed by increasingly specific technical details and CAD specifications.
- ***Maintenance-Focused Narratives:*** Including specific "Maintenance Expectations" for each design standard, helping the City's Public Works team understand the long-term resource commitment for various landscape treatments.
- ***Public/Private Distinction:*** Clearly delineating standards for public rights-of-way versus private developments to ensure developers understand their specific obligations.

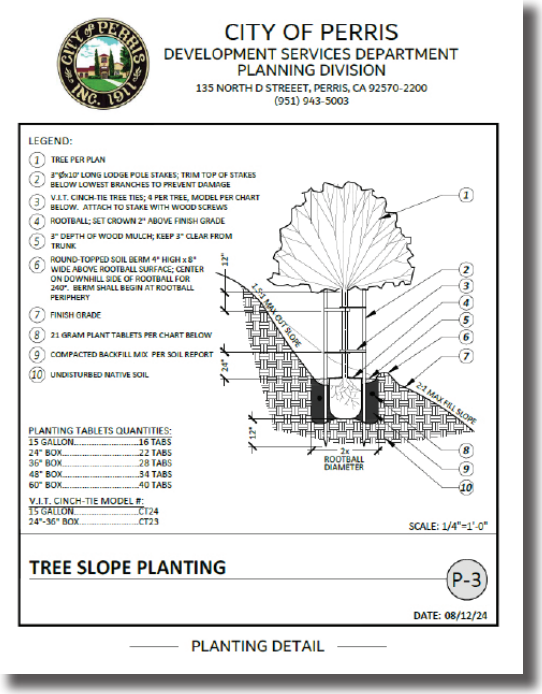
Relevant Experience

Our team is excited about the opportunity of taking the City of San Jacinto's Landscape Design Guidelines we developed in 2005 with the City and transforming the framework into a beautiful masterpiece that will serve the City through 2040 and beyond.

Task 10: CAD Standard Details

A critical component of this update is the transition from conceptual guidelines to enforceable construction standards. RHA Community Works will develop a robust, comprehensive library of AutoCAD-ready technical details designed to serve as the City's definitive construction reference. These details will be engineered to streamline the plan check process, providing developers and contractors with a "City-stamped" toolkit that ensures consistency across all public and private improvements.

Our team will utilize a "Standardization First" philosophy, ensuring that every detail, from irrigation lateral trenching to complex playground safety surfacing, is optimized for San Jacinto's specific soil conditions, climate, and maintenance capabilities. By providing these details in digital formats (.DWG and .PDF), we eliminate ambiguity during the development review phase, reducing the back-and-forth between City staff and applicants.



The CAD library will be categorized for intuitive navigation and will include, but not be limited to:

- ***Irrigation Infrastructure:*** Precision details for smart controller assemblies, master valves, flow sensors, and water-efficient emission devices (bubblers, rotating nozzles, and subsurface drip).
- ***Hardscape and Site Furnishings:*** Standardized specifications for park benches, waste receptacles, bicycle racks, and decorative paving that align with the City's aesthetic identity.
- ***Park and Basin Specifics:*** Specialized details for basin side-slopes, overflow structures, and park-specific amenities such as shade structures and inclusive play equipment.
- ***Street Trees and Parkways:*** Standardized tree well dimensions, root barrier installations, and parkway planting details that prioritize visibility and urban heat island mitigation.

Quality Control and Technical Integrity

To ensure the longevity and accuracy of these documents, RHA Community Works will apply our firm's rigorous "Quality Control Program." This internal vetting process involves a multi-tiered review by our senior technical staff and a California-licensed Landscape Architect to ensure every line and callout adheres to the latest industry standards and state mandates, such as MWELO and the California Building Code (Title 24). Our reputation for producing technically outstanding documents across hundreds of public agency projects stems from this attention to detail. We do not simply provide "typical" drawings; we provide constructible, high-performance details that have been field-tested in municipal environments. This approach minimizes the risk of change orders during construction and ensures that the City of San Jacinto receives a landscape legacy built on a foundation of technical excellence. All final deliverables will be organized and formatted to integrate seamlessly into the City's existing engineering and planning workflows.

Task 11: Prototypical Residential Designs

To bridge the gap between municipal requirements and residential implementation, RHA Community Works will develop a suite of at least four "Prototypical Residential Design Templates." These templates are specifically designed to empower homeowners in San Jacinto to achieve beautiful, drought-resilient landscapes without the need for expensive private consultants. By providing pre-approved, professional-grade layouts, the City can ensure that residential growth contributes to the overarching goals of the General Plan 2040 while maintaining a cohesive and attractive community aesthetic.

Each prototype will be curated to reflect the local character and climate of the San Jacinto Valley, with potential themes such as the following to start:



- ***Inland Desert / High Desert Resilience:***
  Utilizing native species and rock mulches that thrive in local heat with minimal irrigation. This design prioritizes high-performance, heat-adapted vegetation to ensure a lush aesthetic that remains sustainable even during the most intense San Jacinto summers.



- ***Modern Mediterranean:***
  Focusing on structural plants, olive trees, and lavender for a sophisticated, low-water look that aligns with existing regional architecture. By utilizing silver-foliaged plants and evergreen structures, this prototype maintains a cool, refreshing atmosphere that enhances the curb appeal of local stucco and tile-roofed homes.



- ***Pollinator/Habitat Friendly:***
  A selection of flowering natives designed to support local biodiversity and "Living Landscapes." This landscape transforms your yard into a vital ecological corridor, inviting hummingbirds, butterflies, and beneficial insects to thrive among a colorful tapestry of seasonal blooms.



- ***Heritage Ranch:***
  Drawing inspiration from the region's agricultural roots with hardy, traditional plantings that require modern, efficient water management. By integrating rustic hardscaping with drought-resistant fruit trees and ornamental grasses, this design preserves the timeless charm of the valley's rural past while utilizing smart technology to significantly reduce water consumption.

Regulatory Streamlining and MWELO Compliance

A primary objective of this task is to reduce the administrative burden on City staff. Each design template will be pre-calculated for compliance with the California Model Water Efficient Landscape Ordinance (MWELO). By including pre-verified Hydrozone tables and Maximum Applied Water Allowance (MAWA) calculations within the templates, the City can offer an "Over-the-Counter" approval process for standard residential landscape permits. This "Plug-and-Play" approach ensures that even "non-professional" applicants submit plans that meet all state and local mandates on the first try, significantly reducing the volume of revisions and plan-check corrections.

Community Empowerment through Consensus Building

Leveraging our firm's deep experience in Consensus Building and Program Development, we will ensure these tools are truly accessible to the general public. We move beyond technical jargon to provide clear, illustrative "Step-by-Step" guides that include:

- ***User-Friendly Plant Palettes:***
  Photorealistic or highly illustrative plant keys that help homeowners visualize the mature state of their garden.

- ***Simplified Installation Guides:***
  Basic instructions for soil preparation, mulch application, and efficient irrigation setup.

- ***Maintenance Schedules:***
  Seasonal care instructions to ensure the long-term health and beauty of the new landscapes.

By applying our expertise in inclusive design and public outreach, RHA Community Works will deliver a program that transforms a complex regulatory requirement into a community benefit—fostering a sense of pride and stewardship among San Jacinto's residents while effectively managing the City's precious water resources.

Task 12: Public Outreach & Adoption Support

To bridge the gap between municipal requirements and residential implementation, RHA Community Works will develop a suite of at least four ***"Prototypical Residential Design Templates."*** These templates are specifically designed to empower homeowners in San Jacinto to achieve beautiful, drought-resilient landscapes without the need for expensive private consultants. By providing pre-approved, professional-grade layouts, the City can ensure that residential growth contributes to the overarching goals of the General Plan 2040 while maintaining a cohesive and attractive community aesthetic.

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Community Empowerment through Consensus Building

Leveraging our firm's deep experience in Consensus Building and Program Development, we will ensure these tools are truly accessible to the general public. Our team offers a dedicated in-house Director of Community Engagement who has worked on both sides of the fence. Analicia Escobar-Gomez, served as the Riverside County Regional Park and Open-Space District's Senior Park Planner for nearly 5 years, in addition, she is a Certified Park and Recreation Professional.

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Final Deliverables

ID	DELIVERABLE CATEGORY *Scope of work*	DESCRIPTION & KEY COMPONENTS *Required content*	FORMAT(S) *Submission file types*
PHASE 1	**Initiation & Audit**		*2 deliverables · D1–D2*
D1	**Project Work Plan & Schedule** TIMELINE & OPERATIONS	Detailed Gantt chart, milestones, stakeholder list, meeting schedule, and coordination procedures.	PDF · MS Project
D2	**Existing Conditions & Best Practices Summary** AUDIT & BENCHMARKING	Technical memo reviewing **legacy City plans** and **comparable jurisdiction standards** to identify key opportunities and gap areas.	PDF · Word
PHASE 2	**Technical Production**		*5 deliverables · D3–D7*
D3	**Administrative Draft Standards Manual** THE TECHNICAL CORE	First full draft of the consolidated manual — **Park, Landscape, Irrigation, Basin, and Street Trees** — for staff-only technical review.	PDF · Word · InDesign
D4	**Standard Construction Details (CAD Library)** TECHNICAL PRODUCTION	Full set of **.DWG details** for planting, irrigation, root barriers, park amenities, trail sections, and basin pump / access facilities.	PDF · AutoCAD (.dwg)
D5	**Asset Data Tables & Plant Palettes** GIS INTEGRATION	Editable spreadsheets of approved **tree lists** and **plant data** compatible with City asset management systems.	Excel (.xlsx)
D6	**Prototypical Residential Landscape Plans** PUBLIC TOOLS	Graphic front-yard plans, irrigation layouts, and plant lists designed specifically for **homeowners and small builders**.	PDF · InDesign
D7	**Park Planning Toolkit** EVALUATION TOOLS	Classification tables, the **Point-Based Amenity Matrix**, and programming layouts to assist staff in project review.	PDF · Word · Excel
PHASE 3	**Review & Adoption**		*4 deliverables · D8–D11*
D8	**Public Review Draft Standards Manual** THE OUTREACH VERSION	Refined version of the manual incorporating **staff feedback**, designed for public distribution and decision-making bodies.	PDF · Word
D9	**Meeting & Presentation Materials** ADOPTION SUPPORT	Digital slide decks and high-impact boards for **Planning Commission** and **City Council** hearings.	PPT · PDF
D10	**Final Standards Manual** FINAL ADOPTED VERSION	A **searchable, hyperlinked PDF** incorporating final legislative edits, formatted as a cohesive, branded City document.	Searchable PDF
D11	**Final Project Files (Master Set)** TRANSFER OF OWNERSHIP	A complete archive of all editable source files, graphics, and diagrams, which become the **sole property of the City**.	Editable Source Files

P1 INITIATION & AUDIT
Foundational deliverables establishing ***project operations*** and a baseline understanding of existing conditions.

P2 TECHNICAL PRODUCTION
Substantive content: ***the Manual itself***, CAD library, GIS-ready asset data, homeowner templates, and Planning Toolkit.

P3 REVIEW & ADOPTION
Public-facing materials, ***hearing support***, final adopted Manual, and transfer of all editable source files to the City.

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1. Project Schedule and Timeline

RHA+CW is prepared to initiate work immediately upon contract execution. We propose a focused 9-month timeline to ensure a thorough audit, creative development phase, and a seamless public adoption process. This schedule accounts for the technical complexity of consolidating the City's diverse standards while allowing sufficient time for the internal review cycles necessary for a high-quality final product.

- ***Months 1-2:*** Project Initiation, Document Audit, and Gap Analysis.

- ***Months 3-5:*** Technical Drafting of Standards, CAD Detail Library Creation, and Prototypical Residential Design Development.

- ***Months 6-7:*** Draft Manual Compilation and Internal City Staff Review.

- ***Months 8-9:*** Planning Commission/City Council Presentations and Final Adoption.

2. Key Milestones, Stakeholders, and Review Periods

Our work plan identifies critical path "Gatekeeper" milestones where City input is essential to project momentum.

- ***Milestone 1: Audit Findings Memo.***
  A summary of inconsistencies in current codes to be reviewed by Planning and Public Works staff.

- ***Milestone 2: 50% Technical Draft.***
  Review of the initial CAD library and park classification system.

- ***Milestone 3: 90% Administrative Draft Manual.***
  A 30-day formal review period for all departments (Engineering, Parks, Planning) to provide final consolidated feedback.

- ***Stakeholder Engagement:***
  Coordination will be prioritized with Public Works Maintenance (to ensure equipment standards align with current inventory) and the Planning Department (to ensure alignment with General Plan 2040).

3. Proposed Meeting Schedule

To maintain transparency and adherence to the schedule, RHA+CW proposes a structured meeting cadence:

- ***Kickoff Meeting:***
  Within 10 days of execution to align on communication protocols and data transfer.

- ***Monthly Project Status Meetings:***
  Virtual check-ins with the City Project Manager to review progress against the schedule and address any "roadblocks."

- ***Technical Working Sessions:***
  Up to three (3) focused workshops with maintenance and plan-check staff to vet specific irrigation and construction details.

- ***Public Hearings:***
  Strategic presentations to the Planning Commission and City Council during the adoption phase.

4. Communication and Coordination Procedures

Efficiency is driven by clear communication. RHA+CW will utilize the following protocols:

- ***Centralized Point of Contact:***
  All formal communication will flow through our Project Manager, Scott Rice, ensuring consistent messaging and accountability.

- ***Project Management Portal:***
  We will utilize a shared digital folder (Basecamp) for the real-time transfer of large CAD files, GIS data, and draft documents.

- ***Quality Control Log:***
  Every round of City feedback will be documented in a "Comment/Response Matrix," ensuring that every staff suggestion is either incorporated or addressed with a technical justification. This transparency ensures that the final manual is a true reflection of the City's collective expertise. We will also utilize Mentimeter to capture real-time stakeholder input and feedback.





PROJECT SCHEDULE AND WORK PLAN

This schedule establishes the three-phase delivery timeline for the Design Standards Manual — from initial audit through Council adoption — covering **May 2026 to January 2027**. *Dates are target milestones; deliverables are binding.*

ID	MILESTONE / TASK *Phase & scope*	START	END	TIMELINE MAY JUN JUL AUG SEP OCT NOV DEC JAN	DELIVERABLE *Required output*
PHASE 1	**Initiation & Audit**				*May 1 — Jun 15, 2026*
1.1	**Project Kick-off Meeting**	**May 4** 2026	**May 8** 2026		*Work Plan & Communication Protocol*
1.2	**Document Audit & Data Collection**	**May 11** 2026	**May 29** 2026		*Audit Log of Legacy Standards*
1.3	**Gap Analysis & Code Consistency**	**Jun 1** 2026	**Jun 15** 2026		*Memo: Technical Gap Analysis*
PHASE 2	**Technical Production**				
2.1	**Park Classification & Scoring Matrix**	**Jun 16** 2026	**Jul 15** 2026		*Draft Recreation Value Matrix*
2.2	**Landscape, Basin & Tree Standards**	**Jul 16** 2026	**Aug 30** 2026		*Draft Planting & Parkway Specs*
2.3	**CAD Standard Details Library**	**Aug 1** 2026	**Oct 15** 2026		*50% & 90% .DWG Detail Sets*
2.4	**Prototypical Residential Designs**	**Aug 15** 2026	**Oct 30** 2026		*Four (4) Resident-Ready Templates*
PHASE 3	**Review & Adoption**				
3.1	**Internal Staff Working Sessions**	**Nov 2** 2026	**Nov 20** 2026		*Consolidated Review Comments*
3.2	**Administrative Draft Manual**	**Nov 23** 2026	**Dec 18** 2026		*90% Administrative Draft*
3.3	**Planning Commission Presentation**	**Jan 11** 2027	**Jan 15** 2027		*Public Hearing Graphics*
3.4	**City Council Adoption**	**Jan 25** 2027	**Jan 29** 2027		*Final Adopted Design Standards*

P1 INITIATION & AUDIT

Establishes ***baseline*** through kick-off, legacy document audit, and gap analysis — ensuring technical production is grounded in current code & practice.

P2 TECHNICAL PRODUCTION

Core ***deliverable phase***: matrices, planting specs, CAD details, and residential templates. Parallel tasks drive the nine-week aggregate schedule.

P3 REVIEW & ADOPTION

Staff review, Administrative Draft, Planning Commission, and ***City Council adoption*** — culminating in the final Design Standards Manual.

EXCEPTIONS TO THE RFP OR PROFESSIONAL SERVICES AGREEMENT

RHA Community Works has conducted a comprehensive review of the Request for Proposals (RFP No. SJ-PU-26-002) and the City of San Jacinto's draft Professional Services Agreement. Based on our extensive history of providing professional landscape architectural and planning services to the City, we find the terms and conditions outlined in these documents to be consistent with industry standards and our established working relationship with the City.

RHA Community Works has no exceptions to the requirements of this RFP or the terms and conditions of the draft Professional Services Agreement.

By submitting this proposal, we affirm our full acceptance of the City's terms and our readiness to execute the agreement as drafted upon contract award. We are committed to adhering to all identified timelines, insurance requirements, and performance standards to ensure the successful delivery of the Comprehensive Update to the City's Design Standards.

EVIDENCE OF INSURANCE

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 8/26/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Sherry Young
Risk Strategies Company 2040 Main Street, Suite 450 Irvine, CA 92614	PHONE (A/C, No. Ext): 949-242-9237 FAX (A/C, No): E-MAIL ADDRESS: syoung@risk-strategies.com
www.risk-strategies.com CA DOI License No. 0F06675	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Travelers Property Casualty Co of America	25674
INSURER B : Travelers Indemnity Company of CT	25682
INSURER C : Travelers Casualty and Surety Co of America	31194
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Community Works Design Group, LLC
7111 Indiana Ave., Ste 300
Riverside CA 92504

COVERAGES **CERTIFICATE NUMBER:** 86842478 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	✓ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ✓ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ✓ PRO-JECT ☐ LOC ☐ OTHER:			6802H141407	9/1/2025	9/1/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 1,000,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
B	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ✓ HIRED AUTOS ONLY ✓ NON-OWNED AUTOS ONLY			BA1S986502	9/1/2025	9/1/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	✓ UMBRELLA LIAB ✓ OCCUR EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ✓ RETENTION $ 0			CUP9W423158	9/1/2025	9/1/2026	EACH OCCURRENCE AGGREGATE	$ 1,000,000 $ 1,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		UB4J51726A	9/1/2025	9/1/2026	✓ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
C	Professional Liability			107904001	9/1/2025	9/1/2026	Per Claim: $2,000,000 Aggregate: $2,000,000	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Evidence of Insurance

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

RSC Insurance Brokerage

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CITY OF SAN JACINTO: COMPREHENSIVE UPDATE TO THE CITY'S LANDSCAPE, IRRIGATION, PARK, BASIN, PARKWAY AND STREET TREE DESIGN STANDARDS

		RHA COMMUNITY WORKS							
		Project Principal	Senior Landscape Architect	Construction Manager	Project Manager	Landscape Designer	Office Manager	RHA+CW Hours	Fee By Task
Phase No.	Task Description	$240.00	$195.00	$185.00	$180.00	$150.00	$125.00		
1.0	**Project Initiation & Audit**	**16**	**40**	**36**	**32**	**0**	**6**	**130**	**$24,090.00**
1.1	***Task 1: Project Initiation & Coordination:*** Project Work Plan/Schedule, Communication & Coordination Protocol, Kick-Off Meeting	4	4	4	4			16	$3,230.00
1.2	***Task 2: Existing Document Audit:*** Technical Memo: Existing Conditions & Gap Analysis and Review of General Plan 2040, 2005 Guidelines, and Municipal Code.	4	12	12	12			36	$7,680.00
1.3	***Task 3: Best Practices Research:*** Best Practices Summary (Comparable Jurisdictions) & Recommendations and Framework Report	4	16	12	16			44	$9,180.00
1.4	Phase 1: Project Management	4	8	8			6	16	$4,000.00
2.0	**Administrative Draft & Technical Development**	**40**	**104**	**56**	**104**	**208**	**6**	**518**	**$90,910.00**
2.1	***Task 4: Administrative Draft Development*** Administrative Draft Standards Manual (90% Complete)	12	24	12	24	32		104	$18,900.00
2.2	***Task 5: Standard Construction Details*** Standard Detail Library (.DWG & PDF)	8	24	12	24	64		132	$22,740.00
2.3	***Task 6: Asset Data & Palettes*** Plant Palettes & Street Tree Data Tables (GIS Compatible)	4	24	12	24	48		112	$19,380.00
2.4	***Task 7: Residential Prototypical Designs*** Four (4) to six (6) Prototypical Residential Front Yard Plans	8	24	12	32	64		140	$24,180.00
2.5	Phase 2: Project Management	8	8	8			6	30	$5,710.00
3.0	**Evaluation Tools & Final Adoption**	**40**	**48**	**40**	**36**	**56**	**6**	**76**	**$42,115.00**
3.1	***Task 8: Park Planning Toolkit*** D10: Park Planning Toolkit (Scoring Matrix & Definitions)	12	12	8	12	24		68	$12,460.00
3.2	***Task 9: Public Review Draft*** Public Review Draft Standards Manual	8	12	8	12	12		52	$9,700.00
3.3	***Task 10: Adoption Support & Presentations*** Presentation Materials (Slide Decks/Graphics)	12	8	8	4	12		32	$8,440.00
3.4	***Task 11: Final Project Files*** Final Adopted Standards Manual (Searchable/Hyperlinked) & Final Editable Project File Archive	4	8	8	8	8		36	$6,765.00
3.5	Phase 3: Project Management	4	8	8			6	26	$4,750.00
	SUBTOTAL HOURS AND FEE:	**96**	**192**	**132**	**172**	**264**	**18**	**874**	**$157,115.00**
	OTHER DIRECT COSTS (Printing, Travel, etc.):								**$2,500.00**
	TOTAL HOURS AND FEE:	**$23,040.00**	**$37,440.00**	**$24,420.00**	**$30,960.00**	**$39,600.00**	**$2,250.00**	**880***	**$159,615.00**

** The proposed hours are based on RHA Community Works' recommended project approach and technical methodology. However, we remain fully committed to collaborating with City staff to refine this scope and adjust the allocation of resources as necessary to align with the City's specific budgetary requirements*

CITY OF SAN JACINTO

PROFESSIONAL SERVICES AGREEMENT BETWEEN

THE CITY OF SAN JACINTO

AND

INSERT CONSULTANT NAME

DRAFT

1. PARTIES AND DATE.

This Agreement is made and entered into this 9th day of INSERT DATE, by and between the **City of San Jacinto**, a municipal corporation, organized under the laws of the State of California, with its principal place of business at 595 South San Jacinto Avenue, San Jacinto, California 92583 ("City") and **INSERT NAME**, a *California Corporation*, with its principal place of business at INSERT ADRESS ("Consultant"). City and Consultant are sometimes individually referred to herein as "Party" and collectively as "Parties."

2. RECITALS.

2.1 Consultant.

Consultant desires to perform and assume responsibility for the provision of certain professional services required by the City on the terms and conditions set forth in this Agreement. Consultant represents that it is experienced in providing professional hydrogeological services to public clients, is licensed in the State of California, and is familiar with the plans of City.

2.2 Project.

City desires to engage Consultant to render such professional services for the INSERT PROJECT NAME ("Project") as set forth in this Agreement.

3. TERMS.

3.1 Scope of Services and Term.

3.1.1 General Scope of Services. Consultant promises and agrees to furnish to the City all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply the professional hydrogeological consulting services necessary for the Project ("Services"). The Services are more particularly described in Exhibit "A" attached hereto and incorporated herein by reference. All Services shall be subject to, and performed in accordance with, this Agreement, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state and federal laws, rules and regulations.

3.1.2 Term. The term of this Agreement shall be from INSERT DATE, until INSERT DATE, unless earlier terminated as provided herein. Consultant shall complete the Services within the term of this Agreement, and shall meet any other established schedules and deadlines.

3.2 Compensation.

3.2.1 Compensation. Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth in Exhibit "B" attached hereto and incorporated herein by reference. The total compensation shall not exceed INSERT AMOUNT without written approval of the City Council or City Manager, as applicable. Extra Work may be authorized, as described below, and if authorized,

will be compensated at the rates and manner set forth in this Agreement.

3.2.2 Payment of Compensation. Consultant shall submit to City a monthly invoice which indicates work completed and hours of Services rendered by Consultant. The invoice shall describe the amount of Services provided since the initial commencement date, or since the start of the subsequent billing periods, as appropriate, through the date of the invoice. City shall, within 30 days of receiving such invoice, review the invoice and pay all non-disputed and approved charges. If the City disputes any of Consultant's fees, the City shall give written notice to Consultant within thirty (30) days of receipt of an invoice of any disputed fees set forth therein. Payment shall not constitute acceptance of any Services completed by Consultant. The making of final payment shall not constitute a waiver of any claims by the City for any reason whatsoever.

3.2.3 Reimbursement for Expenses. Consultant shall not be reimbursed for any expenses unless authorized in writing by City, or included in Exhibit "B" of this Agreement.

3.2.4 Extra Work. At any time during the term of this Agreement, City may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by City to be necessary for the proper completion of the Project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization from the City.

3.2.5 Rate Increases. In the event that this Agreement is renewed pursuant to Section 3.1.2, the rate set forth in Exhibit “B” may be adjusted each year at the time of renewal as set forth in Exhibit “B.”

3.3 Responsibilities of Consultant.

3.3.1 Independent Contractor; Control and Payment of Subordinates. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement. City retains Consultant on an independent contractor basis and not as an employee. Consultant retains the right to perform similar or different services for others during the term of this Agreement. Any personnel performing the Services on behalf of Consultant shall also not be employees of City and shall at all times be under Consultant's exclusive direction and control. Neither City, nor any of its officials, officers, directors, employees or agents shall have control over the conduct of Consultant or any of Consultant's officers, employees, or agents, except as set forth in this Agreement. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.

3.3.2 Schedule of Services. Consultant shall perform the Services expeditiously, within the term of this Agreement, and in accordance with the Schedule of Services set forth in Exhibit "B" attached hereto and incorporated herein by reference. Consultant represents that it has the professional and technical personnel required to perform the Services in conformance with such conditions. In order to facilitate Consultant's

conformance with the Schedule, City shall respond to Consultant's submittals in a timely manner. Upon request of City, Consultant shall provide a more detailed schedule of anticipated performance to meet the Schedule of Services.

3.3.3 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the approval of City.

3.3.4 Substitution of Key Personnel. Consultant has represented to City that certain key personnel will perform and coordinate the Services under this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of City. In the event that City and Consultant cannot agree as to the substitution of key personnel, City shall be entitled to terminate this Agreement for cause. The key personnel for performance of this Agreement are as follows: Mathew Osborn, Public Utilities Superintendent.

3.3.5 City's Representative. The City hereby designates Mathew Osborn, Public Utilities Superintendent, or his/her designee, to act as its representative in all matters pertaining to the administration and performance of this Agreement ("City's Representative"). City's Representative shall have the power to act on behalf of the City for review and approval of all products submitted by Consultant but not the authority to enlarge the Scope of Services or change the total compensation due to Consultant under this Agreement. The City Manager shall be authorized to act on City's behalf and to execute all necessary documents which enlarge the Scope of Services or change the Consultant's total compensation subject to the provisions contained in this Agreement. Consultant shall not accept direction or orders from any person other than the City Manager, City's Representative or his/her designee.

3.3.6 Consultant's Representative. Consultant hereby designates Russell Kyle, President/ Principal Hydrogeologist, or his/her designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of the Consultant for all purposes under this Agreement. The Consultant's Representative shall supervise and direct the Services, using his/her best skill and attention, and shall be responsible for all means, methods, techniques, sequences, and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

3.3.7 Coordination of Services. Consultant agrees to work closely with City staff in the performance of Services and shall be available to City's staff, consultants and other staff at all reasonable times.

3.3.8 Standard of Care; Performance of Employees. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant warrants that all employees and subconsultants shall have sufficient skill and experience to perform the Services assigned to them. Finally, Consultant represents that it, its employees and subconsultants have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, and that such licenses and approvals shall be maintained throughout the term of this Agreement. Consultant shall perform, at its own cost and expense and without reimbursement from the City, any services necessary to correct errors or omissions which are caused by the

Consultant's failure to comply with the standard of care provided for herein. Any employee of the Consultant or its subconsultants who is determined by the City to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project, a threat to the safety of persons or property, or any employee who fails or refuses to perform the Services in a manner acceptable to the City, shall be promptly removed from the Project by the Consultant and shall not be re-employed to perform any of the Services or to work on the Project.

3.3.9 Period of Performance.

3.3.9.1 Consultant shall perform and complete all Services under this Agreement within the term set forth in Section 3.1.2 above ("Performance Time"). Consultant shall also perform the Services in strict accordance with any completion schedule or Project milestones described in Exhibits "A" or "B" attached hereto, or which may be separately agreed upon in writing by the City and Consultant ("Performance Milestones"). Consultant agrees that if the Services are not completed within the aforementioned Performance Time and/or pursuant to any such Project Milestones developed pursuant to provisions of this Agreement, it is understood, acknowledged and agreed that the City will suffer damage.

3.3.9.2 Neither City nor Consultant shall be considered in default of this Agreement for delays in performance caused by circumstances beyond the reasonable control of the non-performing Party. For purposes of this Agreement, such circumstances include a Force Majeure Event. A Force Majeure Event shall mean an event that materially affects a Party's performance and is one or more of the following: (1) Acts of God or other natural disasters; (2) terrorism or other acts of a public enemy; (3) orders of governmental authorities (including, without limitation, unreasonable and unforeseeable delay in the issuance of permits or approvals by governmental authorities that are required for the services); (4) strikes and other organized labor action occurring at the site and the effects thereof on the services, only to the extent such strikes and other organized labor action are beyond the control of Consultant and its subcontractors, and to the extent the effects thereof cannot be avoided by use of replacement workers; and (5) pandemics, epidemics or quarantine restrictions. For purposes of this section, "orders of governmental authorities," includes ordinances, emergency proclamations and orders, rules to protect the public health, welfare and safety, and other actions of a public agency applicable to the services and Agreement.

3.3.9.3 Should a Force Majeure Event occur, the non-performing Party shall, within a reasonable time of being prevented from performing, give written notice to the other Party describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement. Force Majeure Events and/or delays, regardless of the Party responsible for the delay, shall not entitle Consultant to any additional compensation. Notwithstanding the foregoing in this section, the City may still terminate this Agreement in accordance with the termination provisions of this Agreement.

3.3.10 Laws and Regulations; Employee/Labor Certification. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Project or the Services, including all Cal/OSHA requirements, and shall give all notices required by law. Consultant shall be liable for all violations of such laws and regulations in connection with Services. If Consultant performs any work knowing it to be contrary to such laws, rules and regulations, Consultant shall be solely responsible for all costs arising therefrom. Consultant shall defend, indemnify and hold City, its officials, directors, officers, employees, agents, and volunteers free and

harmless, pursuant to the indemnification provisions of this Agreement, from any claim or liability arising out of any failure or alleged failure to comply with such laws, rules or regulations.

3.3.10.1 Employment Eligibility; Consultant. Consultant certifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time and shall require all subconsultants and sub-subconsultants to comply with the same. Consultant certifies that it has not committed a violation of any such law within the five (5) years immediately preceding the date of execution of this Agreement, and shall not violate any such law at any time during the term of the Agreement.

3.3.10.2 Employment Eligibility; Failure to Comply. Each person executing this Agreement on behalf of Consultant verifies that they are a duly authorized officer of Consultant, and understands that any of the following shall be grounds for the City to terminate the Agreement for cause: (1) failure of Consultant or its subcontractors, consultants, sub-subcontractors or subconsultants to meet any of the requirements provided for in Sections 3.3.10.1 or 3.3.10.2; (2) any misrepresentation or material omission concerning compliance with such requirements (including in those verifications provided to the Consultant under Section 3.3.10.2); or (3) failure to immediately remove from the Project any person found not to be in compliance with such requirements.

3.3.10.3 Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any subconsultant, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination. Consultant shall also comply with all relevant provisions of City's Minority Business Enterprise program, Affirmative Action Plan or other related programs or guidelines currently in effect or hereinafter enacted.

3.3.10.4 Air Quality. To the extent applicable, Consultant must fully comply with all applicable laws, rules and regulations in furnishing or using equipment and/or providing services, including, but not limited to, emissions limits and permitting requirements imposed by the South Coast Air Quality Management District (SCAQMD) and/or California Air Resources Board (CARB). Consultant shall indemnify City against any fines or penalties imposed by SCAQMD, CARB, or any other governmental or regulatory agency for violations of applicable laws, rules and/or regulations by Consultant, its subconsultants, or others for whom Consultant is responsible under its indemnity obligations provided for in this Agreement.

3.3.10.5 Water Quality Management and Compliance. Consultant shall keep itself and all subcontractors, staff, and employees fully informed of and in compliance with all local, state and federal laws, rules and regulations that may impact, or be implicated by the performance of the Services including, without limitation, all applicable provisions of the City's ordinances regulating water quality and storm water; the Federal Water Pollution Control Act (33 U.S.C. § 1251, *et seq.*); the California Porter-Cologne Water Quality Control Act (Water Code § 13000 *et seq*.); and any and all regulations, policies, or permits issued pursuant to any such authority. Consultant must additionally comply with the lawful requirements of the City, and any other municipality, drainage district, or other local agency with jurisdiction over the location where the Services are to be conducted, regulating water quality and storm water discharges.

City may seek damages from Consultant for delay in completing the Services caused by Consultant's failure to comply with the laws, regulations and policies described in this Section, or any other relevant water quality law, regulation, or policy.

3.3.10.6 Safety. Consultant shall execute and maintain its work so as to avoid injury or damage to any person or property. In carrying out its Services, the Consultant shall at all times be in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed.

3.3.11 Insurance.

3.3.11.1 Time for Compliance. Consultant shall not commence work under this Agreement until it has provided evidence satisfactory to the City that it has secured all insurance required under this section. In addition, Consultant shall not allow any subconsultant to commence work on any subcontract until it has provided evidence satisfactory to the City that the subconsultant has secured all insurance required under this section. Failure to provide and maintain all required insurance shall be grounds for the City to terminate this Agreement for cause.

3.3.11.2 Types of Insurance Required. As a condition precedent to the effectiveness of this Agreement for work to be performed hereunder, and without limiting the indemnity provisions of the Agreement, the Consultant, in partial performance of its obligations under such Agreement, shall procure and maintain in full force and effect during the term of the Agreement the following policies of insurance. If the existing policies do not meet the insurance requirements set forth herein, Consultant agrees to amend, supplement or endorse the policies to do so.

(A) Commercial General Liability: Commercial General Liability Insurance which affords coverage at least as broad as Insurance Services Office "occurrence" form CG 00 01, or the exact equivalent, with limits of not less than $1,000,000 per occurrence and no less than $2,000,000 in the general aggregate. Defense costs shall be paid in addition to the limits. The policy shall contain no endorsements or provisions (1) limiting coverage for contractual liability; (2) excluding coverage for claims or suits by one insured against another (cross-liability); (3) products/completed operations liability; or (4) containing any other exclusion(s) contrary to the terms or purposes of this Agreement.

(B) Automobile Liability Insurance: Automobile Liability Insurance with coverage at least as broad as Insurance Services Office Form CA 00 01 covering "Any Auto" (Symbol 1), or the exact equivalent, covering bodily injury and property damage for all activities with limits of not less than $1,000,000 combined limit for each occurrence. **[***NOTE: If Consultant does not own any company vehicles or may not be able to purchase a Business Automobile Insurance Policy, the requirement may be satisfied by providing either of the following:** (1) a Personal Automobile Liability policy for the Consultant's own vehicle stipulating "Automobile Liability Insurance with a limit of not less than $1,000,000 each accident"; or (2) a non-owned auto endorsement to the Commercial General Liability policy if Consultant uses vehicles of others (e.g., vehicles of employees).

(C) Workers' Compensation: Workers' Compensation Insurance, as required by the State of California and Employer's Liability Insurance with a limit of not less than $1,000,000 per accident for bodily injury and disease.

3.3.11.3 Insurance Endorsements. Required insurance policies shall contain the following provisions, or Consultant shall provide endorsements on forms approved by the City to add the following provisions to the insurance policies:

(A) Automobile Liability. (1) Cancellation: Required insurance policies shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the City except ten (10) days shall be allowed for non-payment of premium.

(B) Workers' Compensation: (1) Cancellation: Required insurance policies shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the City except ten (10) days shall be allowed for non-payment of premium. (2) Waiver of Subrogation: A waiver of subrogation stating that the insurer waives all rights of subrogation against the City, its officials, officers, employees, agents, and volunteers.

3.3.11.4 Primary and Non-Contributing Insurance. All policies of insurance shall be primary and any other insurance, deductible, or self-insurance maintained by the City, its officials, officers, employees, agents, or volunteers shall not contribute with this primary insurance. Policies shall contain or be endorsed to contain such provisions.

3.3.11.5 Waiver of Subrogation. All required insurance coverages, except for the professional liability coverage, shall contain or be endorsed to waiver of subrogation in favor of the City, its officials, officers, employees, agents, and volunteers or shall specifically allow Consultant or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Consultant hereby waives its own right of recovery against City, and shall require similar written express waivers and insurance clauses from each of its subconsultants.

3.3.11.6 Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be approved in writing by the City and shall protect the City, its officials, officers, employees, agents, and volunteers in the same manner and to the same extent as they would have been protected had the policy or policies not contained a deductible or self-insured retention.

3.3.11.7 Evidence of Insurance. The Consultant, concurrently with the execution of the Agreement, and as a condition precedent to the effectiveness thereof, shall deliver either certified copies of the required policies, or original certificates on forms approved by the City, together with all endorsements affecting each policy. Required insurance policies shall not be in compliance if they include any limiting provision or endorsement that has not been submitted to the City for approval. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. At least fifteen (15 days) prior to the expiration of any such policy, evidence of insurance showing that such insurance coverage has been renewed or extended shall be filed with the City. If such coverage is cancelled or reduced and not replaced immediately so as to avoid a lapse in the required coverage, Consultant shall, within ten (10) days after receipt of written notice of such

cancellation or reduction of coverage, file with the City evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies.

3.3.11.8 Acceptability of Insurers. Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A:VII and authorized to transact business of insurance in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law.

3.3.11.9 Enforcement of Agreement Provisions (non estoppel). Consultant acknowledges and agrees that actual or alleged failure on the part of the City to inform Consultant of non-compliance with any requirement imposes no additional obligation on the City nor does it waive any rights hereunder.

3.3.11.10 Requirements Not Limiting. Requirement of specific coverage or minimum limits contained in this Section are not intended as a limitation on coverage, limits, or other requirement, or a waiver of any coverage normally provided by any insurance.

3.3.11.11 Additional Insurance Provisions

(A) The foregoing requirements as to the types and limits of insurance coverage to be maintained by Consultant, and any approval of said insurance by the City, is not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Consultant pursuant to this Agreement, including but not limited to, the provisions concerning indemnification.

(B) If at any time during the life of the Agreement, any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, City has the right but not the duty to obtain the insurance it deems necessary and any premium paid by City will be promptly reimbursed by Consultant or City will withhold amounts sufficient to pay premium from Consultant payments. In the alternative, City may cancel this Agreement.

(C) The City may require the Consultant to provide complete copies of all insurance policies in effect for the duration of the Project.

(D) Neither the City nor any of its officials, officers, employees, agents or volunteers shall be personally responsible for any liability arising under or by virtue of this Agreement.

(E) The limits set forth herein shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability. Further the limits set forth herein shall not be construed to relieve the Consultant from liability in excess of such coverage, nor shall it limit the Consultant's indemnification obligations to the City and shall not preclude the City from taking such other actions available to the City under other provisions of the Agreement or law.

(F) Consultant shall report to the City, in addition to Consultant's insurer, any and all insurance claims submitted by Consultant in connection with the Services under this Agreement.

3.3.11.12 Insurance for Subconsultants. Consultant shall include all subconsultants engaged in any work for Consultant relating to this Agreement as additional insureds under the Consultant's policies, or the Consultant shall be responsible for causing subconsultants to purchase the appropriate insurance in compliance with the terms of these Insurance Requirements, including adding the City, its officials, officers, employees, agents, and volunteers as additional insureds to the subconsultant's policies. All policies of Commercial General Liability insurance provided by Consultant's subconsultants performing work relating to this Agreement shall be endorsed to name the City, its officials, officers, employees, agents and volunteers as additional insureds using endorsement form ISO CG 20 38 04 13 or an endorsement providing equivalent coverage. Consultant shall not allow any subconsultant to commence work on any subcontract relating to this Agreement until it has received satisfactory evidence of subconsultant's compliance with all insurance requirements under this Agreement, to the extent applicable. The Consultant shall provide satisfactory evidence of compliance with this section upon request of the City.

3.4 Labor Code Requirements.

3.4.1 Prevailing Wages. Consultant is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. If the Services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws. City shall provide Consultant with a copy of the prevailing rates of per diem wages in effect at the commencement of this Agreement. Consultant shall make copies of the prevailing rates of per diem wages for each craft, classification or type of worker needed to execute the Services available to interested parties upon request, and shall post copies at the Consultant's principal place of business and at the project site. It is the intent of the parties to effectuate the requirements of sections 1771, 1774, 1775, 1776, 1777.5, 1813, and 1815 of the Labor Code within this Agreement, and Consultant shall therefore comply with such Labor Code sections to the fullest extent required by law. Consultant shall defend, indemnify and hold the City, its officials, officers, employees, agents, and volunteers free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws.

3.4.2 Registration/DIR Compliance. If the Services are being performed on a public works project of over $25,000 when the project is for construction, alteration, demolition, installation, or repair work, or a public works project of over $15,000 when the project is for maintenance work, in addition to the foregoing, then pursuant to Labor Code sections 1725.5 and 1771.1, the Consultant and all subconsultants must be registered with the Department of Industrial Relations ("DIR"). Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants.

3.4.3 Compliance Monitoring. This Project may also be subject to compliance monitoring and enforcement by the DIR. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements, including the submission of

payroll records directly to the DIR. Any stop orders issued by the DIR against Consultant or any subconsultant that affect Consultant's performance of services, including any delay, shall be Consultant's sole responsibility. Any delay arising out of or resulting from such stop orders shall be considered Consultant caused delay and shall not be compensable by the City. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from any claim or liability arising out of stop orders issued by the DIR against Consultant or any subconsultant.

3.4.4 Labor Certification. By its signature hereunder, Consultant certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that Code, and agrees to comply with such provisions before commencing the performance of the Services.

3.5 Accounting Records.

3.5.1 Maintenance and Inspection. Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of City during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of three (3) years from the date of final payment under this Agreement.

3.6 General Provisions.

3.6.1 Termination of Agreement.

3.6.1.1 Grounds for Termination. City may, by written notice to Consultant, terminate the whole or any part of this Agreement at any time and without cause by giving written notice to Consultant of such termination, and specifying the effective date thereof, at least seven (7) days before the effective date of such termination. Upon termination, Consultant shall be compensated only for those Services which have been adequately rendered to City, and Consultant shall be entitled to no further compensation. Consultant may not terminate this Agreement except for cause. The rights and remedies of the City provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law, equity or under this Agreement.

3.6.1.2 Effect of Termination. If this Agreement is terminated as provided herein, City may require Consultant to provide all finished or unfinished Documents and Data and other information of any kind prepared by Consultant in connection with the performance of Services under this Agreement. Consultant shall be required to provide such document and other information within fifteen (15) days of the request.

3.6.1.3 Additional Services. In the event this Agreement is terminated in whole or in part as provided herein, City may procure, upon such terms and in such manner as it may determine appropriate, services similar to those terminated.

3.6.2 Delivery of Notices. All notices permitted or required under this Agreement shall be given to the respective parties at the following address, or at such other

address as the respective parties may provide in writing for this purpose:

Consultant: INSERT CONSULTANT INFO

City: City of San Jacinto
595 S. San Jacinto Avenue
San Jacinto, CA 92583
ATTN: INSERT NAME

Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.6.3 Ownership of Materials and Confidentiality.

3.6.3.1 Documents & Data; Licensing of Intellectual Property. This Agreement creates a non-exclusive and perpetual license for City to copy, use, modify, reuse, or sublicense any and all copyrights, designs, and other intellectual property embodied in plans, specifications, studies, drawings, estimates, and other documents or works of authorship fixed in any tangible medium of expression, including but not limited to, physical drawings or data magnetically or otherwise recorded on computer diskettes, which are prepared or caused to be prepared by Consultant under this Agreement ("Documents & Data"). All Documents & Data shall be and remain the property of City, and shall not be used in whole or in substantial part by Consultant on other projects without the City's express written permission. Within thirty (30) days following the completion, suspension, abandonment or termination of this Agreement, Consultant shall provide to City reproducible copies of all Documents & Data, in a form and amount required by City. City reserves the right to select the method of document reproduction and to establish where the reproduction will be accomplished. The reproduction expense shall be borne by City at the actual cost of duplication. In the event of a dispute regarding the amount of compensation to which the Consultant is entitled under the termination provisions of this Agreement, Consultant shall provide all Documents & Data to City upon payment of the undisputed amount. Consultant shall have no right to retain or fail to provide to City any such documents pending resolution of the dispute. In addition, Consultant shall retain copies of all Documents & Data on file for a minimum of fifteen (15) years following completion of the Project, and shall make copies available to City upon the payment of actual reasonable duplication costs. Before destroying the Documents & Data following this retention period, Consultant shall make a reasonable effort to notify City and provide City with the opportunity to obtain the documents.

3.6.3.2 Subconsultants. Consultant shall require all subconsultants to agree in writing that City is granted a non-exclusive and perpetual license for any Documents & Data the subconsultant prepares under this Agreement. Consultant represents and warrants that Consultant has the legal right to license any and all Documents & Data. Consultant makes no such representation and warranty in regard to Documents & Data which were prepared by design professionals other than Consultant or its subconsultants, or those provided to Consultant by the City.

3.6.3.3 Right to Use. City shall not be limited in any way in its use or reuse of the Documents and Data or any part of them at any time for purposes of this Project or

another project, provided that any such use not within the purposes intended by this Agreement or on a project other than this Project without employing the services of Consultant shall be at City's sole risk. If City uses or reuses the Documents & Data on any project other than this Project, it shall remove the Consultant's seal from the Documents & Data and indemnify and hold harmless Consultant and its officers, directors, agents and employees from claims arising out of the negligent use or re-use of the Documents & Data on such other project. Consultant shall be responsible and liable for its Documents & Data, pursuant to the terms of this Agreement, only with respect to the condition of the Documents & Data at the time they are provided to the City upon completion, suspension, abandonment or termination. Consultant shall not be responsible or liable for any revisions to the Documents & Data made by any party other than Consultant, a party for whom the Consultant is legally responsible or liable, or anyone approved by the Consultant.

3.6.3.4 Indemnification. Consultant shall defend, indemnify and hold the City, its directors, officials, officers, employees, volunteers and agents free and harmless, pursuant to the indemnification provisions of this Agreement, for any alleged infringement of any patent, copyright, trade secret, trade name, trademark, or any other proprietary right of any person or entity in consequence of the use on the Project by City of the Documents & Data, including any method, process, product, or concept specified or depicted.

3.6.3.5 Confidentiality. All ideas, memoranda, specifications, plans, procedures, drawings, descriptions, computer program data, input record data, written information, and other Documents & Data either created by or provided to Consultant in connection with the performance of this Agreement shall be held confidential by Consultant. Such materials shall not, without the prior written consent of City, be used by Consultant for any purposes other than the performance of the Services. Nor shall such materials be disclosed to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant which is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use City's name or insignia, photographs of the Project, or any publicity pertaining to the Services or the Project in any magazine, trade paper, newspaper, television or radio production or other similar medium without the prior written consent of City.

3.6.3.6 Confidential Information. The City shall refrain from releasing Consultant's proprietary information ("Proprietary Information") unless the City's legal counsel determines that the release of the Proprietary Information is required by the California Public Records Act or other applicable state or federal law, or order of a court of competent jurisdiction, in which case the City shall notify Consultant of its intention to release Proprietary Information. Consultant shall have five (5) working days after receipt of the release notice to give City written notice of Consultant's objection to the City's release of Proprietary Information. Consultant shall indemnify, defend and hold harmless the City, and its officers, directors, employees, and agents from and against all liability, loss, cost or expense (including attorney's fees) arising out of a legal action brought to compel the release of Proprietary Information. City shall not release the Proprietary Information after receipt of the objection notice unless either: (1) Consultant fails to fully indemnify, defend (with City's choice of legal counsel), and hold City harmless from any legal action brought to compel such release; and/or (2) a final and non-appealable order by a court of competent jurisdiction requires that City release such information.

3.6.4 Cooperation; Further Acts. The Parties shall fully cooperate with one another, and shall take any additional acts or sign any additional documents as may be

necessary, appropriate or convenient to attain the purposes of this Agreement.

3.6.5 Indemnification.

3.6.5.1 To the fullest extent permitted by law, Consultant shall defend (with counsel of City's choosing), indemnify and hold the City, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of the Consultant's Services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorney's fees and other related costs and expenses except such loss or damage caused by the sole negligence or willful misconduct of the City. Consultant's obligation to indemnify shall survive expiration or termination of this Agreement and shall not be restricted to insurance proceeds, if any, received by Consultant, the City, its officials, officers, employees, agents, or volunteers.

3.6.5.2 If Consultant's obligation to defend, indemnify, and/or hold harmless arises out of Consultant's performance as a "design professional" (as that term is defined under Civil Code section 2782.8), then, and only to the extent required by Civil Code section 2782.8, which is fully incorporated herein, Consultant's indemnification obligation shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, and, upon Consultant obtaining a final adjudication by a court of competent jurisdiction, Consultant's liability for such claim, including the cost to defend, shall not exceed the Consultant's proportionate percentage of fault.

3.6.6 Entire Agreement. This Agreement contains the entire Agreement of the parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings or agreements. This Agreement may only be modified by a writing signed by both parties.

3.6.7 Governing Law; Government Code Claim Compliance. This Agreement shall be governed by the laws of the State of California. Venue shall be in Riverside County. In addition to any and all contract requirements pertaining to notices of and requests for compensation or payment for extra work, disputed work, claims and/or changed conditions, Consultant must comply with the claim procedures set forth in Government Code sections 900 et seq. prior to filing any lawsuit against the City. Such Government Code claims and any subsequent lawsuit based upon the Government Code claims shall be limited to those matters that remain unresolved after all procedures pertaining to extra work, disputed work, claims, and/or changed conditions have been followed by Consultant. If no such Government Code claim is submitted, or if any prerequisite contractual requirements are not otherwise satisfied as specified herein, Consultant shall be barred from bringing and maintaining a valid lawsuit against the City.

3.6.8 Time of Essence. Time is of the essence for each and every provision of this Agreement.

3.6.9 City's Right to Employ Other Consultants. City reserves right to employ other consultants in connection with this Project.

3.6.10 Successors and Assigns. This Agreement shall be binding on the successors and assigns of the parties.

3.6.11 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of the City. Any attempt to do so shall be null and void, and any assignees, hypothecates or transferees shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer.

3.6.12 Construction; References; Captions. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. Any term referencing time, days or period for performance shall be deemed calendar days and not work days. All references to Consultant include all personnel, employees, agents, and subconsultants of Consultant, except as otherwise specified in this Agreement. All references to City include its elected officials, officers, employees, agents, and volunteers except as otherwise specified in this Agreement. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

3.6.13 Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by both Parties.

3.6.14 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.

3.6.15 No Third-Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

3.6.16 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

3.6.17 Prohibited Interests. Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, City shall have the right to rescind this Agreement without liability. For the term of this Agreement, no member, officer or employee of City, during the term of his or her service with City, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

3.6.18 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

3.6.19 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

3.6.20 Survival. All rights and obligations hereunder that by their nature are to continue after any expiration or termination of this Agreement, including, but not limited to, the indemnification obligations, shall survive any such expiration or termination.

3.7 Subcontracting.

3.7.1 Prior Approval Required. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of City. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

[SIGNATURES ON NEXT PAGE]

DRAFT

SIGNATURE PAGE TO PROFESSIONAL SERVICES AGREEMENT
BY AND BETWEEN THE CITY OF SAN JACINTO AND INSERT CONSULTANT NAME

IN WITNESS WHEREOF, each of the Parties has caused this Agreement to be executed on the day and year first above written.

CITY OF SAN JACINTO	**INSERT CONSULTANT NAME**
By: _____	By: _____
Robert A. Johnson City Manager	INSERT NAME INSERT TITLE

Attest:

_____
City Clerk

Approved as to Form:

_____
Best Best & Krieger LLP
City Attorney

DRAFT

EXHIBIT "A"
SCOPE OF SERVICES

DRAFT

EXHIBIT "B"
COMPENSATION & SCHEDULE OF SERVICES

June 2, 2026

TO:	City Council
REQUESTED BY:	Cynthia Espinosa, Director of Community Engagement and Communications
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	City Net PSA Renewal for Street Outreach and Emergency Shelter

RECOMMENDATION:

Staff recommends that City Council approve the FY 2026-2027 Professional Services Agreement with City Net to provide comprehensive street outreach and emergency hotel services, and authorize the City Manager or their designee to sign the agreement.

DISCUSSION:

The City of San Jacinto has maintained a long-standing commitment to reducing the impacts of homelessness and supporting the at-risk population within the community. Following the hiring of City Manager Robert Johnson in February 2017, the City Council directed staff to begin identifying resources, partnerships, and programmatic approaches to address these complex challenges.

Homelessness is a multifaceted socio-economic issue affecting communities nationwide, and effective response requires a coordinated, methodical approach supported by sustained resources. Since 2017, the City has taken incremental but intentional steps to build a foundation for a sustainable, long-term program focused on stabilization and support services, including access to mental health care, substance use treatment, housing navigation, job readiness, income stability, and improved overall quality of life.

One of the most significant ongoing challenges has been securing consistent, long-term funding for a “boots-on-the-ground” outreach model capable of providing comprehensive “wraparound” services to individuals identified through the City’s Homeless, At-Risk Population (HARP) efforts.

In June 2017, the City Council approved the expansion of the Code Enforcement Division with the addition of three Code Enforcement Officers and a supervisor, as well as two Problem-Oriented Policing (POP) Sheriff Deputies. This coordinated approach allowed the City to more effectively address quality-of-life concerns such as illegal dumping, graffiti, panhandling, vagrancy, encampments, and nuisance activity on both public and private property.

In early 2018, City leadership met with representatives from the City of Temecula to learn about their partnership with City Net and the success of their outreach and wraparound service model. At that time, the associated costs of implementing a comparable program in San Jacinto were determined to be cost-prohibitive. Despite this, the City continued to pursue regional collaboration through participation in Continuum of Care meetings and outreach efforts coordinated by Supervisor Washington’s office.

A top priority identified through both the Measure V campaign and the City’s community needs assessment was addressing homelessness in a more structured and sustainable way. With the passage of Measure V, the City was able to allocate resources to formally establish a dedicated Homeless, At-Risk Population Outreach Program (HARP Outreach), positioning the City to more effectively coordinate services and partnerships focused on this critical issue.

The City's partnership with City Net has been instrumental in advancing these efforts. City Net has not only provided direct outreach and case management services but has also supported the City in qualifying for and securing critical grant funding, including the Homeless Housing, Assistance and Prevention (HHAP) Program and the Encampment Resolution Fund (ERF). These funds have helped offset General Fund expenditures while expanding outreach and services beyond city boundaries.

Importantly, this regional approach has allowed the City to address encampments and individuals along the San Jacinto River and surrounding unincorporated areas. Without these services, many of the individuals in those areas would continue to migrate into city limits, placing additional strain on local resources and public services. City Net's consistent engagement, data tracking, and coordinated service delivery have strengthened the City's ability to demonstrate need, secure funding, and implement a more effective, regionally informed response to homelessness and at-risk population impacts.

In total for fiscal year 2025-2026, City Net made 1,172 contacts, averaged 112 clients enrolled in services monthly, and 44 of those individuals were serviced by the City's motel program and exited the streets of San Jacinto. Through City Net's outreach services over 150 police calls for service have been diverted, and 619 one on one case manager hours have been performed. This data shows the positive impact that the program has delivered. The services provided by City Net have been instrumental in addressing the critical needs of homeless and at-risk individuals within San Jacinto's community. The continuation of this contract will continue to offer hope and stability to the most vulnerable members in San Jacinto, and contribute to the overall positive well-being and quality of life of residents.

FISCAL IMPACT:

Funding for the City Net contract in an amount not to exceed $616,313.02 is included in the FY 2026-2027 budget, Account No. 010-9500-950.34-05.

Attachments

City_Net_Professional_Services_Contract_July 1, 2026 to June 30, 2027.pdf

CITY OF SAN JACINTO

PROFESSIONAL SERVICES AGREEMENT

1. PARTIES AND DATE.

This Agreement is made and entered into this 1st day of July, 2026, by and between the City of San Jacinto, a municipal corporation, organized under the laws of the State of California, with its principal place of business at 595 S. San Jacinto Avenue, San Jacinto, California 92583 ("City") and **City Net**, a **non-profit** with its principal place of business at **PO Box 4508 Atlantic Ave Ste. 292, Long Beach, CA 90807** (Consultant"). City and Consultant are sometimes individually referred to herein as "Party" and collectively as "Parties."

2. RECITALS.

2.1 Consultant.

Consultant desires to perform and assume responsibility for the provision of certain professional street outreach and engagement services to homeless consulting services required by the City on the terms and conditions set forth in this Agreement. Consultant represents that it is experienced in providing professional street outreach consulting services to public clients, is licensed in the State of California, and is familiar with the plans of City.

2.2 Project.

City desires to engage Consultant to render such professional **street outreach** consulting services for Street Outreach and Engagement through the HARP project ("Project") as set forth in this Agreement.

3. TERMS.

3.1 Scope of Services and Term.

3.1.1 General Scope of Services. Consultant promises and agrees to furnish to the City all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply the professional street outreach consulting services necessary for the Project ("Services"). The Services are more particularly described in Exhibit "A" attached hereto and incorporated herein by reference. All Services shall be subject to, and performed in accordance with, this Agreement, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state and federal laws, rules and regulations. Term. The term of this Agreement shall be from July 1, 2026 to June 30, 2027, unless earlier terminated as provided herein. Consultant shall complete the Services within the term of this Agreement, and shall meet any other established schedules and deadlines.

3.2 Responsibilities of Consultant.

3.2.1 Independent Contractor; Control and Payment of Subordinates. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement. City retains Consultant on an independent contractor basis and not as an employee.

Consultant retains the right to perform similar or different services for others during the term of this Agreement. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall also not be employees of City and shall at all times be under Consultant's exclusive direction and control. Neither City, nor any of its officials, officers, directors, employees or agents shall have control over the conduct of Consultant or any of Consultant's officers, employees, or agents, except as set forth in this Agreement. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.

3.2.2 Schedule of Services. Consultant shall perform the Services expeditiously, within the term of this Agreement, and in accordance with the Schedule of Services set forth in Exhibit "B" attached hereto and incorporated herein by reference. Consultant represents that it has the professional and technical personnel required to perform the Services in conformance with such conditions. In order to facilitate Consultant's conformance with the Schedule, City shall respond to Consultant's submittals in a timely manner. Upon request of City, Consultant shall provide a more detailed schedule of anticipated performance to meet the Schedule of Services.

3.2.3 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the approval of City.

3.2.4 Substitution of Key Personnel. Consultant has represented to City that certain key personnel will perform and coordinate the Services under this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of City. In the event that City and Consultant cannot agree as to the substitution of key personnel, City shall be entitled to terminate this Agreement for cause. As discussed below, any personnel who fail or refuse to perform the Services in a manner acceptable to the City, or who are determined by the City to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project or a threat to the safety of persons or property, shall be promptly removed from the Project by the Consultant at the request of the City. The key personnel for performance of this Agreement are as follows: Brad Fieldhouse, President and Jessica Bruce, Chief Program Officer.

3.2.5 City's Representative. The City hereby designates the City Manager, or his/her designee, to act as its representative in all matters pertaining to the administration and performance of this Agreement ("City's Representative"). City's Representative shall have the power to act on behalf of the City for review and approval of all products submitted by Consultant but not the authority to enlarge the Scope of Work or change the total compensation due to Consultant under this Agreement. The City Manager shall be authorized to act on City's behalf and to execute all necessary documents which enlarge the Scope of Work or change the Consultant's total compensation subject to the provisions contained in Section 3.3 of this Agreement. Consultant shall not accept direction or orders from any person other than the City Manager, City's Representative or his/her designee.

3.2.6 Consultant's Representative. Consultant hereby designates Brad Fieldhouse, or his/her designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of the Consultant for all purposes under this Agreement. The Consultant's

Representative shall supervise and direct the Services, using his/her best skill and attention, and shall be responsible for all means, methods, techniques, sequences, and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

3.2.7 Coordination of Services. Consultant agrees to work closely with City staff in the performance of Services and shall be available to City's staff, consultants and other staff at all reasonable times.

3.2.8 Standard of Care; Performance of Employees. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant warrants that all employees and sub consultants shall have sufficient skill and experience to perform the Services assigned to them. Finally, Consultant represents that it, its employees and sub consultants have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, and that such licenses and approvals shall be maintained throughout the term of this Agreement. As provided for in the indemnification provisions of this Agreement, Consultant shall perform, at its own cost and expense and without reimbursement from the City, any services necessary to correct errors or omissions which are caused by the Consultant's failure to comply with the standard of care provided for herein. Any employee of the Consultant or its sub-consultants who is determined by the City to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project, a threat to the safety of persons or property, or any employee who fails or refuses to perform the Services in a manner acceptable to the City, shall be promptly removed from the Project by the Consultant and shall not be re-employed to perform any of the Services or to work on the Project.

3.2.9 Laws and Regulations; Employee/Labor Certification. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Project or the Services, including all Cal/OSHA requirements, and shall give all notices required by law. Consultant shall be liable for all violations of such laws and regulations in connection with Services. If Consultant performs any work knowing it to be contrary to such laws, rules and regulations, Consultant shall be solely responsible for all costs arising therefrom. Consultant shall defend, indemnify and hold City, its officials, directors, officers, employees, agents, and volunteers free and harmless, pursuant to the indemnification provisions of this Agreement, from any claim or liability arising out of any failure or alleged failure to comply with such laws, rules or regulations.

3.2.9.1 Employment Eligibility; Consultant. By executing this Agreement, Consultant verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time. Such requirements and restrictions include, but are not limited to, examination and retention of documentation confirming the identity and immigration status of each employee of the Consultant. Consultant also verifies that it has not committed a violation of any such law within the five (5) years immediately preceding the date of execution of this Agreement, and shall not violate any such law at any time during the term of the Agreement. Consultant shall avoid any violation of any such law during the term of this Agreement by participating in an electronic verification of work authorization program operated by the United States Department of Homeland Security, by participating in an equivalent federal work authorization program operated by the United States

Department of Homeland Security to verify information of newly hired employees, or by some other legally acceptable method. Consultant shall maintain records of each such verification, and shall make them available to the City or its representatives for inspection and copy at any time during normal business hours. The City shall not be responsible for any costs or expenses related to Consultant's compliance with the requirements provided for in Section 3.2.10 or any of its sub-sections.

3.2.9.2 Employment Eligibility; Subcontractors, Consultants, Sub-subcontractors and Subconsultants. To the same extent and under the same conditions as Consultant, Consultant shall require all of its subcontractors, consultants, sub-subcontractors and subconsultants performing any work relating to the Project or this Agreement to make the same verifications and comply with all requirements and restrictions provided for in Section 3.2.10.1.

3.2.9.3 Employment Eligibility; Failure to Comply. Each person executing this Agreement on behalf of Consultant verifies that they are a duly authorized officer of Consultant, and understands that any of the following shall be grounds for the City to terminate the Agreement for cause: (1) failure of Consultant or its subcontractors, consultants, sub-subcontractors or subconsultants to meet any of the requirements provided for in Sections 3.2.10.1 or 3.2.10.2; (2) any misrepresentation or material omission concerning compliance with such requirements (including in those verifications provided to the Consultant under Section 3.2.10.2); or (3) failure to immediately remove from the Project any person found not to be in compliance with such requirements.

3.2.9.4 Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any subconsultant, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination. Consultant shall also comply with all relevant provisions of City's Minority Business Enterprise program, Affirmative Action Plan or other related programs or guidelines currently in effect or hereinafter enacted.

3.2.9.5 Air Quality. To the extent applicable, Consultant must fully comply with all applicable laws, rules and regulations in furnishing or using equipment and/or providing services, including, but not limited to, emissions limits and permitting requirements imposed by the South Coast Air Quality Management District (SCAQMD) and/or California Air Resources Board (CARB). Although the SCAQMD and CARB limits and requirements are more broad, Consultant shall specifically be aware of their application to "portable equipment", which definition is considered by SCAQMD and CARB to include any item of equipment with a fuel-powered engine. Consultant shall indemnify City against any fines or penalties imposed by SCAQMD, CARB, or any other governmental or regulatory agency for violations of applicable laws, rules and/or regulations by Consultant, its sub-consultants, or others for whom Consultant is responsible under its indemnity obligations provided for in this Agreement.

3.2.9.6 Safety. Consultant shall execute and maintain its work so as to avoid injury or damage to any person or property. In carrying out its Services, the Consultant shall at all times be in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed. Safety precautions, where applicable, shall include, but shall not be limited to: (A) adequate life

protection and lifesaving equipment and procedures; (B) instructions in accident prevention for all employees and subconsultants, such as safe walkways, scaffolds, fall protection ladders, bridges, gang planks, confined space procedures, trenching and shoring, equipment and other safety devices, equipment and wearing apparel as are necessary or lawfully required to prevent accidents or injuries; and (C) adequate facilities for the proper inspection and maintenance of all safety measures.

3.2.10 Insurance.

3.2.10.1 Time for Compliance. Consultant shall not commence Services under this Agreement until it has provided evidence satisfactory to the City that it has secured all insurance required under this section. In addition, Consultant shall not allow any subconsultant to commence work on any subcontract until it has provided evidence satisfactory to the City that the subconsultant has secured all insurance required under this section. Failure to provide and maintain all required insurance shall be grounds for the City to terminate this Agreement for cause.

3.2.10.2 Minimum Requirements. Consultant shall, at its expense, procure and maintain for the duration of the Agreement insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Consultant, its agents, representatives, employees or subconsultants. Consultant shall also require all of its subconsultants to procure and maintain the same insurance for the duration of the Agreement. Such insurance shall meet at least the following minimum levels of coverage:

(A) Minimum Scope of Insurance. Coverage shall be at least as broad as the latest version of the following: (1) *General Liability*: Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001); (2) *Automobile Liability*: Insurance Services Office Business Auto Coverage form number CA 0001, code 1 (any auto); and (3) *Workers' Compensation and Employer's Liability*: Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

(B) Minimum Limits of Insurance. Consultant shall maintain limits no less than: (1) *General Liability:* $1,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with general aggregate limit is used, including, but not limited to, form CG 2503, either the general aggregate limit shall apply separately to this Agreement/location or the general aggregate limit shall be twice the required occurrence limit; (2) *Automobile Liability:* $1,000,000 per accident for bodily injury and property damage; and (3) *Workers' Compensation and Employer's Liability:* Workers' Compensation limits as required by the Labor Code of the State of California. Employer's Liability limits of $1,000,000 per accident for bodily injury or disease.

3.2.10.3 Professional Liability. Consultant shall procure and maintain, and require its sub-consultants to procure and maintain, for a period of five (5) years following completion of the Project, errors and omissions liability insurance appropriate to their profession. Such insurance shall be in an amount not less than $1,000,000 MINIMUM; per claim, and shall be endorsed to include contractual liability.

3.2.10.4 Insurance Endorsements. The insurance policies shall contain the following provisions, or Consultant shall provide endorsements on forms supplied or approved by the City to add the following provisions to the insurance policies:

(A) General Liability. The general liability policy shall be endorsed to state that: (1) the City, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insured with respect to the Work or operations performed by or on behalf of the Consultant, including materials, parts or equipment furnished in connection with such work; and (2) the insurance coverage shall be primary insurance as respects the City, its directors, officials, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the City, its directors, officials, officers, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way.

(B) Automobile Liability. The automobile liability policy shall be endorsed to state that: (1) the City, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insureds with respect to the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Consultant or for which the Consultant is responsible; and (2) the insurance coverage shall be primary insurance as respects the City, its directors, officials, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the City, its directors, officials, officers, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way.

(C) Workers' Compensation and Employers Liability Coverage. The insurer shall agree to waive all rights of subrogation against the City, its directors, officials, officers, employees, agents and volunteers for losses paid under the terms of the insurance policy which arise from work performed by the Consultant.

(D) All Coverages. Each insurance policy required by this Agreement shall be endorsed to state that: (A) coverage shall not be suspended, voided, reduced or canceled except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City; and (B) any failure to comply with reporting or other provisions of the policies, including breaches of warranties, shall not affect coverage provided to the City, its directors, officials, officers, employees, agents and volunteers.

3.2.10.5 Separation of Insureds; No Special Limitations. All insurance required by this Section shall contain standard separation of insureds provisions. In addition, such insurance shall not contain any special limitations on the scope of protection afforded to the City, its directors, officials, officers, employees, agents and volunteers.

3.2.10.6 Deductibles and Self-Insurance Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. Consultant shall guarantee that, at the option of the City, either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its directors, officials, officers, employees, agents and volunteers; or (2) the Consultant shall procure a bond guaranteeing payment of losses and related investigation costs, claims and administrative and defense expenses.

3.2.10.7 Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best's rating no less than A:VIII, licensed to do business in California, and satisfactory to the City.

3.2.10.8 Verification of Coverage. Consultant shall furnish City with original certificates of insurance and endorsements effecting coverage required by this Agreement on forms satisfactory to the City. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf, and shall be on forms provided by the City if requested. All certificates and endorsements must be received and approved by the City before work commences. The City reserves the right to require complete, certified copies of all required insurance policies, at any time.

3.2.10.9 Reporting of Claims. Consultant shall report to the City, in addition to Consultant's insurer, any and all insurance claims submitted by Consultant in connection with the Services under this Agreement.

3.2.10.10 Standard of Care. Consultant warrants that all employees and subcontractors shall have sufficient skill and experience to perform the work assigned to them without impacting water quality in violation of the laws, regulations and policies described in Section 3.2.12.2 of this Agreement. Consultant further warrants that it, its employees and subcontractors have or will receive adequate training, as determined by the City, regarding these requirements as they may relate to the Services.

3.2.10.11 Liability for Non-compliance.

(A) Indemnity: Failure to comply with laws, regulations, and ordinances listed in Section 3.2.14.2 of this Agreement is a violation of federal and state law. Notwithstanding any other indemnity contained in this Agreement, Consultant agrees to indemnify and hold harmless the City, its officials, officers, agents, employees and authorized volunteers from and against any and all claims, demands, losses or liabilities of any kind or nature which the City, its officials, officers, agents, employees and authorized volunteers may sustain or incur for noncompliance with the laws, regulations, and ordinances listed above, arising out of or in connection with the Services, except for liability resulting from the sole established negligence, willful misconduct or active negligence of the City, its officials, officers, agents, employees or authorized volunteers.

(B) Defense: City reserves the right to defend any enforcement action or civil action brought against the City for Consultant's failure to comply with any applicable water quality law, regulation, or policy. Consultant hereby agrees to be bound by, and to reimburse the City for the costs associated with, any settlement reached between the City and the relevant enforcement entity.

(C) Damages: City may seek damages from Consultant for delay in completing the Services caused by Consultant's failure to comply with the laws, regulations and policies described in Section 3.2.12.2 of this Agreement, or any other relevant water quality law, regulation, or policy.

3.3 Fees and Payments.

3.3.1 Compensation. Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth in Exhibit "C" attached hereto and incorporated herein by reference. The total compensation shall

not exceed Six Hundred and Sixteen thousand, three hundred and thirteen dollars, and two cents ($616,313.02) for the City-Wide contract without written approval of the City Council or City Manager as applicable. Extra Work may be authorized, as described below, and if authorized, will be compensated at the rates and manner set forth in this Agreement.

3.3.2 Payment of Compensation. Consultant shall submit to City a monthly invoice which indicates work completed and hours of Services rendered by Consultant. The invoice shall describe the amount of Services provided since the initial commencement date, or since the start of the subsequent billing periods, as appropriate, through the date of the invoice. City shall, within 30 days of receiving such invoice, review the invoice and pay all non-disputed and approved charges thereon. If the City disputes any of Consultant's fees, the City shall give written notice to Consultant within thirty (30) days of receipt of an invoice of any disputed fees set forth therein.

3.3.3 Reimbursement for Expenses. Consultant shall not be reimbursed for any expenses unless authorized in writing by City, or included in Exhibit "B" of this Agreement.

3.3.4 Extra Work. At any time during the term of this Agreement, City may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by City to be necessary for the proper completion of the Project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization from the City.

3.3.5 Rate Increases. In the event that this Agreement is renewed pursuant to Section 3.1.2, the rate set forth in Exhibit “B” may be adjusted each year at the time of renewal as set forth in Exhibit “C.”

3.4 Labor Code Requirements.

3.4.1 Prevailing Wages. Consultant is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. If the Services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws. City shall provide Consultant with a copy of the prevailing rates of per diem wages in effect at the commencement of this Agreement. Consultant shall make copies of the prevailing rates of per diem wages for each craft, classification or type of worker needed to execute the Services available to interested parties upon request, and shall post copies at the Consultant's principal place of business and at the project site. It is the intent of the parties to effectuate the requirements of sections 1771, 1774, 1775, 1776, 1777.5, 1813, and 1815 of the Labor Code within this Agreement, and Consultant shall therefore comply with such Labor Code sections to the fullest extent required by law. Consultant shall defend, indemnify and hold the City, its officials, officers, employees, agents, and volunteers free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws.

3.4.2 Registration. If the Services are being performed on a public works project of over $25,000 when the project is for construction, alteration, demolition, installation, or repair

work, or a public works project of over $15,000 when the project is for maintenance work, in addition to the foregoing, then pursuant to Labor Code sections 1725.5 and 1771.1, the Consultant and all subconsultants must be registered with the Department of Industrial Relations ("DIR"). Consultant shall maintain registration for the duration of the project and require the same of any subconsultants. This project may also be subject to compliance monitoring and enforcement by the DIR. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements, including the submission of payroll records directly to the DIR.

3.4.3 Labor Certification. By its signature hereunder, Consultant certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that Code, and agrees to comply with such provisions before commencing the performance of the Services.

3.5 Accounting Records.

3.5.1 Maintenance and Inspection. Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of City during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of three (3) years from the date of final payment under this Agreement.

3.6 General Provisions.

3.6.1 Termination of Agreement.

3.6.1.1 Grounds for Termination. City may, by written notice to Consultant, terminate the whole or any part of this Agreement at any time and without cause by giving written notice to Consultant of such termination, and specifying the effective date thereof, at least seven (7) days before the effective date of such termination. Upon termination, Consultant shall be compensated only for those services which have been adequately rendered to City, and Consultant shall be entitled to no further compensation. Consultant may not terminate this Agreement except for cause.

3.6.1.2 Effect of Termination. If this Agreement is terminated as provided herein, City may require Consultant to provide all finished or unfinished Documents and Data and other information of any kind prepared by Consultant in connection with the performance of Services under this Agreement. Consultant shall be required to provide such document and other information within fifteen (15) days of the request.

3.6.1.3 Additional Services. In the event this Agreement is terminated in whole or in part as provided herein, City may procure, upon such terms and in such manner as it may determine appropriate, services similar to those terminated.

3.6.2 Delivery of Notices. All notices permitted or required under this Agreement shall be given to the respective parties at the following address, or at such other address as the respective parties may provide in writing for this purpose:

Consultant: **City Net (Kingdom Causes INC)**
PO Box 4508 Atlantic Ave Ste. 292,
Long Beach, CA 90807
ATTN: **Brad Fieldhouse, President**

City: City of San Jacinto
595 S. San Jacinto Avenue
San Jacinto, CA 92583
ATTN: **City Manager**

Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.6.3 Ownership of Materials and Confidentiality.

3.6.3.1 Documents & Data; Licensing of Intellectual Property. This Agreement creates a non-exclusive and perpetual license for City to copy, use, modify, reuse, or sublicense any and all copyrights, designs, and other intellectual property embodied in plans, specifications, studies, drawings, estimates, and other documents or works of authorship fixed in any tangible medium of expression, including but not limited to, physical drawings or data magnetically or otherwise recorded on computer diskettes, which are prepared or caused to be prepared by Consultant under this Agreement ("Documents & Data"). All Documents & Data shall be and remain the property of City, and shall not be used in whole or in substantial part by Consultant on other projects without the City's express written permission. Within thirty (30) days following the completion, suspension, abandonment or termination of this Agreement, Consultant shall provide to City reproducible copies of all Documents & Data, in a form and amount required by City. City reserves the right to select the method of document reproduction and to establish where the reproduction will be accomplished. The reproduction expense shall be borne by City at the actual cost of duplication. In the event of a dispute regarding the amount of compensation to which the Consultant is entitled under the termination provisions of this Agreement, Consultant shall provide all Documents & Data to City upon payment of the undisputed amount. Consultant shall have no right to retain or fail to provide to City any such documents pending resolution of the dispute. In addition, Consultant shall retain copies of all Documents & Data on file for a minimum of fifteen (15) years following completion of the Project, and shall make copies available to City upon the payment of actual reasonable duplication costs. Before destroying the Documents & Data following this retention period, Consultant shall make a reasonable effort to notify City and provide City with the opportunity to obtain the documents.

3.6.3.2 Subconsultants. Consultant shall require all subconsultants to agree in writing that City is granted a non-exclusive and perpetual license for any Documents & Data the subconsultant prepares under this Agreement. Consultant represents and warrants that Consultant has the legal right to license any and all Documents & Data. Consultant makes no such representation and warranty in regard to Documents & Data which were prepared by design professionals other than Consultant or its subconsultants, or those provided to Consultant by the City.

3.6.3.3 Right to Use. City shall not be limited in any way in its use or reuse of the Documents and Data or any part of them at any time for purposes of this Project or

another project, provided that any such use not within the purposes intended by this Agreement or on a project other than this Project without employing the services of Consultant shall be at City's sole risk. If City uses or reuses the Documents & Data on any project other than this Project, it shall remove the Consultant's seal from the Documents & Data and indemnify and hold harmless Consultant and its officers, directors, agents and employees from claims arising out of the negligent use or re-use of the Documents & Data on such other project. Consultant shall be responsible and liable for its Documents & Data, pursuant to the terms of this Agreement, only with respect to the condition of the Documents & Data at the time they are provided to the City upon completion, suspension, abandonment or termination. Consultant shall not be responsible or liable for any revisions to the Documents & Data made by any party other than Consultant, a party for whom the Consultant is legally responsible or liable, or anyone approved by the Consultant.

3.6.3.4 Indemnification. Consultant shall defend, indemnify and hold the City, its directors, officials, officers, employees, volunteers and agents free and harmless, pursuant to the indemnification provisions of this Agreement, for any alleged infringement of any patent, copyright, trade secret, trade name, trademark, or any other proprietary right of any person or entity in consequence of the use on the Project by City of the Documents & Data, including any method, process, product, or concept specified or depicted.

3.6.3.5 Confidentiality. All ideas, memoranda, specifications, plans, procedures, drawings, descriptions, computer program data, input record data, written information, and other Documents & Data either created by or provided to Consultant in connection with the performance of this Agreement shall be held confidential by Consultant. Such materials shall not, without the prior written consent of City, be used by Consultant for any purposes other than the performance of the Services. Nor shall such materials be disclosed to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant which is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use City's name or insignia, photographs of the Project, or any publicity pertaining to the Services or the Project in any magazine, trade paper, newspaper, television or radio production or other similar medium without the prior written consent of City.

3.6.3.6 Confidential Information. The City shall refrain from releasing Consultant's proprietary information ("Proprietary Information") unless the City's legal counsel determines that the release of the Proprietary Information is required by the California Public Records Act or other applicable state or federal law, or order of a court of competent jurisdiction, in which case the City shall notify Consultant of its intention to release Proprietary Information. Consultant shall have five (5) working days after receipt of the Release Notice to give City written notice of Consultant's objection to the City's release of Proprietary Information. Consultant shall indemnify, defend and hold harmless the City, and its officers, directors, employees, and agents from and against all liability, loss, cost or expense (including attorney's fees) arising out of a legal action brought to compel the release of Proprietary Information. City shall not release the Proprietary Information after receipt of the Objection Notice unless either: (1) Consultant fails to fully indemnify, defend (with City's choice of legal counsel), and hold City harmless from any legal action brought to compel such release; and/or (2) a final and non-appealable order by a court of competent jurisdiction requires that City release such information.

3.6.4 Cooperation; Further Acts. The Parties shall fully cooperate with one another, and shall take any additional acts or sign any additional documents as may be necessary,

appropriate or convenient to attain the purposes of this Agreement.

3.6.5 Attorney's Fees. If either party commences an action against the other party, either legal, administrative or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorney's fees and all other costs of such action.

3.6.6 Indemnification. To the fullest extent permitted by law, Consultant shall defend (with counsel of City's choosing), indemnify and hold the City, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subconsultants or agents in connection with the performance of the Consultant's Services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorney's fees and other related costs and expenses. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by Consultant, the City, its officials, officers, employees, agents, or volunteers.

If Consultant's obligation to defend, indemnify, and/or hold harmless arises out of Consultant's performance as a "design professional" (as that term is defined under Civil Code section 2782.8), then, and only to the extent required by Civil Code section 2782.8, which is fully incorporated herein, Consultant's indemnification obligation shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, and, upon Consultant obtaining a final adjudication by a court of competent jurisdiction, Consultant's liability for such claim, including the cost to defend, shall not exceed the Consultant's proportionate percentage of fault.

3.6.7 Entire Agreement. This Agreement contains the entire Agreement of the parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings or agreements. This Agreement may only be modified by a writing signed by both parties.

3.6.8 Governing Law; Government Code Claim Compliance. This Agreement shall be governed by the laws of the State of California. Venue shall be in Riverside County. In addition to any and all contract requirements pertaining to notices of and requests for compensation or payment for extra work, disputed work, claims and/or changed conditions, Consultant must comply with the claim procedures set forth in Government Code sections 900 et seq. prior to filing any lawsuit against the City. Such Government Code claims and any subsequent lawsuit based upon the Government Code claims shall be limited to those matters that remain unresolved after all procedures pertaining to extra work, disputed work, claims, and/or changed conditions have been followed by Consultant. If no such Government Code claim is submitted, or if any prerequisite contractual requirements are not otherwise satisfied as specified herein, Consultant shall be barred from bringing and maintaining a valid lawsuit against the City.

3.6.9 Time of Essence. Time is of the essence for each and every provision of this Agreement.

3.6.10 City's Right to Employ Other Consultants. City reserves right to employ other consultants in connection with this Project.

3.6.11 Successors and Assigns. This Agreement shall be binding on the successors and assigns of the parties.

3.6.12 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of the City. Any attempt to do so shall be null and void, and any assignees, hypothecates or transferees shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer.

3.6.13 Construction; References; Captions. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. Any term referencing time, days or period for performance shall be deemed calendar days and not work days. All references to Consultant include all personnel, employees, agents, and subconsultants of Consultant, except as otherwise specified in this Agreement. All references to City include its elected officials, officers, employees, agents, and volunteers except as otherwise specified in this Agreement. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

3.6.14 Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by both Parties.

3.6.15 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.

3.6.16 No Third-Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

3.6.17 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

3.6.18 Prohibited Interests. Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, City shall have the right to rescind this Agreement without liability. For the term of this Agreement, no member, officer or employee of City, during the term of his or her service with City, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

3.6.19 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

3.6.20 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

3.7 Subcontracting.

3.7.1 Prior Approval Required. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of City. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

[SIGNATURES ON NEXT PAGE]

SIGNATURE PAGE TO

PROFESSIONAL SERVICES AGREEMENT BY AND BETWEEN THE CITY OF SAN JACINTO AND City Net

CITY OF SAN JACINTO	**City Net**
By:	By:
Robert Johnson City Manager	Brad Fieldhouse President, City Net

Attest:

City Clerk

City Net

EXHIBIT "A"
SCOPE OF SERVICES

Vision

City Net proposes to provide street outreach and engagement services to homeless neighbors in San Jacinto, to engage them in case management with the goal of exiting them from the streets, with the long-term goal of dramatically reducing street-level homelessness in the city. City Net will participate in collaborative efforts of agencies from city government, law enforcement and other city first responders, advocacy and civic groups, nonprofit organizations, businesses, homeless neighbors and the faith community working together on shared goals and a common agenda.

Goals

1. Exit homeless neighbors from the streets of San Jacinto, prioritizing the most vulnerable, high-profile, and costly cases.
2. Assess clients' needs and refer to appropriate local shelter(s) and housing options.
3. Participate in the coordination of homeless activities in San Jacinto through aligned resources, mutually supportive activities, common agenda and share goals.
4. Reduce community costs related to homelessness in the city.
5. Connect homeless neighbors and city agencies to housing solutions throughout the region.

Outreach Schedule

City Net proposes a team of 2.0 FTE street outreach and engagement case managers, along with project leadership and support staff. City Net will deploy these case managers on street outreach and engagement in the city on a set schedule to cover M-F during regular business hours. Night and weekends coverage is available with advanced notice.

Term

Contract term is twelve months, from 7/1/26 through 6/30/27.

Budget

See attached for proposed budget for city-wide homeless.

General Approach

City Net engages in street outreach services for homeless neighbors as described below.

Street outreach is service delivery for the specific purpose of reaching out to unsheltered homeless neighbors; connecting them with emergency shelter, housing, or critical services; and providing urgent, non-facility-based care.

Individuals defined as unsheltered generally meet the following HUD criteria for homelessness: Category 1,literally homeless; and/or Category 4, fleeing/attempting to flee domestic violence (where the individual or household also meet the criteria for category 1) and are:

- living on the streets (or other places not meant for human habitation)
- unwilling or unable to access services in emergency shelter.

Housing First

All City Net programs are informed by and consistent with Housing First principals. Housing First is an approach to serving people experiencing homelessness that recognizes a homeless person must first be able to access a

decent, safe place to live, that does not limit length of stay (permanent housing), before stabilizing, improving health, reducing harmful behaviors, or increasing income. Under the Housing First approach, anyone experiencing homelessness is connected to a permanent home as quickly as possible, and programs remove barriers to accessing the housing, like requirements for sobriety or absence of criminal history. It is based on the "hierarchy of need:" people must access necessities—like a safe place to live and food to eat—before being able to achieve quality of life or pursue personal goals. Housing First also values choice not only in where to live, but whether to participate in services.

Finally, Housing First recognizes the need for robust supportive services upon housing placement. It is not "Housing Only" or "Housing Alone", but "Housing *First*", which implies that additional steps are generally needed to achieve successful long-term housing stability.

Trauma-Informed Care

City Net assumes that individuals and families who are homeless have been exposed to trauma. Research has shown that individuals who are homeless are likely to have experienced some form of previous trauma; homelessness itself can be viewed as a traumatic experience; and being homeless increases the risk of further victimization and retraumatization.

Therefore, our programs, policies and procedures are designed not only respond to the immediate crisis of homelessness, but to also contribute to the longer-term healing of homeless individuals. Trauma-Informed Care (TIC) offers a framework for providing services to traumatized individuals within a variety of service settings, including homelessness service settings.

Since trauma also influences how people approach and respond to services, City Net strives to recognize trauma symptoms, acknowledge the role that trauma has played in clients' lives, and better understand and address the needs of those with trauma histories. The goal of this approach is to avoid retraumatization and exacerbation of trauma symptoms.

This change in understanding can be illustrated by the difference between the questions "What's wrong with you?" vs. "What has happened to you?" While the terms violence, trauma, abuse, and post-traumatic stress disorder (PTSD) are frequently used interchangeably, it is useful to think of trauma as a response to violence or other overpowering negative experience such as abuse. Trauma refers to both the event and the particular response to an event. PTSD is one type of disorder resulting from trauma. Becoming "traumatized" varies greatly among individuals, and not everyone exposed to a potential traumatic event will be traumatized.

Trauma begins with an event or experience that overwhelms normal coping mechanisms. There

are physical and psychological reactions—which are normal—in response. Retraumatization refers to the psychological and/or physiological experience of being "triggered," i.e., when an environmental cue related to the trauma—such as a smell or a sound—triggers a full fight-or-flight response. Although environmental triggers cannot be eliminated, City Net seeks to create an environment—both a physical environment, and a framework of compassionate understanding in which the trauma survivor feels safe.

Motivational Interviewing

City Net employs Motivational Interviewing (MI) techniques in its programs. MI is a counseling method that helps people resolve ambivalent feelings and insecurities to find the internal motivation they need to change

their behavior. It is a practical, empathetic, and short-term process that takes into consideration how difficult it is to make life changes.

The core components of MI are to:

- Express and show empathy towards clients
- Support and articulate discrepancies between clients' goals and choices that take them away from goals
- Deal with resistance without confrontation
- Support self-efficacy
- Support client autonomy.

HMIS

All clients in this proposed project will be entered into/screened through the local Homeless Management Information System (HMIS) and, as appropriate for prospective candidates, the Coordinated Entry System (CES).City Net staff are trained in these systems, and our written policies and procedures state their work must be coordinated through these systems.

In addition to assuring that resources flow to the most vulnerable homeless individuals (through CES), these systems also provide a safeguard against duplication of services because we can see in HMIS what other services and benefits the client is receiving, as well as the agency who may be providing these services. Our case managers and housing navigators are trained to reach out to their counterparts at these other agencies to confirm provision of services, to case conference, and to clarify any questions around potential duplication.

Permanent Housing

Case managers link clients to the Coordinated Entry System (CES) to provide ongoing engagement, document collection, and case management services to facilitate a match to an appropriate permanent housing resource. Case managers also provide services in the context of CES, which is voluntary and client-centered, with the goalof identifying strengths and client-directed goals, while promoting health, recognition, and well-being with a focus on linking the client to a permanent housing resource and providing the necessary services needed to promote housing stability.

Client Referral Process

In accordance with our street outreach and engagement policies and procedures, City Net staff record all assessments and subsequent services in the Homeless Management Information System

(HMIS), which requires them to enter and maintain timely and complete client data.

City Net Case Managers are oriented to and trained in resources, homeless services, and organizations for collaboration and referral. They are highly trained to connect residents to shelter and housing resources, including in case managing clients from the streets into permanent supportive housing through CES. Staff representatives attend the local CoC meetings-- Homeless Provider Forums, Case Management Forums, Implementation Committees and the like. Resource lists are updated regularly and kept on-site. Protocols for offering and accepting referrals from other agencies are reviewed by staff, updated, shared and kept in a manual in the City Net offices.

City Net

City Net will refer homeless neighbors to emergency health and/or emergency mental health services to the extent that other customary emergency health services and treatments are unavailable or inaccessible to the homeless neighbor. A referral example is outpatient treatment of urgent medical conditions by licensed medical professionals in community-based settings (e.g., streets, parks, and campgrounds) to those eligible participants unwilling or unable to access emergency shelter or an appropriate healthcare facility.

Types of Services

City Net's street outreach services include services in the following categories: engagement services, case management, emergency health, emergency mental health, transportation, and services for special populations.

These activities are intended to help homeless neighbors to obtain appropriate supportive services, including assistance in obtaining permanent housing, medical health treatment, mental health treatment, counseling, supervision, and other services essential for achieving independent living. Supportive services may include providing access to and assistance in obtaining:

- Medicaid/Medi-Cal
- Women, Infants and Children (WIC)
- Food Stamps/Cal-Fresh/EBT
- Federal-State Unemployment Insurance Program
- Social Security Disability Insurance (SSDI)
- Supplemental Security Income (SSI)
- General Relief (GR)
- Other mainstream resources such as housing, health, social services, employment, education services and youth programs that an individual or family may be eligible to receive.

Engagement Services

Engagement Services are activities to locate, identify, and build relationships with unsheltered homeless people to offer immediate support, intervention, and connections with homeless assistance programs and/or mainstream social services and other housing programs. Specific activities include:

- Conducting an initial assessment of client needs and eligibility
- Providing informal crisis counseling
- Addressing urgent physical needs, such as providing meals, blankets, clothes, or toiletries
- Actively connecting and providing information and referrals to needed services.

Case Management

Case management activities to assess housing and service needs and arrange, coordinate

and/or monitor the delivery of individualized services. Specific activities include:

- Assessment and intake using HMIS
- Conducting initial evaluations including, verifying and documenting eligibility
- Counseling
- Developing/securing/coordinating services
- Helping obtain Federal, State, and local benefits
- Monitoring and evaluating program participant progress in particular programs
- Providing information and referrals to other providers
- Developing an individualized housing stabilization plan that leads to the attainment of stable permanent housing.

Emergency Health

City Net will refer homeless neighbors to emergency health services to the extent that other customary emergency health services and treatments are unavailable or inaccessible to the homeless neighbor. An example of emergency health services to which City Net will refer homeless neighbors is outpatient treatment of urgent medical conditions by licensed medical professionals in community-based settings (e.g., streets, parks, and campgrounds) to those eligible participants unwilling or unable to access emergency shelter or an appropriate healthcare facility. City Net may assist healthcare professionals in the case management aspects of the following activities:

- Assessing health problems and developing treatment plans
- Assistance in understanding health needs
- Providing directly or assisting to obtain appropriate emergency medical treatment
- Providing medication and follow-up services.

Emergency Mental Health

City Net will refer homeless neighbors to emergency mental health services to the extent that other customary emergency mental health services and treatments are unavailable or inaccessible to the homeless neighbor. An example of emergency health services to which City Net will refer homeless neighbors is outpatient treatment of urgent mental health conditions by licensed professionals in community-based setting (e.g., streets, parks, and campgrounds) to those eligible participants unable or unwilling to access emergency shelter or an appropriate mental health care facility. City Net may assist mental healthcare professionals in the case management aspects of the following activities:

- Crisis intervention
- Prescription of psychotropic medications
- Explanation about the use and management of medications
- Combinations of therapeutic approaches to address multiple problems.

Transportation

Occasionally, City Net may engage in transportation activities, including:

- Transporting unsheltered people to emergency shelters, emergency health, emergency mental health, or other service facilities

- Provision of public transportation for participants
- Transportation costs (bus tickets, gas, minor car repairs, etc.) to assist homeless neighbors to relocate out of the region, provided they have permanent housing there.
- Assisting program participants to use public transportation.

Services for Special Populations

Services for special populations are essential services that have been tailored to address the special needs of homeless youths, victims of domestic violence, dating violence, sexual assault, or stalking, including connections to services offered by rape crisis centers, domestic violence shelters, and other organizations that serve persons who meet the HUD homeless definition and have special needs.

Food and Emergency Services

Food and other emergency services will be given to clients primarily as they first move into housing and for emergency circumstances. During the duration of their tenancy, clients will be connected food banks and service agencies in the community as their primary resource for emergency needs.

COVID-19 Modifications

COVID-19 has caused widespread concern for the health and safety of those experiencing homelessness, as wellas concern for the environment and safety of greater community members and visitors. Living unsheltered may allow people to increase physical distance between themselves and others. However, sleeping outdoors does not provide protection from the environment, personal safety, adequate access to hygiene and sanitation facilities, or connection to services and healthcare.

During the pandemic, City Net's street outreach and engagement staff are ensuring that unsheltered homeless neighbors have access to services and updated information about COVID-19, by working to:

- Provide information to educate people about COVID-19: where they can get tested, how it spreads, health impacts, common symptoms, and other features of the disease.
- Use health messages and materials developed by credible public health sources, such as local and state public health departments or the Centers for Disease Control and Prevention (CDC).
- Provide educational materials about COVID-19 for non-English speakers, those with low literacy or intellectual disabilities, and people who are hearing or vision impaired.
- Ensure communication with clients about changes in homeless services policies and/or changes in physical location of services such as food, water, hygiene facilities, regular healthcare, and behavioral health resources.
- Provide health and hygiene interventions:
- Recommend that all clients wear masks any time they are around other people, noting exceptions suchas young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated, or otherwise unable to remove the mask without assistance.
- Provide clients with hygiene materials including items such as hand sanitizer, soap, shampoo, cleansing wipes, socks, blankets, non-perishable snacks, bottled water, sunscreen, gloves, toothbrush, toothpaste,and other items depending on client needs.

- Discourage clients from spending time in crowded places or gathering in large groups, for example at locations where food, water, or hygiene supplies are being distributed.
- If it is not possible for clients and staff to avoid crowded places, encourage spreading out (at least 6 feet between people) to the extent possible.
- Encourage proper waste disposal to prevent spread of disease and minimize risk.
- Continue providing linkages to homeless services, housing, medical, mental health, and substance use treatment, including provision of medication-assisted therapies.
- Maintain up-to-date contact information and areas frequented for each person.
- Coordinate, integrate, and leverage resources to maximize impact of services for individuals who are experiencing homelessness.
- Engage individuals and families not yet working with a CES Partner Agency, with a primary focus on unsheltered families and individuals in encampments.
- Conduct frequent visits to encampments known to have persons experiencing homelessness throughout the city.

Data Policy

The information City Net collects about individuals and families who access our services is confidentially stored in a local electronic database called the Homeless Management Information System (HMIS). HMIS securely records information (data) about people accessing housing and homeless services, which may include, but is not limited to, names and contact information, birthdates, demographic information, self-reported medical information, veteran status, disability status, etc. Under the HMIS Data-Sharing Agreement, the individual client data of those who consent to have their information stored in HMIS is only viewable by qualified staff at each participating agency. In order to participate in HMIS, leaders at each agency must sign an Agency Agreement that includes a commitment to protecting client data and maintaining confidentiality, and agency staff must pass multiple trainings that each go over the importance of client privacy.

City Net is accountable to our HMIS Data-Sharing partners, to the Orange County Continuum of Care, and to the Department of Housing and Urban Development (HUD) to maintain the privacy and security of the confidential personal information we collect about our clients and their families. Aside from these legal and funding-related obligations, we also believe we have an ethical responsibility to our clients to not share their personal data in ways to which they've not agreed. To ensure City Net's commitment to excellent data collection, privacy and security, analysis and reporting practices, City Net does not authorize external agencies to complete these functions on our behalf except in very limited circumstances and only with prior written approval and with City Net's full participation in all data reporting and analysis. This is so that City Net can responsibly provide context and analysis for the data City Net collects within collaborative efforts to coordinate the most effective services for our homeless neighbors, better understand homelessness in our community, assess the types of resources needed in our local area, and participate in generating aggregate statistical reports to HUD, which help to improve policy and bring adequate funding of services for the most vulnerable populations in our community, and so City Net can assure its ethical and legal responsibilities to homeless neighbors to not share their data in ways to which they have not agree.

EXHIBIT "B"
BUDGET

San Jacinto Outreach and Engagement plus Emergency Shelter/Bridge Housing (5 Motel Rooms)
July 1, 2026 - June 30, 2027

Labor						
Title/Role	**Description**	**Fully Loaded Comp**	**Hrs/ week**	**Wks**	**FTE**	**TOTAL**
Regional Program Director	Project compliance with management, operations and public safety standards	$57.50	2	52	0.05	$5,980.00
Program Supervisor	Direct program activities, staff supervision, scheduling	$47.50	6	52	0.15	$14,820.00
Case Manager	Outreach, engagement, case mgt, supportive services	$32.50	40	52	1.05	$70,980.00
Case Manager	Outreach, engagement, case mgt, supportive services	$38.75	40	52	1.05	$84,630.00
Data & Compliance	HMIS data entry, reporting, data compliance, training & project compliance	$43.00	12	52	0.30	$26,832.00
Executive Leadership	Quality control, problem solving	$97.50	2	52	0.05	$10,140.00
Project Finance	Payroll, Client Assistance, Financial Reporting & controls	$52.75	4	52	0.10	$10,972.00
Project HR	Staff recruiting, hiring, training, disputes	$52.75	4	52	0.10	$10,972.00
Project Operations	Project Asset & Safety support (inventory/supplies purchasing, technical and vehicle support	$54.75	2	52	0.05	$5,694.00
				Labor Subtotal:	**2.90**	**$241,020.00**

NTE

Operations and Program Expenses		
Item	**Description**	**TOTAL**
Client Services	Client/staff transport (1 vehicle): vehicle hire fee, gas, vehicle insurance, maintenance	$31,800.00
Client Services	Motel room rental (5 rooms * 365 nights)	$182,500.00
Client Services	Motel pet fees and damages	$6,000.00
Client Services	Motel client food cards (@ 100/week x 5 rooms x 52 weeks)	$26,000.00
Client Services	Fees, rental assistance and move-in costs for: rapid rehousing, sober living homes, room and board, rooms for rent, relocations, etc. Also fees for documentation, local transportation, work expenses, etc.	$36,000.00
Rent	Office space and office equipment/furniture rental	$10,440.00
Computing and Telecommunications	Computing (computer, IPad, phone), telecommunications (phones & cell service), printer/copier w/supplies, hardware & software, wifi, etc.	$8,700.00
Materials and Supplies	Uniforms, copies, forms, office supplies, equipment, etc.	$3,480.00
Materials and Supplies	IT support and client management software licenses	$3,480.00
Materials and Supplies	Financial audit and external workplace health and safety audits	$1,740.00
Materials and Supplies	Insurance: Liability and Worker's Compensation	$9,124.56
	Operations and Program Expenses Subtotal:	**$319,264.56**

Indirect Costs		
Category	**Description**	**TOTAL**
De minimis rate for non-federal entity	Per 2 CFR 200.414-11, de minimis rate established for non-Federal entities who do not have negotiated Indirect Cost Rate. This fee is charged at a rate of 10% to offset expenses incurred by the organization but not billable as direct project expenses.	$56,028.46
	Indirect subtotal:	**$56,028.46**
Project TOTAL		**$616,313.02**

Notes: Rates current as of 4/16/25 and valid for 90 days from this date. Annual renewal(s) subject to cost of living increases consistent with local Consumer Price Index. Budget and/or programmatic deliverables will need modifications in the event of unforeseen increases in motel fees for room rentals, taxes, fees, etc.

June 2, 2026

TO:	City Council
REQUESTED BY:	Kimberly Ganimian, Finance Director
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Sixth Amendment to the CR&R Solid Waste Franchise Agreement and Annual Rate Adjustment

RECOMMENDATION:

Staff recommends that the City Council:

1. Conduct a public hearing to receive public comment and accept any protests.
2. Adopt **Resolution 4129** - Approving the Sixth Amendment to the Franchise Agreement between the City of San Jacinto and CR&R Incorporated and the annual rate adjustments for solid waste collection and handling services.

DISCUSSION:

The City has an exclusive franchise agreement with CR&R Incorporated (CR&R) for the collection and handling of solid waste, recyclables, organic waste, and related services within the City of San Jacinto. Rates charged to residential and commercial customers are established under the Franchise Agreement and are adjusted annually based on inflationary indices and disposal fee pass-through costs.

The Franchise Agreement has been amended five times since its adoption in 2005 to incorporate legislative requirements, update rate methodologies, and modify service components. CR&R submitted its annual adjustment request for Fiscal Year 2026-27 on March 10, 2026, in accordance with the procedures established in the Fourth Amendment (2020) and reaffirmed in subsequent amendments.

The Franchise Agreement with CR&R specifies the circumstances required to annually adjust the rates for services. Per the agreement, these rates shall be adjusted each July 1st to reflect the changes in various applicable indices. The rates for both residential and commercial services will adjust July 1, 2026 for fiscal year 2026-2027. Based on data from the Bureau of Labor Statistics (BLS) for January 2025 through December 2025, the Consumer Price Index (CPI) increased by 2.94%. In addition, the County of Riverside's Waste Management Department has indicated that they will adjust their disposal rate by 3.28% from $43.63 per ton to $45.06 per ton. As permitted under the Franchise Agreement, these factors result in adjustments to residential, commercial, and ancillary service rates for the upcoming fiscal year.

Solid waste charges are determined based on the type of customer, and type of service provided to the customer which includes the frequency of service, and the type and size of container serving the property. The rate for the typical residential customer, consisting of three 96-gallon carts serviced weekly, will increase by $1.27, from $32.92 per month to $34.19 per month. The standard commercial 3-cubic yard bin with weekly service will increase $10.61 a month from $277.69 to $288.30 per month, and a 10-yard roll-off box will increase from $365.76 to $380.04 per month for a $14.28 increase. The adjusted rates are incorporated into 2026-2027 CR&R Rate Schedule, which replaces the prior Exhibit B in its entirety.

The Sixth Amendment memorializes the City's approval of the FY 2026-27 rate adjustments and updates Exhibit B to reflect the new rate schedule. Further, the Sixth Amendment allows for annual adjustments due to inflation and to pass through costs in wholesale service, commencing July 1, 2027, and any time thereafter through and including July 1, 2031. No other provisions of the Franchise Agreement are modified.

Based on the data supplied by both the BLS and the County of Riverside, CR&R prepared proposed rate schedules which pass these adjustments through to the various service rates. The proposed rate schedules for Solid Waste Charges attached to this report are for the period of July 1, 2026 to June 30, 2027.

Public Hearing Notice

In accordance with Proposition 218 requirements, a 45-day notice of the proposed Franchise Agreement Amendment and rate increase was sent to property owners and solid waste customers explaining the proposed residential and non-residential solid waste collection increase. The notice was provided in compliance with the procedures outlined in Proposition 218 and the California Constitution Article 13D. Cost increases will be passed through to the customer.

FISCAL IMPACT:

Solid waste collection, recycling and handling services for residential and commercial customers are paid for by the residential users, property owner or business owner receiving the service. No additional costs will be incurred by the City of San Jacinto.

Attachments

CR&R FY26-27 Rates.pdf
CRR_6th_Amendment_Reso.pdf

CR&R INCORPORATED
environmental services

March 10, 2026

Mr. Rob Johnson
City Manager
City of San Jacinto
595 S San Jacinto Ave
San Jacinto, CA 92583

Re: Annual Rate Adjustment

Dear Rob,

Pursuant to our current agreement to provide Solid Waste and Recycling Services to the City of San Jacinto, CR&R Incorporated respectfully submits the attached information which outlines our Annual Rate Adjustment request for fiscal year 2026-2027. As you are aware, our current agreement stipulates the conditions upon which our rates may be adjusted on an annual basis. These rates shall be adjusted annually to reflect the changes in various applicable indices.

In reviewing the annual data from the Bureau of Labor Statistics (BLS), CPI has increased by 3.28%. In addition, the County of Riverside's Waste Management Department has indicated that they will increase their disposal fee by 2.94% for fiscal year 2026-2027. Therefore, based upon the data supplied by both the BLS and the County of Riverside, we have prepared the attached rate schedules which pass these adjustments through to the various rates. These new rates would become effective July 1, 2026. After these adjustments are applied, the new rate for your standard residential service will increase from $32.92 per month to $34.19 per month.

As we have stated in prior years, we greatly appreciate our long-standing relationship with the City of San Jacinto, as well as the opportunity that we have had to be of service to your residents and businesses. It truly has been and continues to be an honor and a privilege to be of service to the City. Please do not hesitate to call us if you should have any questions or comments. We look forward to any further assistance that we may be able to provide.

Respectfully,

J. Alex Braicovich
Sr. Regional V.P.
CR&R Incorporated

Cc: Chrystal Denning, Bill Higginbotham CR&R
Travis Randel, City of San Jacinto

CITY OF SAN JACINTO **2026-2027 RATES**

CPI (Calendar Year)	New	Previous	%		Adjustment
CUURS49CSA0 - Annual (Riverside)	137.293	132.932	3.28%	100.0%	3.28%
Landfill *	$ 52.66	$ 51.16			2.94% *
MRF *	$ 73.87	$ 71.76			2.94% *

* CPI Provided by County Waste Management Dept

	Service Component					Landfill Component				CPI Franchise Fee					
	Previous Rate	%	CPI Change	Rate Change	Unit Measure	%	CPI Change	Rate Change	Total Rate Change	Gross Up %	Gross Up $	Total Rate Change	Previous Rate	CPI Proposed Rate	CPI Net % Change
Single Family Residence	$ 32.92	85.5%	3.28%	$ 0.92	per month	14.5%	2.94%	$ 0.14	$ 1.06	16.0%	$ 0.20	1.27	32.92	34.19	3.9%
Mobile Home Unit	$ 32.92	85.5%	3.28%	$ 0.92	per month	14.5%	2.94%	$ 0.14	$ 1.06	16.0%	$ 0.20	1.27	32.92	34.19	3.9%
Senior / Active Military Discount	$ 29.77	85.5%	3.28%	$ 0.83	per month	14.5%	2.94%	$ 0.13	$ 0.96	16.0%	$ 0.18	1.14	29.77	30.91	3.8%
Organics Processing (AD)	$ 3.38	100.0%	3.28%	$ 0.11	per month	0.0%	2.94%	$ -	$ 0.11	16.0%	$ 0.02	0.13	3.38	3.51	3.8%
Residential Extraordinary Recycling Fee	$ 0.49			$ -	per month			$ -	$ -	16.0%	$ -	-	0.49	0.49	0.0%
Extra Resi Cart - Trash, Recycle, Organics	$ 11.26	85.5%	3.28%	$ 0.32	per month	14.5%	2.94%	$ 0.05	$ 0.36	16.0%	$ 0.07	0.43	11.26	11.69	3.8%
Temporary 3 Cubic Yard Container	$ 117.58	79.0%	3.28%	$ 3.05	per load	21.0%	2.94%	$ 0.73	$ 3.77	16.0%	$ 0.72	4.49	117.58	122.07	3.8%
Extra 3 Cubic Yard Dump	$ 87.09	79.0%	3.28%	$ 2.26	per dump	21.0%	2.94%	$ 0.54	$ 2.79	16.0%	$ 0.53	3.33	87.09	90.42	3.8%
10 Yard roll-off box	$ 365.76	100.0%	3.28%	$ 12.00	per load	0.0%	2.94%	$ -	$ 12.00	16.0%	$ 2.29	14.28	365.76	380.04	3.9%
40 Yard roll-off box, Compactors	$ 426.73	100.0%	3.28%	$ 14.00	per load	0.0%	2.94%	$ -	$ 14.00	16.0%	$ 2.67	16.66	426.73	443.39	3.9%
Extra Food Waste Pail	$ 10.04	100.0%	3.28%	$ 0.33	per pail	0.0%	2.94%	$ -	$ 0.33	16.0%	$ 0.06	0.39	10.04	10.43	3.9%
Organics dipsosal rate per ton	$ 106.32	100.0%	3.28%	$ 3.49	per ton	0.0%	2.94%	$ -	$ 3.49	16.0%	$ 0.66	4.15	106.32	110.47	3.9%
Refuse Container Service															
Commercial Cart Curbside Service	$ 91.95	85.5%	3.28%	$ 2.58	per month	14.5%	2.94%	$ 0.39	$ 2.97	16.0%	$ 0.57	3.54	91.95	95.49	3.8%
2 yard 1x	$ 192.75	79.0%	3.28%	$ 4.99	per month	21.0%	2.94%	$ 1.19	$ 6.18	16.0%	$ 1.18	7.36	192.75	200.11	3.8%
2 yard 2x	$ 345.36	79.0%	3.28%	$ 8.95	per month	21.0%	2.94%	$ 2.13	$ 11.08	16.0%	$ 2.11	13.19	345.36	358.55	3.8%
2 yard 3x	$ 503.25	79.0%	3.28%	$ 13.04	per month	21.0%	2.94%	$ 3.11	$ 16.15	16.0%	$ 3.08	19.22	503.25	522.47	3.8%
2 yard 4x	$ 645.60	79.0%	3.28%	$ 16.73	per month	21.0%	2.94%	$ 3.99	$ 20.71	16.0%	$ 3.95	24.66	645.60	670.26	3.8%
2 yard 5x	$ 812.91	79.0%	3.28%	$ 21.06	per month	21.0%	2.94%	$ 5.02	$ 26.08	16.0%	$ 4.97	31.05	812.91	843.96	3.8%
2 yard 6x	$ 970.74	79.0%	3.28%	$ 25.15	per month	21.0%	2.94%	$ 5.99	$ 31.15	16.0%	$ 5.93	37.08	970.74	1,007.82	3.8%
3 yard 1x	$ 277.69	79.0%	3.28%	$ 7.20	per month	21.0%	2.94%	$ 1.71	$ 8.91	16.0%	$ 1.70	10.61	277.69	288.30	3.8%
3 yard 2x	$ 486.16	79.0%	3.28%	$ 12.60	per month	21.0%	2.94%	$ 3.00	$ 15.60	16.0%	$ 2.97	18.57	486.16	504.73	3.8%
3 yard 3x	$ 707.88	79.0%	3.28%	$ 18.34	per month	21.0%	2.94%	$ 4.37	$ 22.71	16.0%	$ 4.33	27.04	707.88	734.92	3.8%
3 yard 4x	$ 926.91	79.0%	3.28%	$ 24.02	per month	21.0%	2.94%	$ 5.72	$ 29.74	16.0%	$ 5.66	35.41	926.91	962.32	3.8%
3 yard 5x	$ 1,153.65	79.0%	3.28%	$ 29.89	per month	21.0%	2.94%	$ 7.12	$ 37.02	16.0%	$ 7.05	44.07	1,153.65	1,197.72	3.8%
3 yard 6x	$ 1,374.16	79.0%	3.28%	$ 35.61	per month	21.0%	2.94%	$ 8.48	$ 44.09	16.0%	$ 8.40	52.49	1,374.16	1,426.65	3.8%
4 yard 1x	$ 344.66	79.0%	3.28%	$ 8.93	per month	21.0%	2.94%	$ 2.13	$ 11.06	16.0%	$ 2.11	13.17	344.66	357.83	3.8%
4 yard 2x	$ 624.68	79.0%	3.28%	$ 16.19	per month	21.0%	2.94%	$ 3.86	$ 20.04	16.0%	$ 3.82	23.86	624.68	648.54	3.8%
4 yard 3x	$ 908.41	79.0%	3.28%	$ 23.54	per month	21.0%	2.94%	$ 5.61	$ 29.15	16.0%	$ 5.55	34.70	908.41	943.11	3.8%
4 yard 4x	$ 1,196.65	79.0%	3.28%	$ 31.01	per month	21.0%	2.94%	$ 7.39	$ 38.40	16.0%	$ 7.31	45.71	1,196.65	1,242.36	3.8%
4 yard 5x	$ 1,482.78	79.0%	3.28%	$ 38.42	per month	21.0%	2.94%	$ 9.15	$ 47.58	16.0%	$ 9.06	56.64	1,482.78	1,539.42	3.8%
4 yard 6x	$ 1,815.18	79.0%	3.28%	$ 47.03	per month	21.0%	2.94%	$ 11.21	$ 58.24	16.0%	$ 11.09	69.34	1,815.18	1,884.52	3.8%
Recycle Container Service															
2 yard 1x	$ 119.29	100.0%	3.28%	$ 3.91	per month	0.0%	2.94%	$ -	$ 3.91	16.0%	$ 0.75	4.66	119.29	123.95	3.9%
2 yard 2x	$ 213.71	100.0%	3.28%	$ 7.01	per month	0.0%	2.94%	$ -	$ 7.01	16.0%	$ 1.34	8.34	213.71	222.05	3.9%
2 yard 3x	$ 311.44	100.0%	3.28%	$ 10.22	per month	0.0%	2.94%	$ -	$ 10.22	16.0%	$ 1.95	12.16	311.44	323.60	3.9%
2 yard 4x	$ 399.54	100.0%	3.28%	$ 13.10	per month	0.0%	2.94%	$ -	$ 13.10	16.0%	$ 2.50	15.60	399.54	415.14	3.9%
2 yard 5x	$ 503.06	100.0%	3.28%	$ 16.50	per month	0.0%	2.94%	$ -	$ 16.50	16.0%	$ 3.14	19.64	503.06	522.70	3.9%
2 yard 6x	$ 600.71	100.0%	3.28%	$ 19.70	per month	0.0%	2.94%	$ -	$ 19.70	16.0%	$ 3.75	23.46	600.71	624.17	3.9%
3 yard 1x	$ 171.86	100.0%	3.28%	$ 5.64	per month	0.0%	2.94%	$ -	$ 5.64	16.0%	$ 1.07	6.71	171.86	178.57	3.9%
3 yard 2x	$ 300.87	100.0%	3.28%	$ 9.87	per month	0.0%	2.94%	$ -	$ 9.87	16.0%	$ 1.88	11.75	300.87	312.62	3.9%
3 yard 3x	$ 438.06	100.0%	3.28%	$ 14.37	per month	0.0%	2.94%	$ -	$ 14.37	16.0%	$ 2.74	17.11	438.06	455.17	3.9%
3 yard 4x	$ 573.59	100.0%	3.28%	$ 18.81	per month	0.0%	2.94%	$ -	$ 18.81	16.0%	$ 3.58	22.40	573.59	595.99	3.9%
3 yard 5x	$ 713.90	100.0%	3.28%	$ 23.42	per month	0.0%	2.94%	$ -	$ 23.42	16.0%	$ 4.46	27.88	713.90	741.78	3.9%
3 yard 6x	$ 850.38	100.0%	3.28%	$ 27.89	per month	0.0%	2.94%	$ -	$ 27.89	16.0%	$ 5.31	33.21	850.38	883.59	3.9%
4 yard 1x	$ 213.30	100.0%	3.28%	$ 7.00	per month	0.0%	2.94%	$ -	$ 7.00	16.0%	$ 1.33	8.33	213.30	221.63	3.9%
4 yard 2x	$ 386.59	100.0%	3.28%	$ 12.68	per month	0.0%	2.94%	$ -	$ 12.68	16.0%	$ 2.42	15.10	386.59	401.69	3.9%
4 yard 3x	$ 562.15	100.0%	3.28%	$ 18.44	per month	0.0%	2.94%	$ -	$ 18.44	16.0%	$ 3.51	21.95	562.15	584.10	3.9%
4 yard 4x	$ 740.55	100.0%	3.28%	$ 24.29	per month	0.0%	2.94%	$ -	$ 24.29	16.0%	$ 4.63	28.92	740.55	769.47	3.9%
4 yard 5x	$ 917.61	100.0%	3.28%	$ 30.10	per month	0.0%	2.94%	$ -	$ 30.10	16.0%	$ 5.73	35.83	917.61	953.44	3.9%
4 yard 6x	$ 1,123.29	100.0%	3.28%	$ 36.84	per month	0.0%	2.94%	$ -	$ 36.84	16.0%	$ 7.02	43.86	1,123.29	1,167.15	3.9%
96-Gallon 1x	$ 62.87	100.0%	3.28%	$ 2.06	per month	0.0%	2.94%	$ -	$ 2.06	16.0%	$ 0.39	2.45	62.87	65.32	3.9%
96-Gallon 2x	$ 125.73	100.0%	3.28%	$ 4.12	per month	0.0%	2.94%	$ -	$ 4.12	16.0%	$ 0.79	4.91	125.73	130.64	3.9%
96-Gallon 3x	$ 188.61	100.0%	3.28%	$ 6.19	per month	0.0%	2.94%	$ -	$ 6.19	16.0%	$ 1.18	7.36	188.61	195.97	3.9%
96-Gallon 4x	$ 251.49	100.0%	3.28%	$ 8.25	per month	0.0%	2.94%	$ -	$ 8.25	16.0%	$ 1.57	9.82	251.49	261.31	3.9%
96-Gallon 5x	$ 314.34	100.0%	3.28%	$ 10.31	per month	0.0%	2.94%	$ -	$ 10.31	16.0%	$ 1.96	12.27	314.34	326.61	3.9%
96-Gallon 6x	$ 377.20	100.0%	3.28%	$ 12.37	per month	0.0%	2.94%	$ -	$ 12.37	16.0%	$ 2.36	14.73	377.20	391.93	3.9%
Recycling Contamination Fee, Per Occurrence	$ 52.18	100.0%	3.28%	$ 1.71	per occurr.	0.0%	2.94%	$ -	$ 1.71	16.0%	$ 0.33	2.04	52.18	54.22	3.9%

	Service Component				Landfill Component				CPI Franchise Fee Gross Up					
	Previous Rate	%	CPI Change	Rate Change	Unit Measure	%	CPI Change	Rate Change	Total Rate Change	%	$	Total Rate Change	Previous Rate	CPI Proposed Rate	CPI Net % Change
Other Services															
Residential New Acct Setup Fee	$ 41.74	100.0%	3.28%	$ 1.37		0.0%	2.94%	$ -	$ 1.37	16.0%	$ 0.26	1.63	41.74	43.37	3.9%
Comm R/O New Acct Setup Fee	$ 58.39	100.0%	3.28%	$ 1.92		0.0%	2.94%	$ -	$ 1.92	16.0%	$ 0.36	2.28	58.39	60.67	3.9%
Comm Recy in Contamination Fee	$ 75.13	100.0%	3.28%	$ 2.46		0.0%	2.94%	$ -	$ 2.46	16.0%	$ 0.47	2.93	75.13	78.06	3.9%
Comm Overage Fee	$ 75.13	100.0%	3.28%	$ 2.46		0.0%	2.94%	$ -	$ 2.46	16.0%	$ 0.47	2.93	75.13	78.06	3.9%
Rolloff Container Delivery Fee	$ 115.74	100.0%	3.28%	$ 3.80		0.0%	2.94%	$ -	$ 3.80	16.0%	$ 0.72	4.52	115.74	120.26	3.9%
Comm R/O Delinq Acct Rmv Fee	$ 83.43	100.0%	3.28%	$ 2.74		0.0%	2.94%	$ -	$ 2.74	16.0%	$ 0.52	3.26	83.43	86.69	3.9%
Comm R/O Delinq Acct Redel Fee	$ 83.43	100.0%	3.28%	$ 2.74		0.0%	2.94%	$ -	$ 2.74	16.0%	$ 0.52	3.26	83.43	86.69	3.9%
Resi Delinq Acct Rmv Fee	$ 82.63	100.0%	3.28%	$ 2.71		0.0%	2.94%	$ -	$ 2.71	16.0%	$ 0.52	3.23	82.63	85.86	3.9%
Resi Delinq Acct Redel Fee	$ 82.63	100.0%	3.28%	$ 2.71		0.0%	2.94%	$ -	$ 2.71	16.0%	$ 0.52	3.23	82.63	85.86	3.9%
Resi Vacancy Cart Removal Fee	$ 40.70	100.0%	3.28%	$ 1.33		0.0%	2.94%	$ -	$ 1.33	16.0%	$ 0.25	1.59	40.70	42.29	3.9%
Resi Vacancy Addtl Cart Removal	$ 57.07	100.0%	3.28%	$ 1.87		0.0%	2.94%	$ -	$ 1.87	16.0%	$ 0.36	2.23	57.07	59.30	3.9%
Resi Vacancy Re-activation Fee	$ 40.70	100.0%	3.28%	$ 1.33		0.0%	2.94%	$ -	$ 1.33	16.0%	$ 0.25	1.59	40.70	42.29	3.9%
Sharps Mail Back Kit	$ 154.19	100.0%	3.28%	$ 5.06		0.0%	2.94%	$ -	$ 5.06	16.0%	$ 0.96	6.02	154.19	160.21	3.9%
U -Waste Battery Box	$ 73.47	100.0%	3.28%	$ 2.41		0.0%	2.94%	$ -	$ 2.41	16.0%	$ 0.46	2.87	73.47	76.34	3.9%
U -Waste Flourescent Bulb Box	$ 81.79	100.0%	3.28%	$ 2.68		0.0%	2.94%	$ -	$ 2.68	16.0%	$ 0.51	3.19	81.79	84.98	3.9%
Other Assoc Wrk for Street Sweep	$ 141.89	100.0%	3.28%	$ 4.65		0.0%	2.94%	$ -	$ 4.65	16.0%	$ 0.89	5.54	141.89	147.43	3.9%

	Service Component					Digester Component				Franchise Fee Gross Up					
Commercial Anerobic Digester	Previous Rate	Contract	CPI Change	Rate Change	Unit Measure	Contract	CPI Change	Rate Change	Rate Change	%	$	Total Rate Change	Previous Rate	Proposed Rate	Net % Change
Non-Food Bin rate - 2 yard															
2 yard 1x	$ 257.75	$ 173.08	3.28%	$ 5.68	per month	$ 84.67	2.94%	$ 2.49	$ 8.17	16.0%	$ 1.56	9.72	257.75	267.47	3.8%
2 yard 2x	$ 482.99	$ 313.66	3.28%	$ 10.29	per month	$ 169.32	2.94%	$ 4.98	$ 15.27	16.0%	$ 2.91	18.17	482.99	501.16	3.8%
2 yard 3x	$ 712.33	$ 458.34	3.28%	$ 15.03	per month	$ 253.99	2.94%	$ 7.47	$ 22.50	16.0%	$ 4.29	26.79	712.33	739.12	3.8%
2 yard 4x	$ 929.69	$ 591.03	3.28%	$ 19.39	per month	$ 338.66	2.94%	$ 9.96	$ 29.34	16.0%	$ 5.59	34.93	929.69	964.62	3.8%
2 yard 5x	$ 1,166.28	$ 742.97	3.28%	$ 24.37	per month	$ 423.32	2.94%	$ 12.45	$ 36.81	16.0%	$ 7.01	43.83	1,166.28	1,210.11	3.8%
2 yard 6x	$ 1,395.50	$ 887.53	3.28%	$ 29.11	per month	$ 507.97	2.94%	$ 14.93	$ 44.05	16.0%	$ 8.39	52.43	1,395.50	1,447.93	3.8%
Non-Food Bin rate - 3 yard															
3 yard 1x	$ 380.26	$ 253.26	3.28%	$ 8.31	per month	$ 127.00	2.94%	$ 3.73	$ 12.04	16.0%	$ 2.29	14.33	380.26	394.59	3.8%
3 yard 2x	$ 705.46	$ 451.47	3.28%	$ 14.81	per month	$ 253.99	2.94%	$ 7.47	$ 22.28	16.0%	$ 4.24	26.52	705.46	731.98	3.8%
3 yard 3x	$ 1,040.90	$ 659.91	3.28%	$ 21.65	per month	$ 380.98	2.94%	$ 11.20	$ 32.85	16.0%	$ 6.26	39.10	1,040.90	1,080.00	3.8%
3 yard 4x	$ 1,374.29	$ 866.31	3.28%	$ 28.42	per month	$ 507.97	2.94%	$ 14.93	$ 43.35	16.0%	$ 8.26	51.61	1,374.29	1,425.90	3.8%
3 yard 5x	$ 1,713.60	$ 1,078.62	3.28%	$ 35.38	per month	$ 634.98	2.94%	$ 18.67	$ 54.05	16.0%	$ 10.29	64.34	1,713.60	1,777.94	3.8%
3 yard 6x	$ 2,048.22	$ 1,286.25	3.28%	$ 42.19	per month	$ 761.98	2.94%	$ 22.40	$ 64.59	16.0%	$ 12.30	76.89	2,048.22	2,125.11	3.8%
Non-Food Cart rate - 64 gal															
1 x week	$ 68.76	$ 55.07	3.28%	$ 1.81	per month	$ 13.69	2.94%	$ 0.40	$ 2.21	16.0%	$ 0.42	2.63	68.76	71.39	3.8%
2 x week	$ 137.49	$ 110.12	3.28%	$ 3.61	per month	$ 27.37	2.94%	$ 0.80	$ 4.42	16.0%	$ 0.84	5.26	137.49	142.75	3.8%
3 x week	$ 206.16	$ 165.10	3.28%	$ 5.42	per month	$ 41.06	2.94%	$ 1.21	$ 6.62	16.0%	$ 1.26	7.88	206.16	214.04	3.8%
4 x week	$ 274.93	$ 220.18	3.28%	$ 7.22	per month	$ 54.75	2.94%	$ 1.61	$ 8.83	16.0%	$ 1.68	10.51	274.93	285.44	3.8%
5 x week	$ 343.66	$ 275.23	3.28%	$ 9.03	per month	$ 68.43	2.94%	$ 2.01	$ 11.04	16.0%	$ 2.10	13.14	343.66	356.80	3.8%
6 x week	$ 412.39	$ 330.27	3.28%	$ 10.83	per month	$ 82.12	2.94%	$ 2.41	$ 13.25	16.0%	$ 2.52	15.77	412.39	428.16	3.8%
Food Bin rate - 2 yard															
2 yard 1x	$ 371.08	$ 201.75	3.28%	$ 6.62	per month	$ 169.32	2.94%	$ 4.98	$ 11.60	16.0%	$ 2.21	13.80	371.08	384.88	3.7%
2 yard 2x	$ 709.69	$ 371.03	3.28%	$ 12.17	per month	$ 338.66	2.94%	$ 9.96	$ 22.13	16.0%	$ 4.21	26.34	709.69	736.03	3.7%
2 yard 3x	$ 1,052.35	$ 544.38	3.28%	$ 17.86	per month	$ 507.97	2.94%	$ 14.93	$ 32.79	16.0%	$ 6.25	39.04	1,052.35	1,091.39	3.7%
2 yard 4x	$ 1,383.03	$ 705.73	3.28%	$ 23.15	per month	$ 677.30	2.94%	$ 19.91	$ 43.06	16.0%	$ 8.20	51.26	1,383.03	1,434.29	3.7%
2 yard 5x	$ 1,733.04	$ 886.40	3.28%	$ 29.07	per month	$ 846.63	2.94%	$ 24.89	$ 53.97	16.0%	$ 10.28	64.24	1,733.04	1,797.28	3.7%
2 yard 6x	$ 2,075.59	$ 1,059.63	3.28%	$ 34.76	per month	$ 1,015.96	2.94%	$ 29.87	$ 64.63	16.0%	$ 12.31	76.93	2,075.59	2,152.52	3.7%
Food Cart rate - 64 gal															
1 x week	$ 90.99	$ 60.67	3.28%	$ 1.99	per month	$ 30.31	2.94%	$ 0.89	$ 2.88	16.0%	$ 0.55	3.43	90.99	94.42	3.8%
2 x week	$ 182.00	$ 121.38	3.28%	$ 3.98	per month	$ 60.62	2.94%	$ 1.78	$ 5.76	16.0%	$ 1.10	6.86	182.00	188.86	3.8%
3 x week	$ 272.92	$ 181.99	3.28%	$ 5.97	per month	$ 90.93	2.94%	$ 2.67	$ 8.64	16.0%	$ 1.65	10.29	272.92	283.21	3.8%
4 x week	$ 363.97	$ 242.71	3.28%	$ 7.96	per month	$ 121.26	2.94%	$ 3.56	$ 11.53	16.0%	$ 2.20	13.72	363.97	377.69	3.8%
5 x week	$ 454.99	$ 303.42	3.28%	$ 9.95	per month	$ 151.57	2.94%	$ 4.46	$ 14.41	16.0%	$ 2.74	17.15	454.99	472.14	3.8%
6 x week	$ 545.93	$ 364.05	3.28%	$ 11.94	per month	$ 181.88	2.94%	$ 5.35	$ 17.29	16.0%	$ 3.29	20.58	545.93	566.51	3.8%
Extra pickup non-food cart	$ 49.74	100.0%	3.28%	$ 1.63		0.0%	2.94%	$ -	$ 1.63	16.0%	$ 0.31	1.94	49.74	51.68	3.9%
Extra pickup food cart	$ 66.25	100.0%	3.28%	$ 2.17		0.0%	2.94%	$ -	$ 2.17	16.0%	$ 0.41	2.59	66.25	68.84	3.9%

City of San Jacinto
2026-2027 RATES

Residential Service	Monthly Rate
Standard Service, 3-96 gallon containers	$34.19
Mobile Home Service, 2-64 gallon containers	$34.19
Senior Citizen & Active Military Personel, (3-96 gallon contatiners)	$30.91
Extra Residential Containers - Trash, Recycle, Organcis Rate per container	$11.69
Extraordinary Residential Recycling Fee (Added to all residential service)	$0.49
Commercial Service (2-96 gallon containers)	$95.49
Recycling Contamination Fee, Per Occurrence	$54.22
Organics Processing (AD)	$3.51
Extra Food Waste Pail	$10.43
Organics dipsosal rate per ton	$110.47

Commercial Services	Refuse Montly Rate	Recycle Month Rate
2 yard 1x	$200.11	123.95
2 yard 2x	$358.55	222.05
2 yard 3x	$522.47	323.60
2 yard 4x	$670.26	415.14
2 yard 5x	$843.96	522.70
2 yard 6x	$1,007.82	624.17
3 yard 1x	$288.30	178.57
3 yard 2x	$504.73	312.62
3 yard 3x	$734.92	455.17
3 yard 4x	$962.32	595.99
3 yard 5x	$1,197.72	741.78
3 yard 6x	$1,426.65	883.59
4 yard 1x	$357.83	221.63
4 yard 2x	$648.54	401.69
4 yard 3x	$943.11	584.10
4 yard 4x	$1,242.36	769.47
4 yard 5x	$1,539.42	953.44
4 yard 6x	$1,884.52	1,167.15
96-Gallon 1x		65.32
96-Gallon 2x		130.64
96-Gallon 3x		195.97
96-Gallon 4x		261.31
96-Gallon 5x		326.61
96-Gallon 6x		391.93

Temporary Services	Per Pickup
3 yard clean up bin (7 days @ 500 lb. weight limit)	$122.07
Additional Pickup	$90.42

Permanent "On Call" Roll-off Service	Transportation
10 cubic yard container	$380.04
40 cubic yard container, Compactors	$443.39

	Disposal
Landfill	$52.66
Construction & Demolition	$73.87
Material Recovery Facility	$73.87

City of San Jacinto
2026-2027 RATES

Other Services	Per Occurance
Residential New Acct Setup Fee	$ 43.37
Comm R/O New Acct Setup Fee	$ 60.67
Comm Recy in Contamination Fee	$ 78.06
Comm Overage Fee	$ 78.06
Rolloff Container Delivery Fee	$ 120.26
Comm R/O Delinq Acct Rmv Fee	$ 86.69
Comm R/O Delinq Acct Redel Fee	$ 86.69
Resi Delinq Acct Rmv Fee	$ 85.86
Resi Delinq Acct Redel Fee	$ 85.86
Resi Vacancy Cart Removal Fee	$ 42.29
Resi Vacancy Addtl Cart Removal	$ 59.30
Resi Vacancy Re-activation Fee	$ 42.29
Sharps Mail Back Kit	$ 160.21
U -Waste Battery Box	$ 76.34
U -Waste Flourescent Bulb Box	$ 84.98
Other Assoc Wrk for Street Sweep	$ 147.43

Commercial Anerobic Digester Rates	
Non-Food Bin rate - 2 cubic yard	Monthly Rate
2 yard 1x	$ 267.47
2 yard 2x	$ 501.16
2 yard 3x	$ 739.12
2 yard 4x	$ 964.62
2 yard 5x	$ 1,210.11
2 yard 6x	$ 1,447.93
Non-Food Bin rate - 3 cubic yard	
3 yard 1x	$ 394.59
3 yard 2x	$ 731.98
3 yard 3x	$ 1,080.00
3 yard 4x	$ 1,425.90
3 yard 5x	$ 1,777.94
3 yard 6x	$ 2,125.11
Non-Food Cart rate - 64 gal cart	
1 x week	$ 71.39
2 x week	$ 142.75
3 x week	$ 214.04
4 x week	$ 285.44
5 x week	$ 356.80
6 x week	$ 428.16
Food Bin rate - 2 cubic yard	
2 yard 1x	$ 384.88
2 yard 2x	$ 736.03
2 yard 3x	$ 1,091.39
2 yard 4x	$ 1,434.29
2 yard 5x	$ 1,797.28
2 yard 6x	$ 2,152.52
Food Cart rate - 64 gal cart	
1 x week	$ 94.42
2 x week	$ 188.86
3 x week	$ 283.21
4 x week	$ 377.69
5 x week	$ 472.14
6 x week	$ 566.51
Extra pickup non-food cart	$ 51.68
Extra pickup food cart	$ 68.84

U.S. BUREAU OF LABOR STATISTICS

Databases, Tables & Calculators by Subject

Special Notices 1/14/2026

Change Output Options: From: 2017 To: 2026 GO

include graphs include annual averages More Formatting Options

Data extracted on: March 5, 2026 (6:47:46 PM)

Consumer Price Index for All Urban Consumers (CPI-U)

Series Id: CUURS49CSA0
Not Seasonally Adjusted
Series Title: All items in Riverside-San Bernardino-Ontario, CA, all urban consumers, not seasonally adjusted
Area: Riverside-San Bernardino-Ontario, CA
Item: All items
Base Period: DECEMBER 2017=100

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2017												100.000			
2018	100.916		101.897		102.929		103.139		103.241		103.616		102.732	102.023	103.441
2019	103.991		104.749		105.959		105.816		106.412		106.573		105.697	104.998	106.397
2020	107.143		107.162		106.899		107.640		108.201		108.626		107.672	107.068	108.275
2021	109.550		110.981		113.222		114.682		115.557		117.206		113.875	111.588	116.162
2022	118.963		122.127		123.893		125.262		125.272		125.983		123.784	122.018	125.551
2023	127.683		127.707		128.768		129.525		131.372		131.372		129.545	128.130	130.961
2024	131.358		133.144		133.943		133.113		133.179		132.853		132.932	132.817	133.046
2025	135.215		136.511		137.456		137.708		138.029		138.851		137.293	136.528	138.211
2026	139.602														

12-Month Percent Change
Series Id: CUURS49CSA0
Not Seasonally Adjusted
Series Title: All items in Riverside-San Bernardino-Ontario, CA, all urban consumers, not seasonally adjusted
Area: Riverside-San Bernardino-Ontario, CA
Item: All items
Base Period: DECEMBER 2017=100

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2019	3.0		2.8		2.9		2.6		3.1		2.9		2.9	2.9	2.9
2020	3.0		2.3		0.9		1.7		1.7		1.9		1.9	2.0	1.8
2021	2.2		3.6		5.9		6.5		6.8		7.9		5.8	4.2	7.3
2022	8.6		10.0		9.4		9.2		8.4		7.5		8.7	9.3	8.1
2023	7.3		4.6		3.9		3.4		4.9		4.3		4.7	5.0	4.3
2024	2.9		4.3		4.0		2.8		1.4		1.1		2.6	3.7	1.6
2025	2.9		2.5		2.6		3.5		3.6		4.5		3.3	2.8	3.9
2026	3.2														

RIVERSIDE COUNTY
DEPARTMENT OF
WASTE RESOURCES

Andy Cortez, General Manager-Chief Engineer

February 19, 2026

Alex Braicovich
CR&R
P.O. Box 1208
Perris, CA 92570

RE: Disposal Fee Increase – FY 2026/27

The Riverside County Department of Waste Resources (Department) is responsible for assuring that there is, and will be in the future, sufficient and accessible landfill space to properly serve the population of the County in its disposal needs. To fulfill this mandate, the Department continually maintains and expands County landfill sites, and encourages, supports, and develops recycling programs that minimize the dependence on landfill disposal facilities.

Due to sustained increases in labor expenses, capital improvement costs, regulatory compliance costs, and closed site maintenance, an increase in disposal rates is essential to allow for continued and improved services. This letter serves as a notice that subject to approval by the Riverside County Board of Supervisors, landfill disposal rates will increase in FY 26/27 by the Consumer Price Index (CPI), which is 2.94% for calendar year 2025. The FY 26/27 rate for the Perris Valley Transfer Station will be $45.06 per ton and $41.28 per ton for the Area 8 Transfer Station(s). The new rates will become effective for tonnage deliveries starting on July 1, 2026.

Thank you for your past cooperation and support.

Sincerely,

Andy Cortez Digitally signed by Andy Cortez Date: 2026.02.18 14:20:30 -08'00'

Andy Cortez
General Manager-Chief Engineer

cc: Steve Van Stockum, LEA (via email)

STATE OF CALIFORNIA) **RESOLUTION NO. 4129**
COUNTY OF RIVERSIDE) ss
CITY OF SAN JACINTO)

SIXTH AMENDMENT TO THE FRANCHISE AGREEMENT BETWEEN THE CITY OF SAN JACINTO AND CR&R INCORPORATED

WHEREAS, the City of San Jacinto recognizes that the proper collection and disposal of all solid waste created, produced or brought into the City is a significant health and safety issue;

WHEREAS, CITY and CONTRACTOR entered into a certain Agreement for the Collection and Handling of Solid Waste dated March 17, 2005 (the "2005 Franchise Agreement");

WHEREAS, CITY and CONTRACTOR entered into a certain First Amendment to the Franchise Agreement between The City of San Jacinto and CR&R Incorporated dated April 15, 2010 (the "First Amendment");

WHEREAS, CITY and CONTRACTOR entered into a certain Second Amendment to the Franchise Agreement between The City of San Jacinto and CR&R Incorporated dated December 17, 2012 (the "Second Amendment");

WHEREAS, CITY and CONTRACTOR entered into a certain Third Amendment to the Franchise Agreement between The City of San Jacinto and CR&R Incorporated dated January 3, 2017 (the "Third Amendment");

WHEREAS, CITY and CONTRACTOR entered into a certain Fourth Amendment to the Franchise Agreement between The City of San Jacinto and CR&R Incorporated dated June 16, 2020 (the "Fourth Amendment");

WHEREAS, CITY and CONTRACTOR entered into a certain Fifth Amendment to the Franchise Agreement between The City of San Jacinto and CR&R Incorporated dated June 30, 2022 (the "Fifth Amendment");

WHEREAS, Section 15F of the 2005 Franchise Agreement provides that any amendment thereto must be in a written form duly executed by the parties in order to be valid; and

WHEREAS, CITY and CONTRACTOR desire to amend their 2005 Franchise Agreement, their 2010 First Amendment, their 2012 Second Amendment, their 2017 Third Amendment, their 2020 Fourth Amendment, and their 2022 Fifth Amendment in order to provide for certain service enhancements and address certain changes in the Bureau of Labor Statistics indexes.

NOW, THEREFORE, in consideration of the foregoing, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Section 8.d. "Annual Adjustment of Rates" of the 2005 Exclusive Franchise Agreement is hereby deleted in its entirety and replaced as follows:**

Franchise Agreement Inflationary Indices Rate Adjustments
Solid Waste Charges will be adjusted annually for inflation and to pass through costs in wholesale service, commencing July 1, 2026, and any time thereafter through and including July 1, 2030, as follows:

1. Service Component Formula:
   a. Residential: (Solid Waste Charge x 85.5%) x 100% of the percentage increase or decrease in the Bureau of Labor Statistics Consumer Price Index for all Urban Consumers within the Riverside-San Bernardino-Ontario, CA. areas during the prior calendar year (Series ID CUURS49CSA0) ("CPI")
   b. Commercial: (Solid Waste Charge x 79%) x CPI

2. Landfill Tipping Fee Formula:
   a. Residential: (Solid Waste Charge x 14.5%) x 100% of the percentage increase or decrease in the rates adopted by the County of Riverside ("County Rate Increase")
   b. Commercial: (Solid Waste Charge x 21%) x County Rate Increase

3. Commercial Organic Rates CPI Formula:
   a. Service: (Service Component Rate x CPI)
   b. Digester: (Digester Component Rate x County Rate Increase)

All other rates in the approved rate schedule of Solid Waste Charges including, but not limited to, various fees and roll-off haul rates, shall also be adjusted by 100% of the change in the CPI. The comparison shall be made for each calendar year (Annual Change) during the term thereof and shall be effective each July 1st. The pass-through adjustments are referred to collectively as the "Pass-Through Adjustments."

The Pass-Through Adjustments shall be assumed for the five-year period identified above so that annual increases effective July 1, 2027 through July 1, 2031 shall be automatic upon the 30-day notice required under Government Code Section 53756(d). The Solid Waste Charges shall not increase by more than 15% in any fiscal year as a result of the Pass-Through Adjustments.

WHEREAS, the City has duly noticed the property owners and rate payers prior to 45 days of the public hearing in accordance with the noticing requirements of Proposition 218 and California Constitution article 13D. Such notice was

delivered by regular U.S. mail to the property owners based on the latest available county tax roll and each rate payer based each known postal address. The City understands that not all property owners are users of the service; and

NOW, THEREFORE, BE IT RESOLVED determined and ordered by the City Council of the City of San Jacinto, California, as follows**:**

1) Contractor is not in default of exclusive contract for collection and disposal of solid waste and recycling services.
2) Increase all solid waste and recycling rates as determined by the Solid Waste Recycling Rate Schedule for Billings after July 1, 2026, which is hereby attached and a part of this resolution. Beginning on July 1, 2026, and each July 1 thereafter, the fees may be increased by the City in accordance with this agreement

3) Establishment of solid waste rates in this resolution supersedes any and all prior resolutions.

PASSED, APPROVED AND ADOPTED by the San Jacinto City Council on the 2nd day of June, 2026 by the following vote:

AYES:
NAYS:
ABSTAIN:
ABSENT:

CITY OF SAN JACINTO:

_____
Crystal Ruiz, Mayor

ATTEST:

_____
Julia Espinoza, City Clerk

APPROVED AS TO FORM:
Best Best and Krieger, LLP

_____
Craig Hayes, City Attorney
STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE)ss
CITY OF SAN JACINTO)

CERTIFICATION

I, Julia Espinoza, City Clerk of the City of San Jacinto, California, **do hereby certify** that the foregoing Resolution No. 4129 was passed, adopted, and approved at a regular meeting of the City Council of the City of San Jacinto held on the 2nd day of June, 2026, by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

WITNESS MY HAND AND OFFICIAL SEAL this 2nd day of June 2026.

_____
Julia Espinoza, City Clerk
City of San Jacinto

June 2, 2026

TO:	City Council
REQUESTED BY:	Stuart McKibbin
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	FY 26/27 Capital Improvement Program Engineering Update

RECOMMENDATION:

Staff recommends that the City Council receive and file an update of the City's Capital Improvement Program for FY 26/27.

DISCUSSION:

The City's Capital Improvement Program (CIP) is an important mechanism for implementing the goals, policies, and recommendations of the General Plan. The City has a 5-year CIP that covers Fiscal Year (FY) 2026-27 through FY 2030-31.

This presentation serves to update the Council on recently constructed CIP projects, planned projects for FY 26-27, and to highlight certain projects for later Fiscal Years.

OVERVIEW:

The purpose of the Capital Improvement Program (CIP) is to summarize the milestone activities for the five (5) year CIP, starting in FY 26/27 and ending FY 30/31. The CIP Program guide provides a general overview of the CIP by highlighting significant projects, CIP process improvements, accomplishments, and provides a preview of upcoming projects.

The City's CIP is a compilation of Engineering's improvement projects financed by City Council adopted funding source budgets. CIP projects provide improvements and/or expansions to the City's existing infrastructure, assets, and systems. Projects are designed to enhance the overall quality of life, improve the public right of way and facilities, improve safety, and meet the goals of the City's Circulation Element.

Completed CIP Projects in FY 25/26

Project Number	Name	Improvements	Bid Amount	Actual Cost	Completion Date	Fund
23-003	Mistletoe Park Restroom	ADA Compliant Restroom Building	$560K	$600K	December 2025	CDBG
24-001	State Street Rehab – 9th Street to Idyllwilld	Full Depth Replacement and Grind & Overlay	$4.439M	$4.279M	September 2025	Measure A ARPA DIF: Stree
24-002	Warren Road Drainage	Storm Drain and Flood Improvements	$332K	$342K	July 2025	Special Su (KB Home RCFCD

Ongoing Projects (Currently Under Construction)

Project Number	Name	Improvements	Bid Amount	Estimated Cost	Completion Date	Fund
06-145	Esplanade Avenue Widening TUMF	Road Widening Signal Install Drainage	$8.083M	$8.3M	January 2027	TUMF MARA Measure EMWD City of H

Upcoming Projects

Project Number	Name	Improvements	Budget Amount	Estimated Cost	Completion Date	Fu
15-003	Line E-2	Storm & Flood Control Facility Improvements	$4.86M	$8.9M	Spring 2027	Flood C DIF: St
20-002	Citywide Signal Upgrades	Signal Improvements	$189K	$980K	Fall 2027	DIF: St
21-002	State Street Widening	Road Widening	$1.05M	$4.43M	Fall 2027	TUMF Measur
21-005	San Jacinto Avenue Safety Project	Sidewalk and other Safety Improvements	$766K	$879K	Spring 2027	HSIP Measur RMRA
22-001	Line G-3	Storm & Flood Control Facility Improvements	$1.78M	$1.85M	TBD	RCFCI
22-002	Lyon Avenue	Sidewalks Improvements	$856K	$820K	Winter 2026/27	SB821 Measur
22-003	Parkside Drainage	Storm Drain Improvements	$238K	$255K	Fall 2027	LLPD RCFCI
22-004	Warren Road Widening	Road Widening	$4.69M	$10.4M	Summer 2027	TUMF Measur
22-012	Sanderson Culvert Repair	Storm Drain Improvements	$175K	$254K	Spring 2027	RCFCI
25-002	Esplanade Rehab (State to SJ)	Pavement Rehabilitation	$1.41M	$1.41M	Fall 2027	Measur
25-003	Cottonwood Rehab (State to Palm)	Pavement Rehabilitation	$765K	$766K	Winter 2026/2027	Measur
25-004	Main St Rehab (Hewitt to Ramona Expy)	Pavement Rehabilitation	$986K	$986K	Fall 2027	Measur
26-004	Rue Pinot Blanc Traffic Signal	Traffic Signal Installation	$350K	$350K	TBD	DIF Sig
26-005	1st St Crosswalks	Pedestrian Safety Improvements	$252K	$252K	Summer 2026	Measur
26-006	Cottonwood & Lyon Traffic Signal	Traffic Signal Installation / Intersection Improvements	$755K	$755K	TBD	Measur
26-007	Ramona Expy Repave Sanderson - Warren	Pavement Rehabilitation	$2M	$12M	TBD	County RCTC City - $ Measur
26-008	Ramona Blvd State to 5 Points	Pavement Rehabilitation	$1.45M	$1.41M	Summer 2028	RMRA
26-009	Line E-4 and Investor Pl	Storm and Flood Control Facility	$1.04M	$3.6M	TBD	RCFCI extra fu

	Improvements	Improvements				Contro scope)
26-010	Line J	Storm and Flood Control Facility Improvements	$4.04M	$4.38M	TBD	Flood C
26-011	Esplanade & Las Rosas Intersection	Pedestrian Safety & Pavement Rehabilitation	$751K	$752K	Fall 2028	RMRA

Upcoming Projects

Name	Improvements	Budget Amount	Estimated Cost	Completion Date	F
Line H	Storm and Flood Control Facility Improvements	$6.01M	$6.05M	Fall 2027	RCF
State St Streetlights	Streetlight Improvements	N/A	$1.09M	Fall 2028	Nee fun
Hewitt & 7th Traffic Signal	Traffic Signal Installation	$350K	$600K	TBD	Dev
Kesha, Wente, and Napa Ct Rehab	Pavement Rehabilitation	N/A	$630K	TBD	Nee fun
Ramona Rehab Sanderson to Lyon	Pavement Rehabilitation	N/A	$3.675M	TBD	Nee fun
Eagle Road & Community College Drive	Pavement Rehabilitation	N/A	$693K	TBD	RM
2026 San Jacinto Striping & Safety Improvements	Signing & Striping	N/A	$400K	TBD	RM Me
San Jacinto Catch Basin Retrofit Project	Catch Basin Trash Capture Installations	N/A	$321K	TBD	Pub Buc
Line E-1 Channel	Storm and Flood Control Facility Improvements	N/A	$372K	TBD	City RCF
Park Avenue Pavement Rehab	Pavement Rehabilitation	N/A	$743K	TBD	Nee fun
Ramona Expy Stage 4	PA&ED	N/A	$1M	TBD	TUI app con

FISCAL IMPACT:

There is no fiscal impact to the general fund at this time.

ATTACHMENTS:

San Jacinto Council FY26_27 CIP Slideshow

Attachments

San Jacinto CIP FY26_27 Slideshow.pdf

City of San Jacinto

Engineering Department

Capital Improvement Program

Fiscal Year 2026-2027

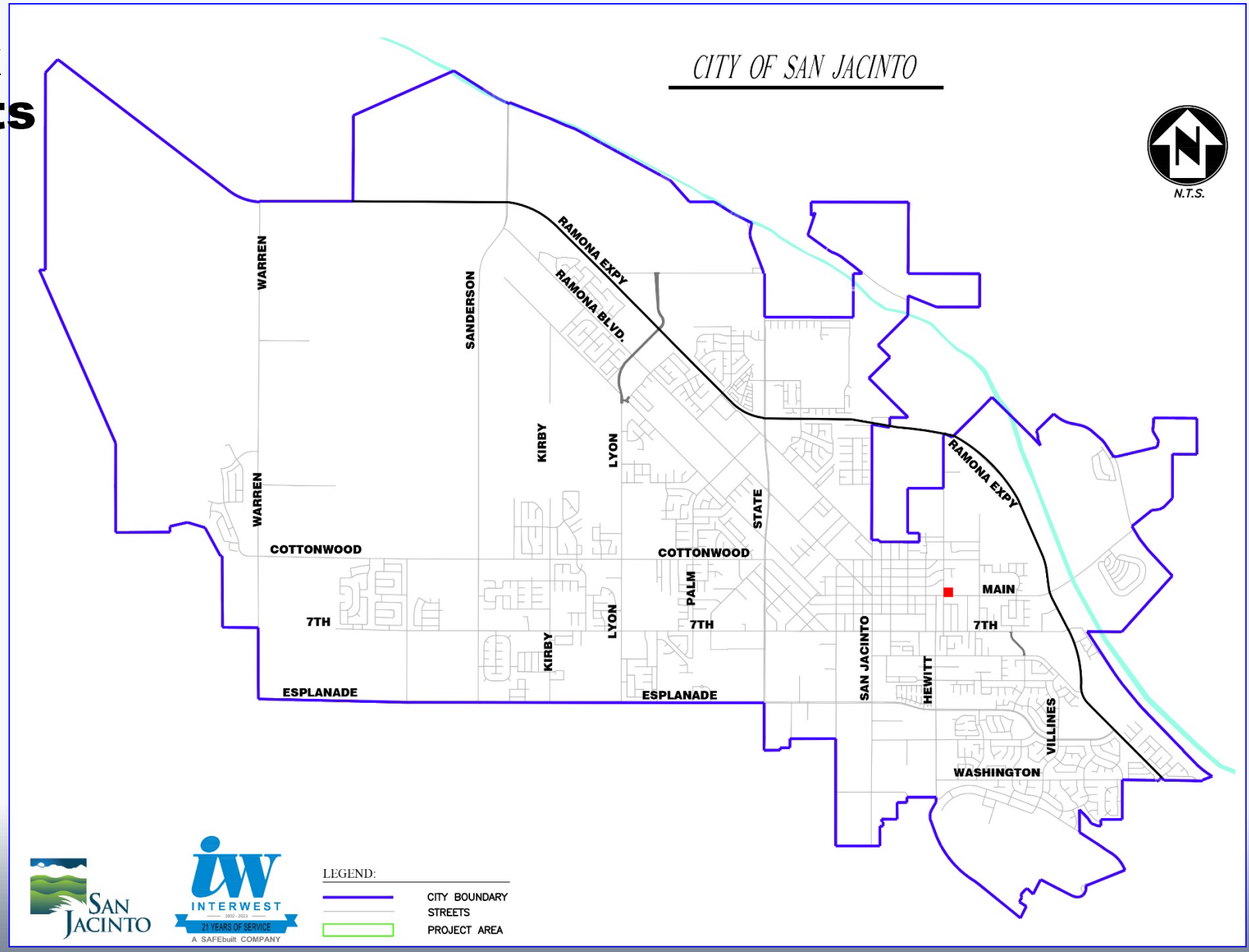
Capital Improvement Program Overview

Fiscal Year 2025/2026	Fiscal Year 2026/2027	Beyond Fiscal Year 2026/2027
$5,225,000	$29,500,000	$49,250,000

Completed Projects in FY 2025/2026

23-003 Mistletoe Park Restroom Improvements

- **Bid Amount:** $560,000
- **Actual cost:** $600,000
- **Completed:** December 2025
- **Funding Source: CDBG**



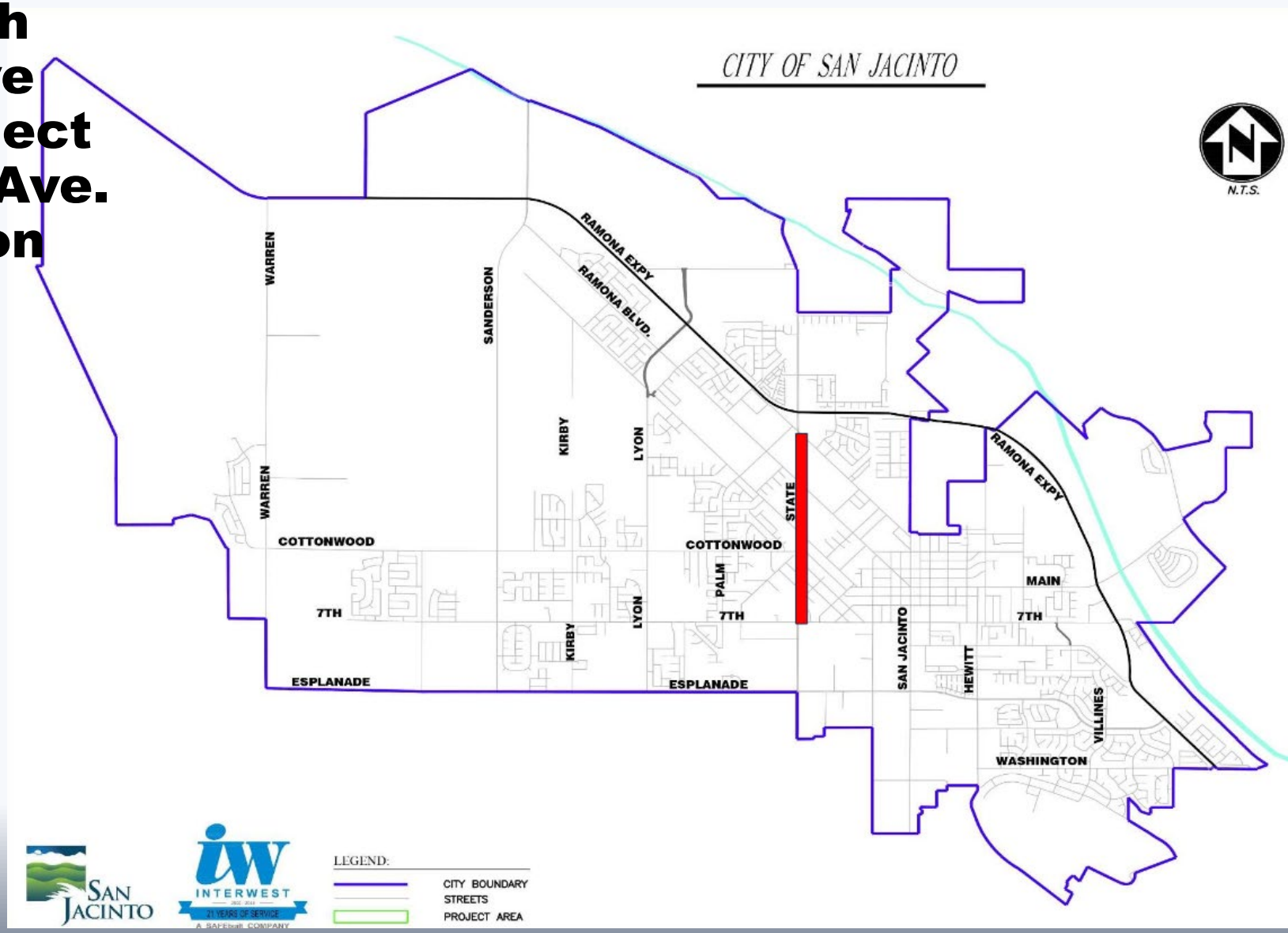
23-003 Mistletoe Park Restroom Improvements





24-001 State Street Improvements from 9th Street to Idyllwild Drive Street Improvement Project & Shaver St/San Jacinto Ave. Pavement Rehabilitation

- Bid Amount: $4,439,230
- Actual cost: $4,279,000
- Completed: September 2025
- Funding Source: Measure A
  ARPA
  DIF: Streets



24-001 State Street Improvements from 9th Street to Idyllwild Drive Street Improvement Project & Shaver St/San Jacinto Ave. Pavement Rehabilitation



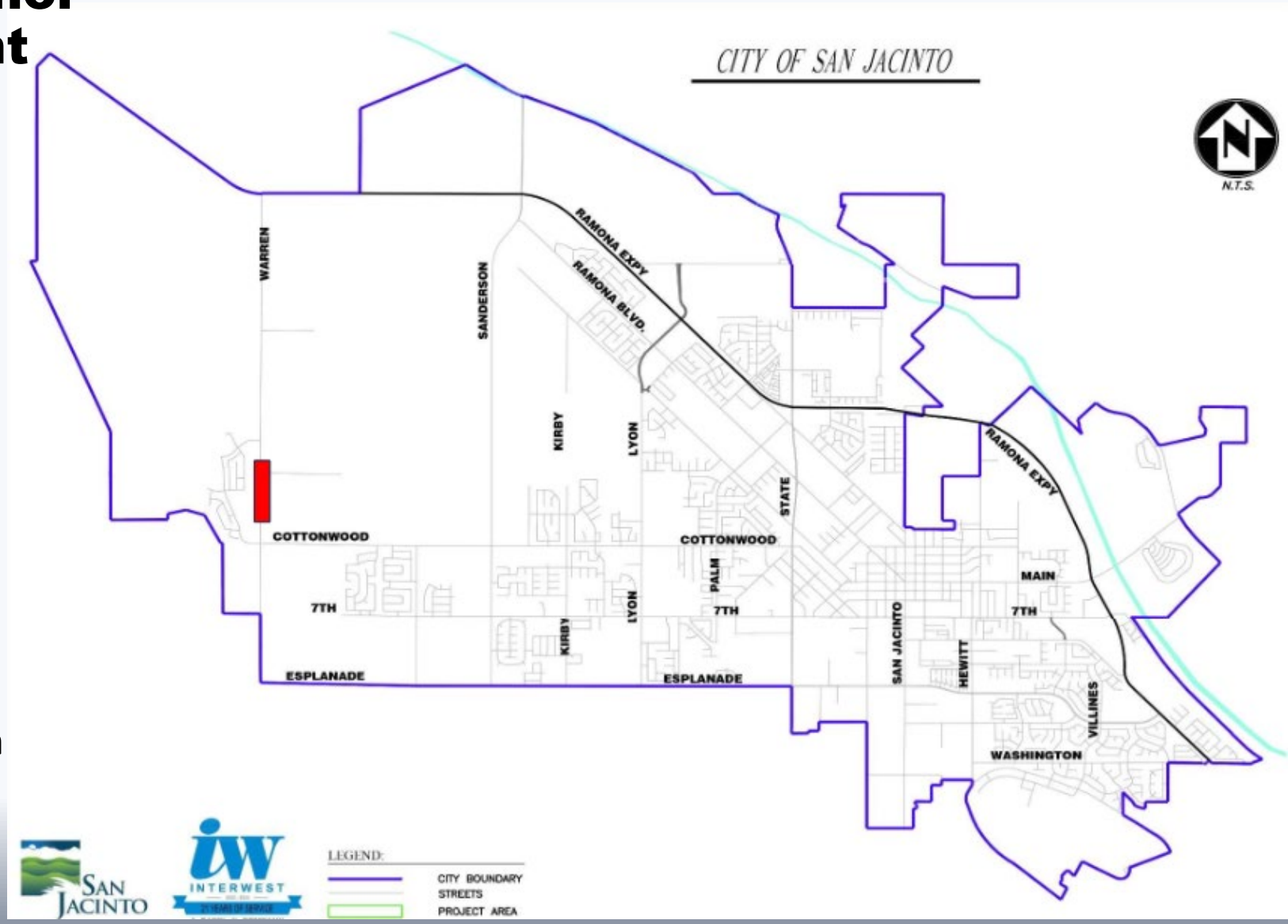




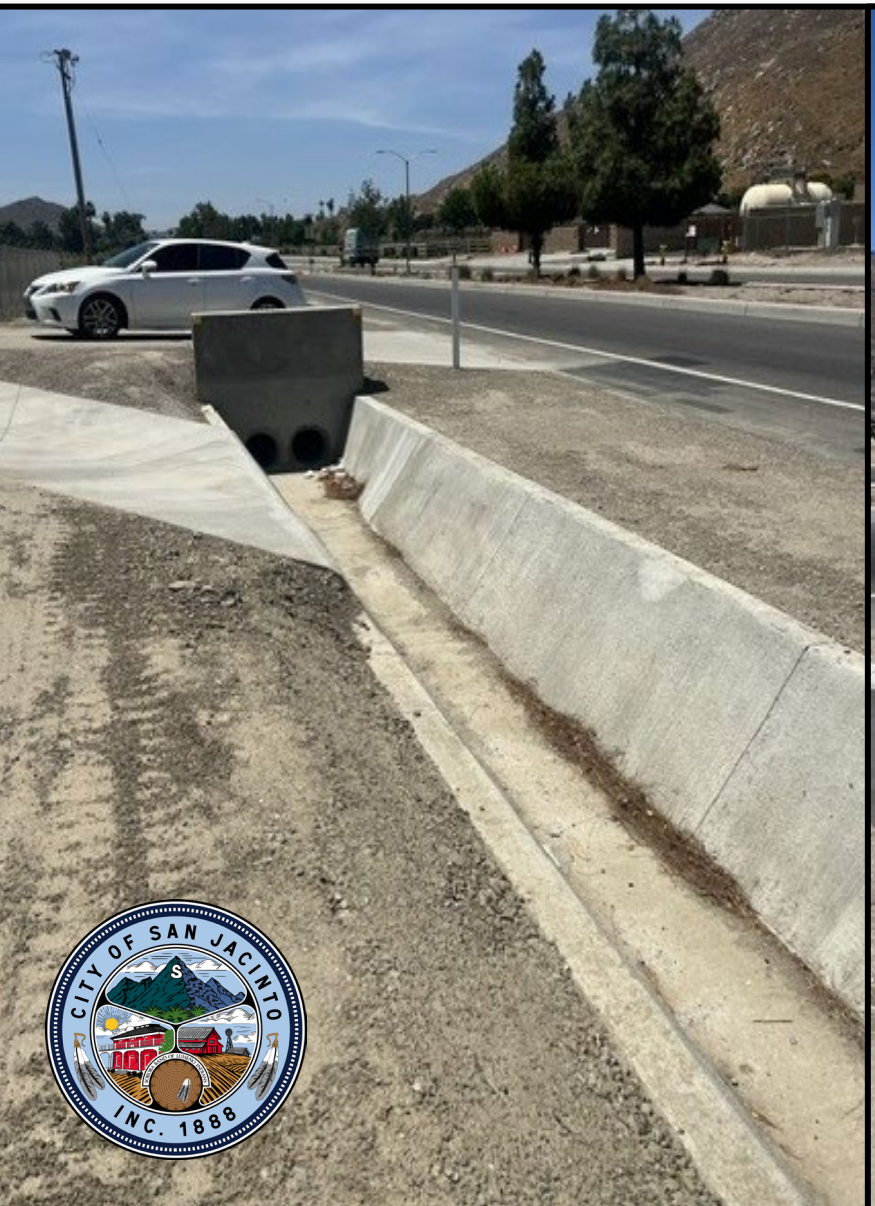


24-002 Warren Road Minor Drainage Improvement Project

- **Bid Amount:** $331,750
- **Actual cost:** $342,190
- **Completed:** May 2025
- **Funding Source:** Special Subdivision Fund (KB Homes)
  RCFCD



24-002 Warren Road Minor Drainage Improvement Project



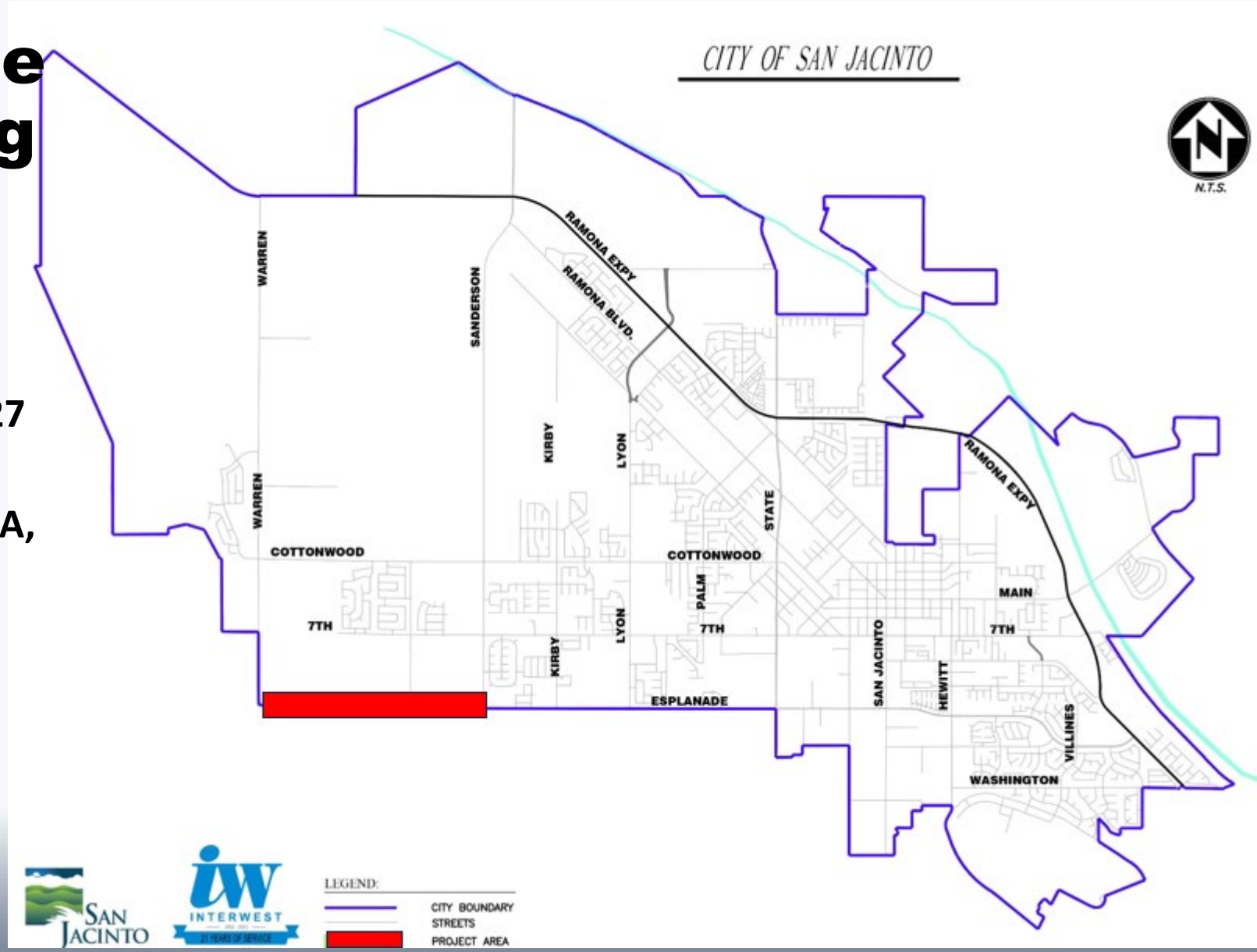




Construction Phase
Ongoing Projects

06-145 Esplanade Avenue Widening

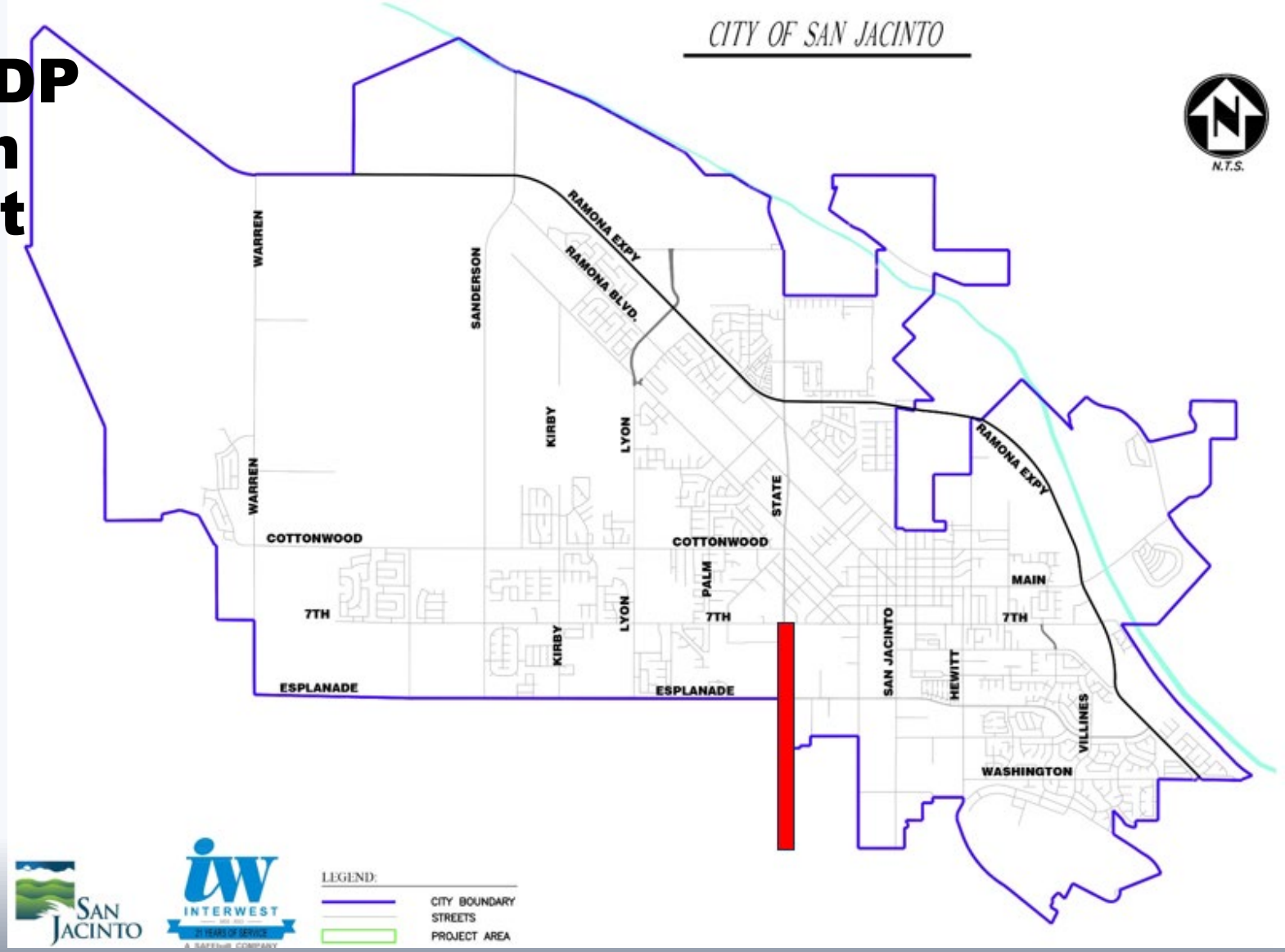
- Bid Amount: $8,083,000
- Estimated Total: $8,300,000
- Anticipated Completion: January 2027
- Funding Source: TUMF, Measure A, City of Hemet, MARA, EMWD



Upcoming Projects FY 2026/2027

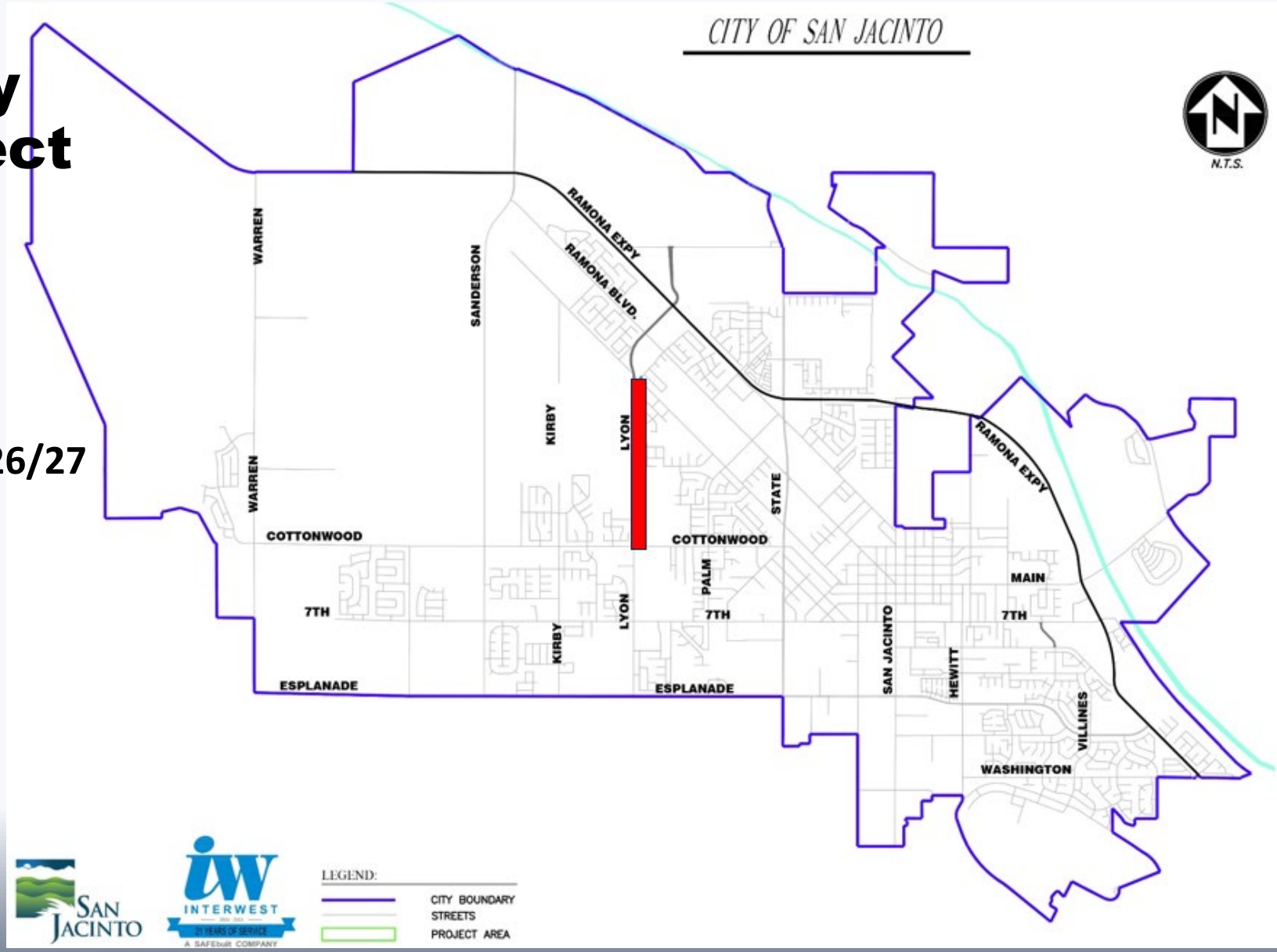
15-003 San Jacinto MDP Line E-2 Storm Drain Improvement Project

- Budgeted Amount: $4,858,871
- Estimated Cost: $8,900,00
- Anticipated Completion: Spring 2027
- Funding Source: Flood Control Fund, DIF: Streets



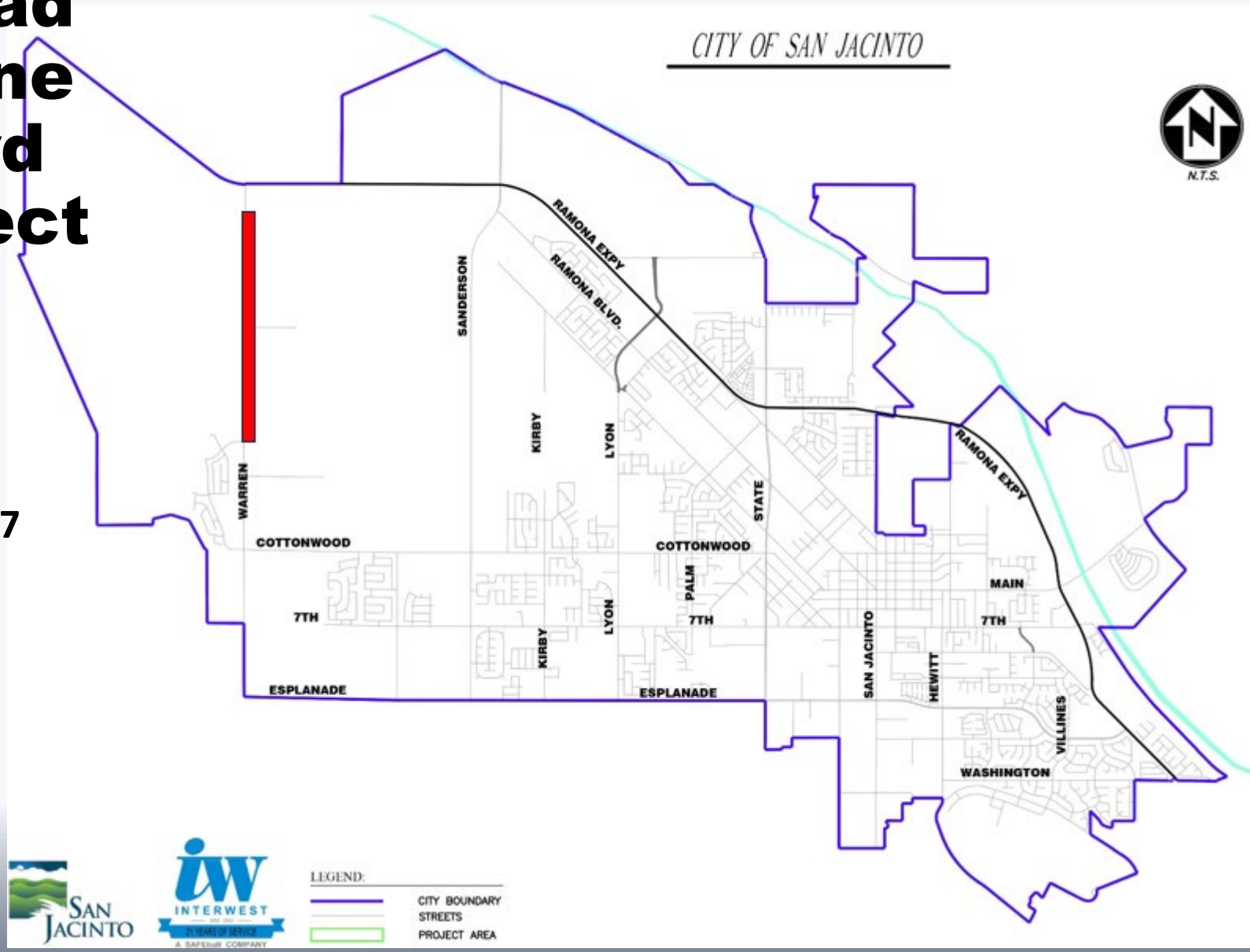
22-002 Lyon Ave Pedestrian Safety Improvement Project (Phase 2)

- Budgeted Amount: $856,000
- Estimated Cost: $820,000
- Anticipated Completion: Winter 2026/27
- Funding Source: SB821, Measure A



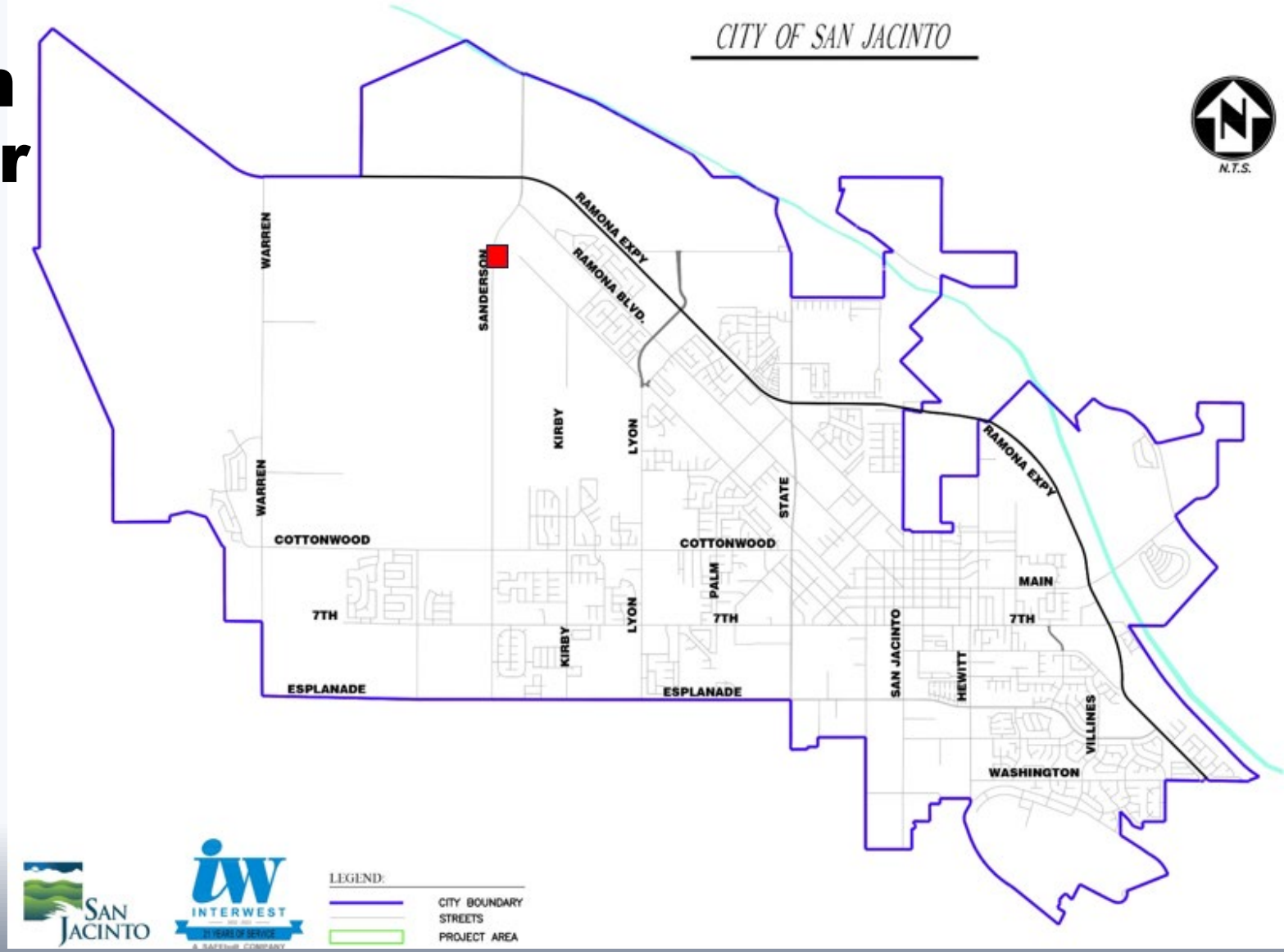
22-004 Warren Road Widening: Upperline Dr to Ramona Blvd Improvement Project (TUMF)

- Budgeted Amount: $4,692,980
- Estimated Cost: $10,400,000
- Anticipated Completion: Summer 2027
- Funding Source: TUMF, Measure A



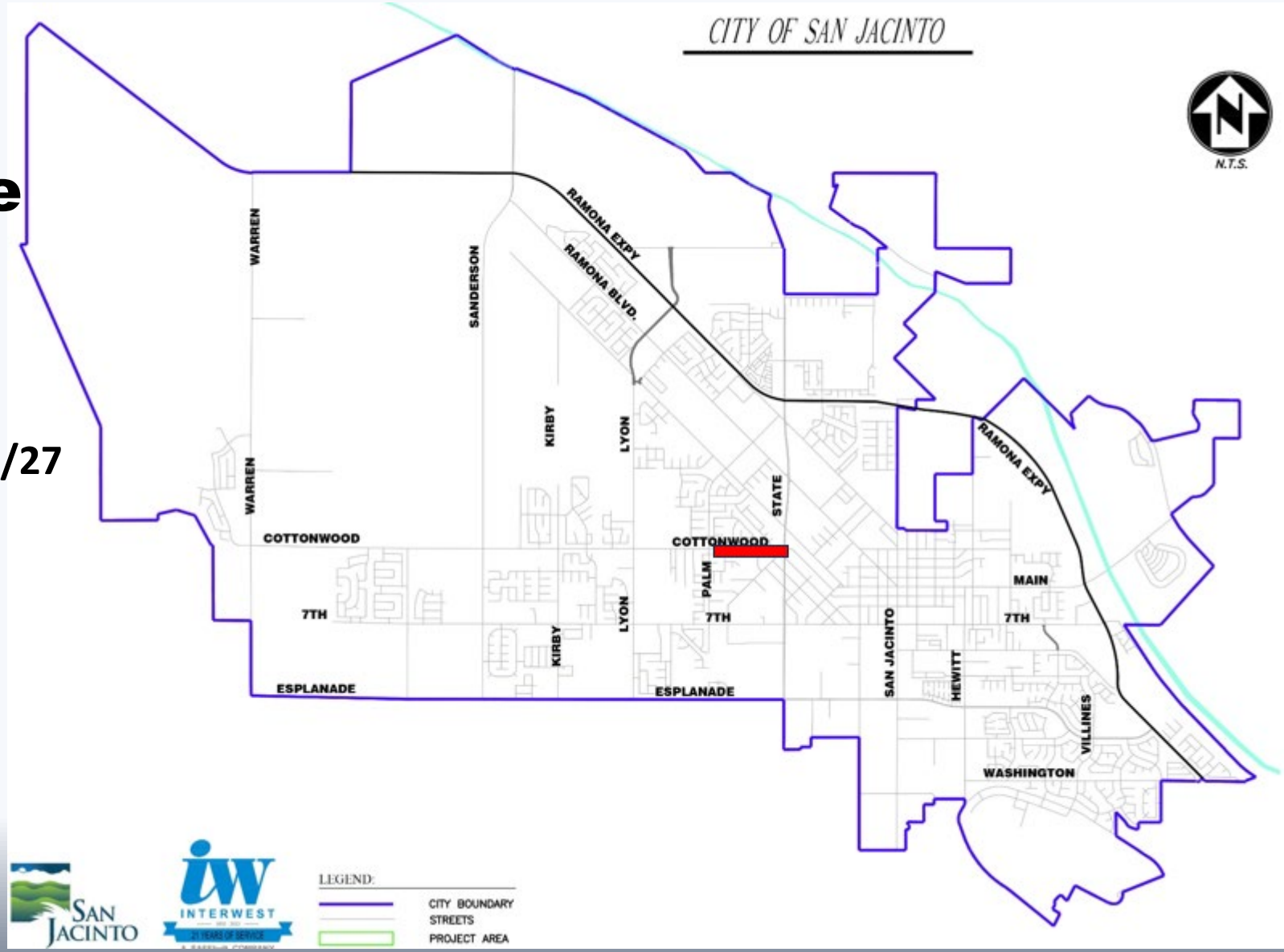
22-012 Sanderson Ave Culvert Repair

- Budgeted Amount: $175,000
- Estimated Cost: $254,000
- Anticipated Completion: Spring 2027
- Funding Source: RCFCD



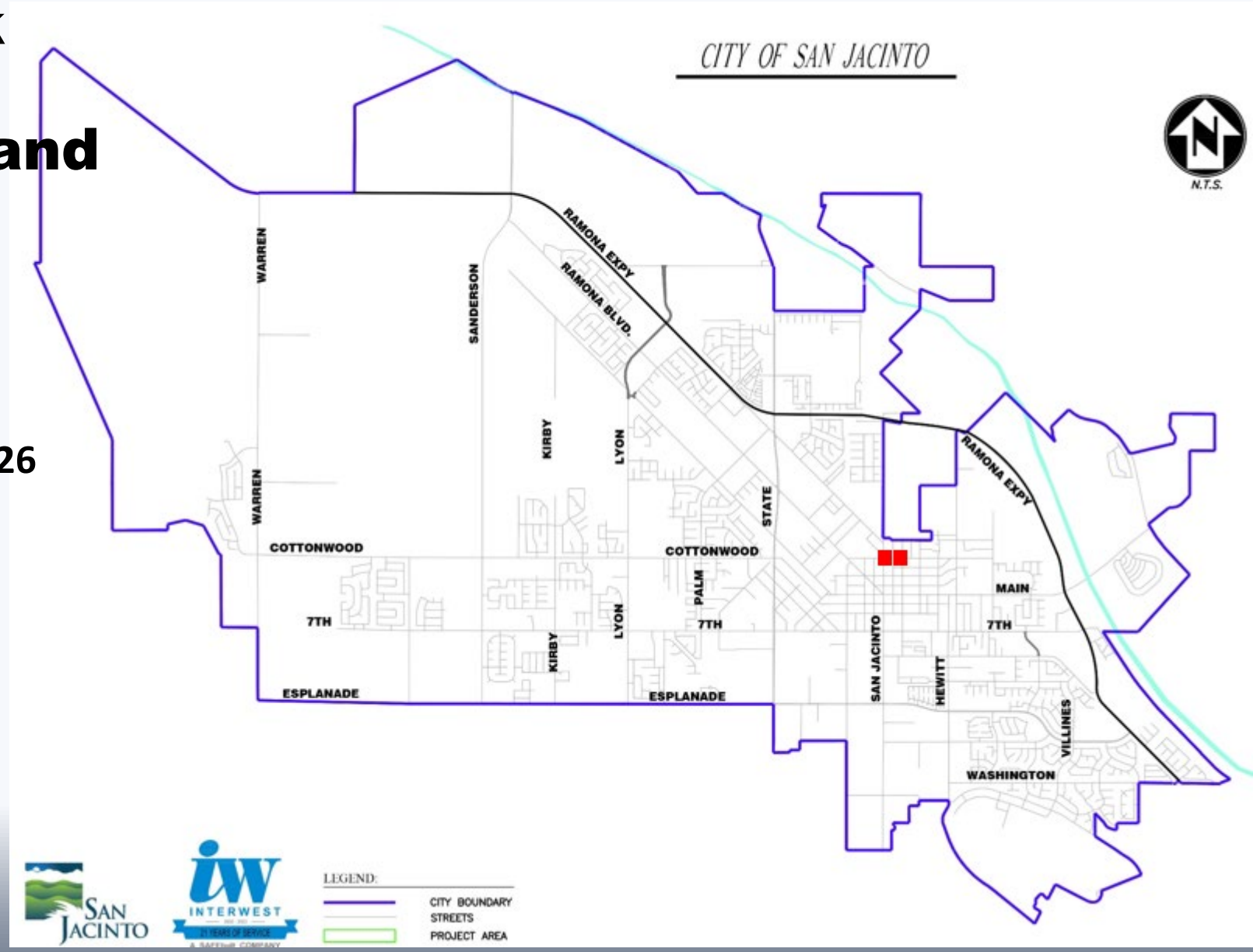
25-003 Cottonwood Ave Rehab Between State St and Palm Ave

- Budgeted Amount: $765,000
- Estimated Cost: $766,000
- Anticipated Completion: Winter 2026/27
- Funding Source: Measure A



26-005 Crosswalk Improvements at 1st St/Estudillo Ave and 1st St/Pico Ave

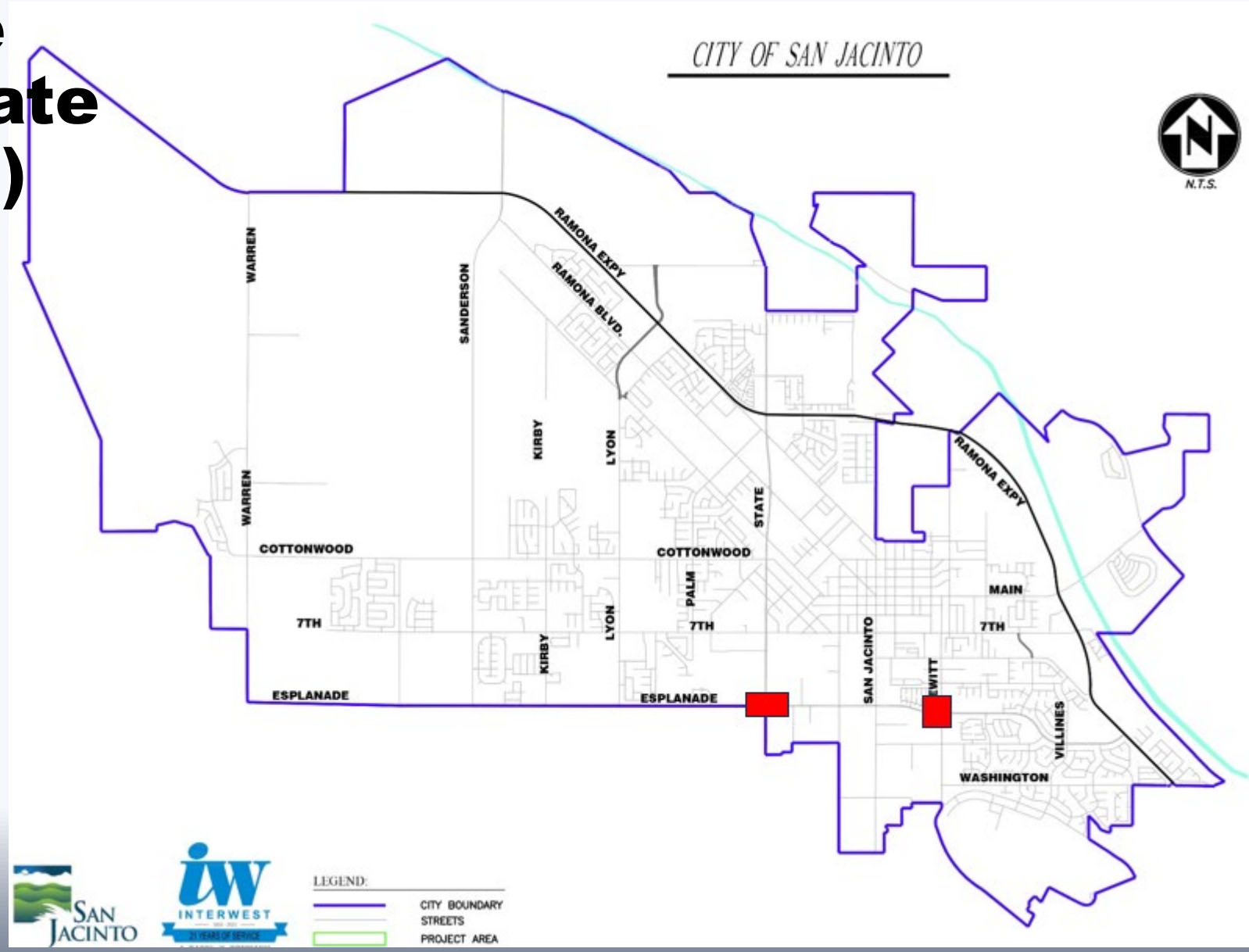
- Budgeted Amount: $252,000
- Estimated Cost: $252,000
- Anticipated Completion: Summer 2026
- Funding Source: Measure A



Upcoming Projects Beyond FY 2026/2027

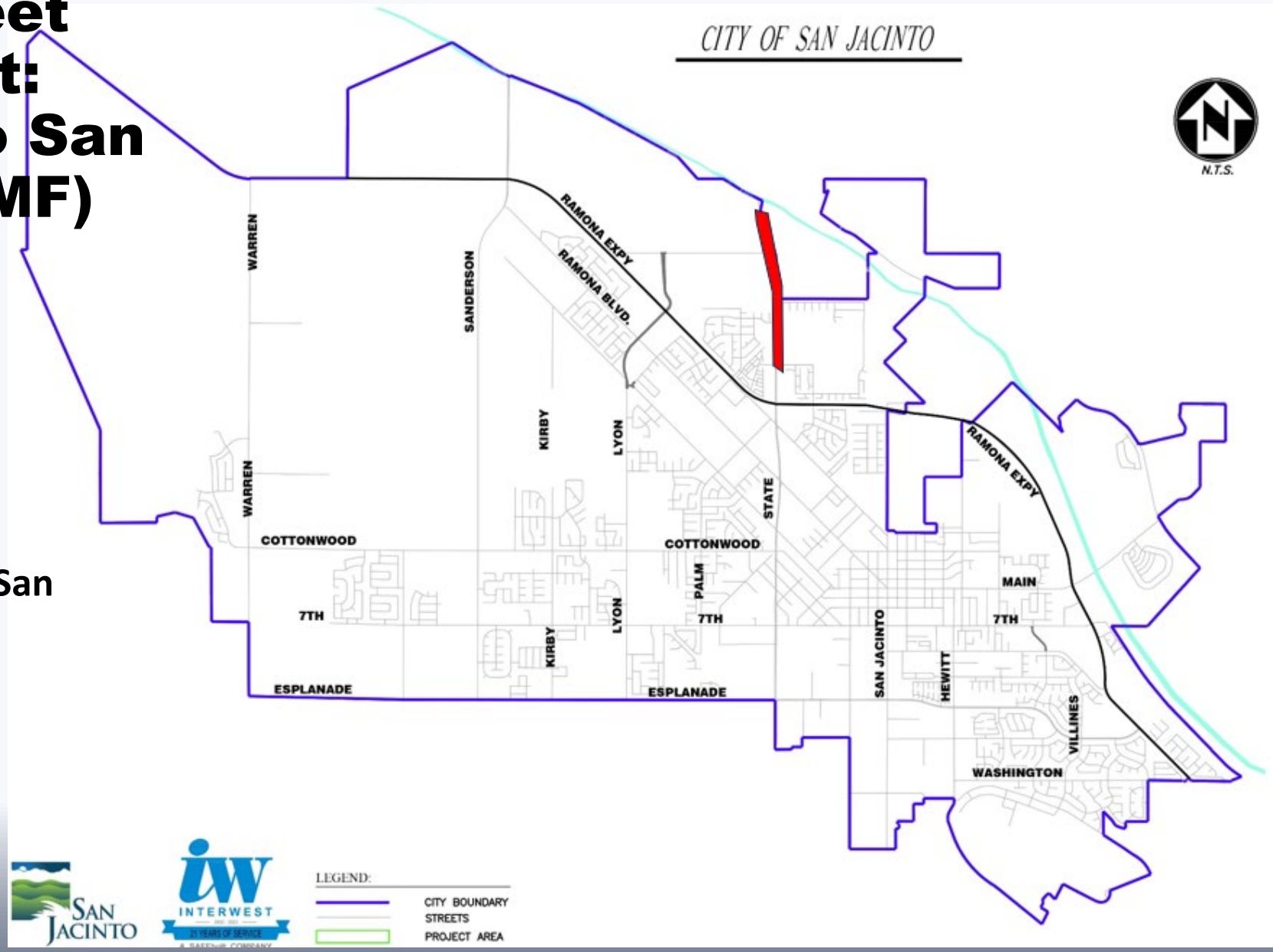
20-002 Citywide Traffic Signal Update Project (Phase 2)

- Budgeted Amount: $189,000
- Estimated Cost: $980,000
- Anticipated Completion: Fall 2027
- Funding Source: DIF: Streets



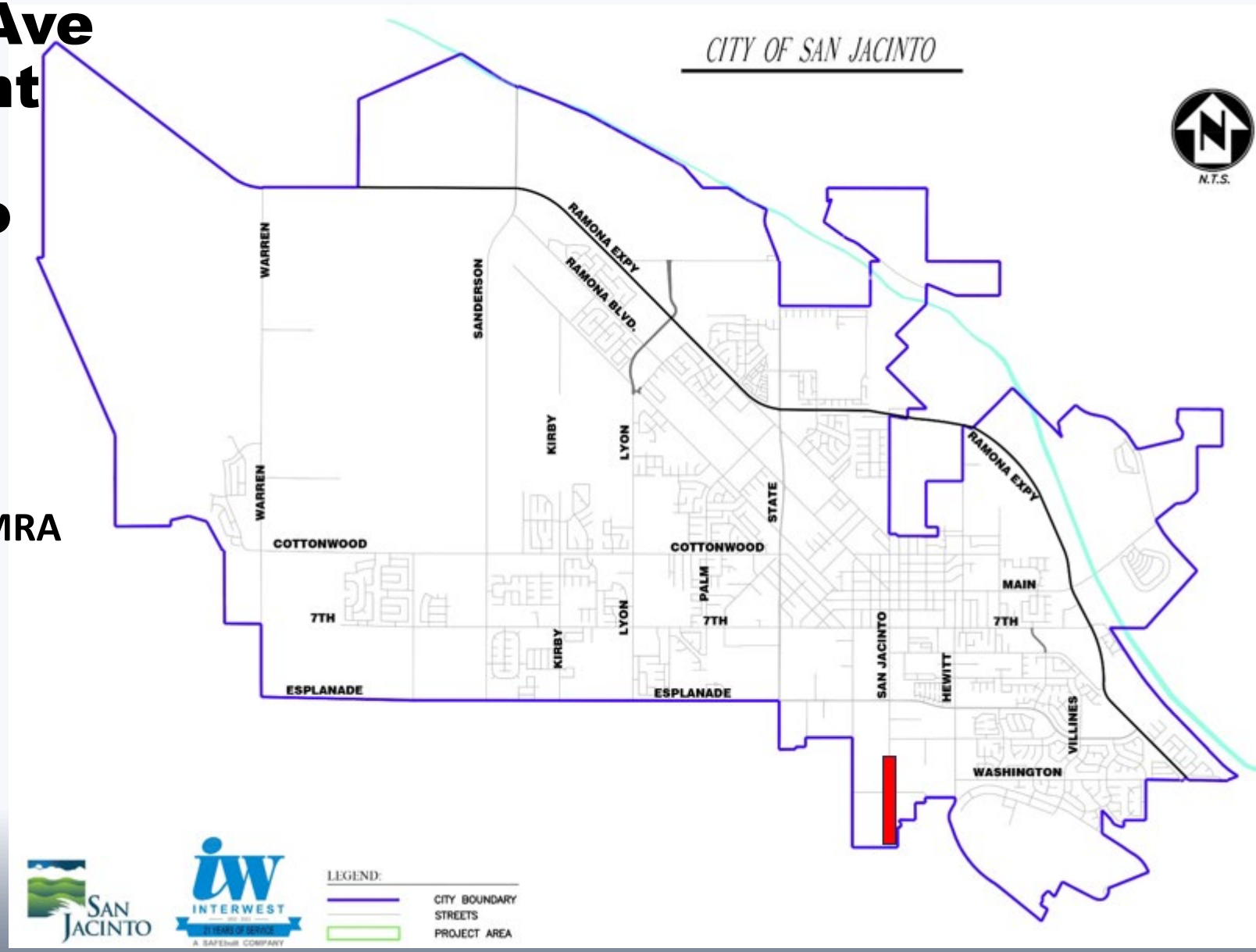
21-002 State Street Widening Project: Quandt Ranch Rd to San Jacinto River (TUMF)

- Budgeted Amount: $1,045,543
- Estimated Cost: $4,430,500
- Anticipated Completion: Fall 2027
- Funding Source: TUMF, Measure A
- Construction contract will include San Jacinto MDP Line H



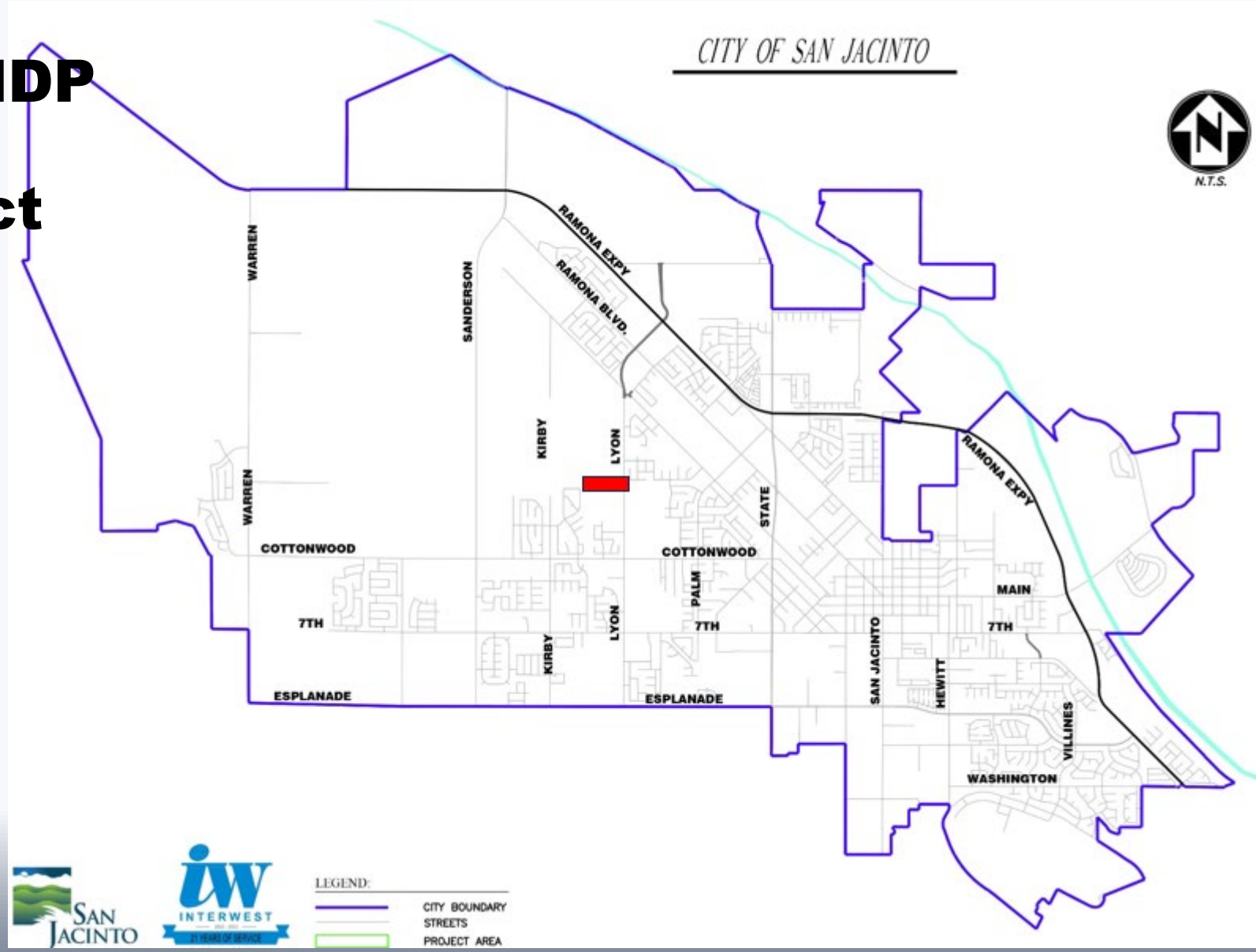
21-005 San Jacinto Ave Safety Improvement Project: Walmart Entrance to Menlo

- Budgeted Amount: $766,000
- Estimated Cost: $879,000
- Anticipated Completion: Spring 2027
- Funding Source: HSIP, Measure A, RMRA



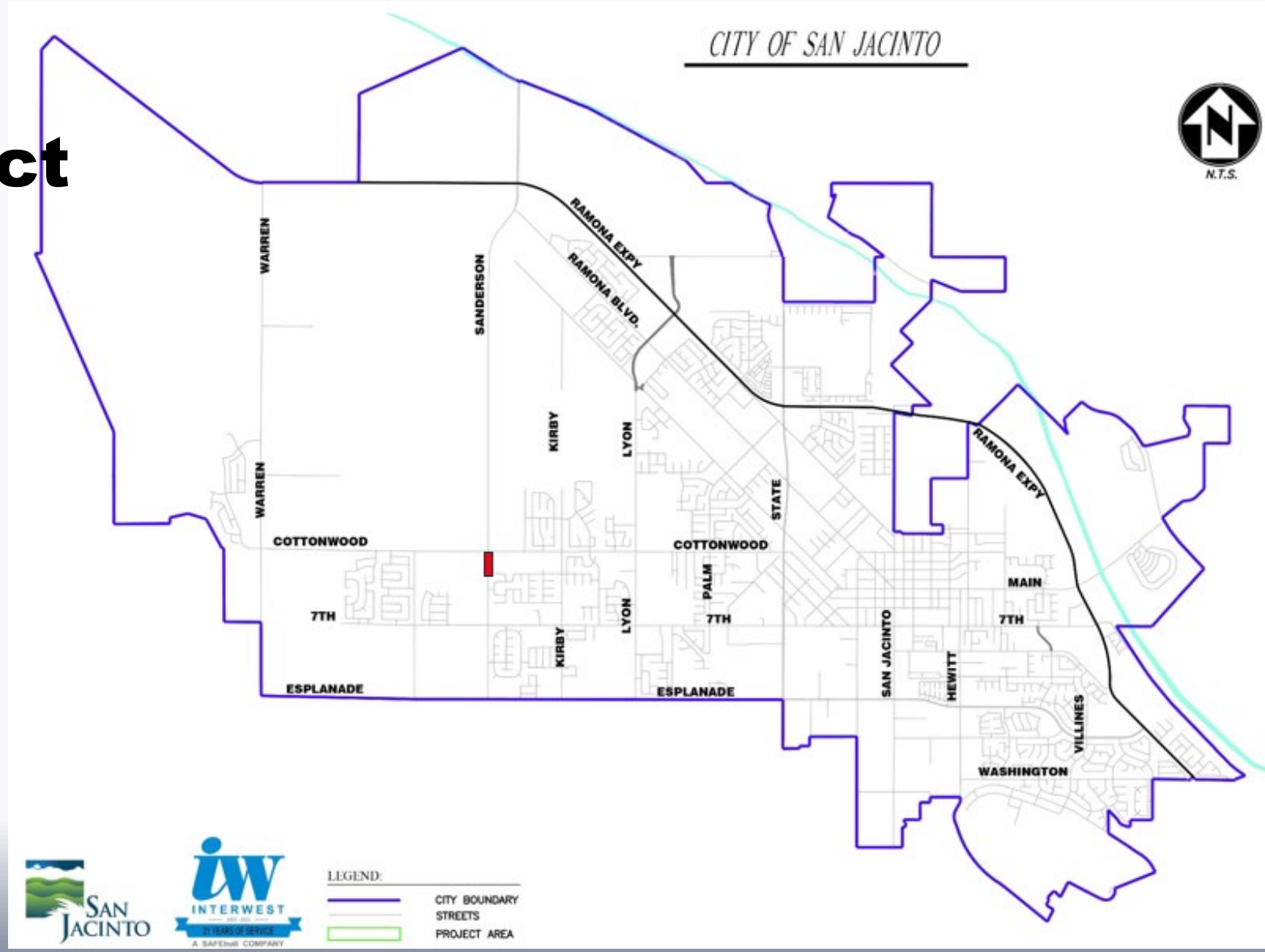
22-001 San Jacinto MDP Line G-3 Channel Improvement Project

- Budgeted Amount: $1,780,000
- Estimated Cost: $1,850,000
- Anticipated Completion: TBD
- Funding Source: RCFCD



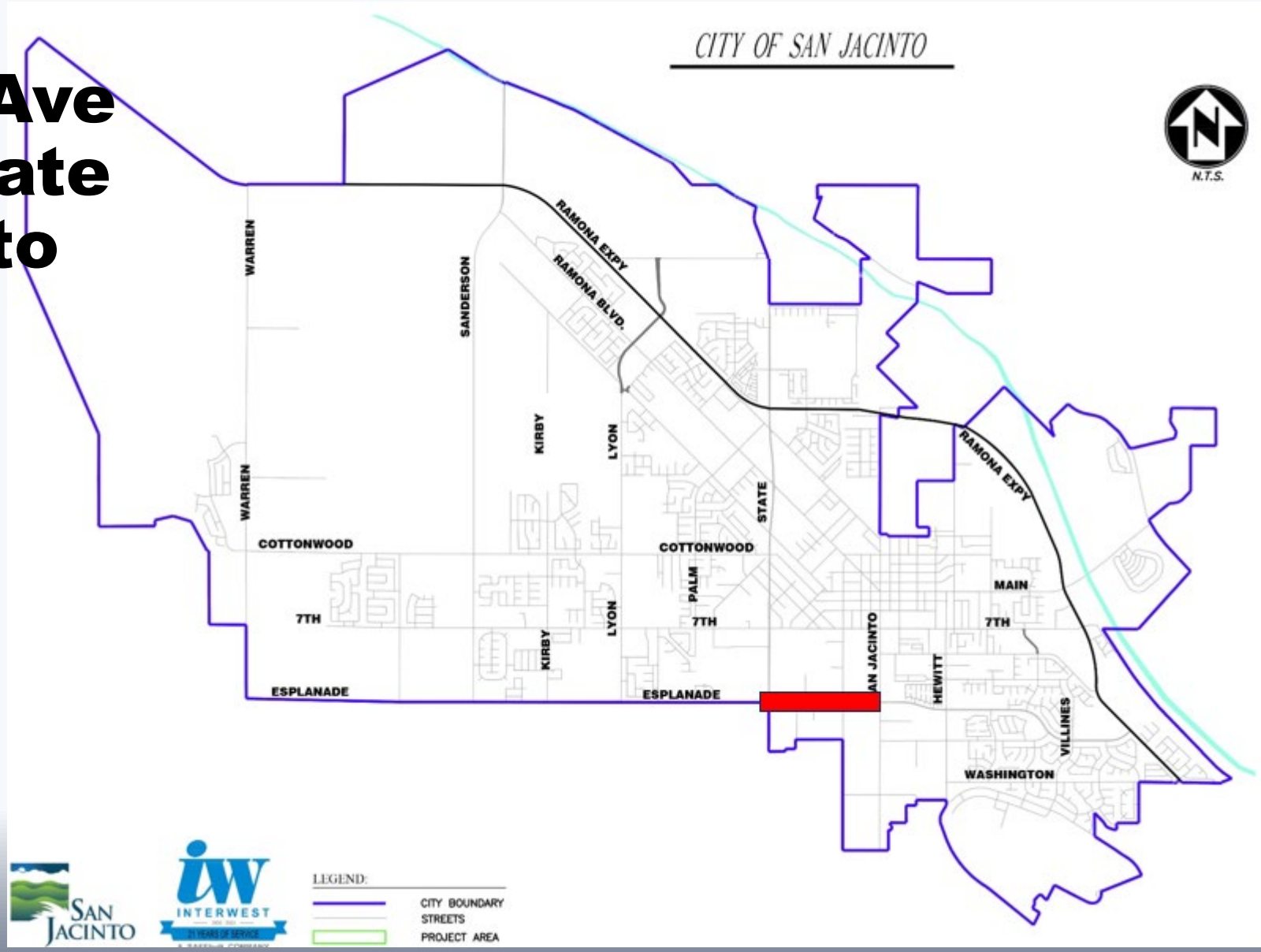
22-003 Parkside Minor Drainage Improvement Project

- Budgeted Amount: $238,000
- Estimated Cost: $255,000
- Anticipated Completion: Fall 2027
- Funding Source: LLPD Zone 46, RCFCD



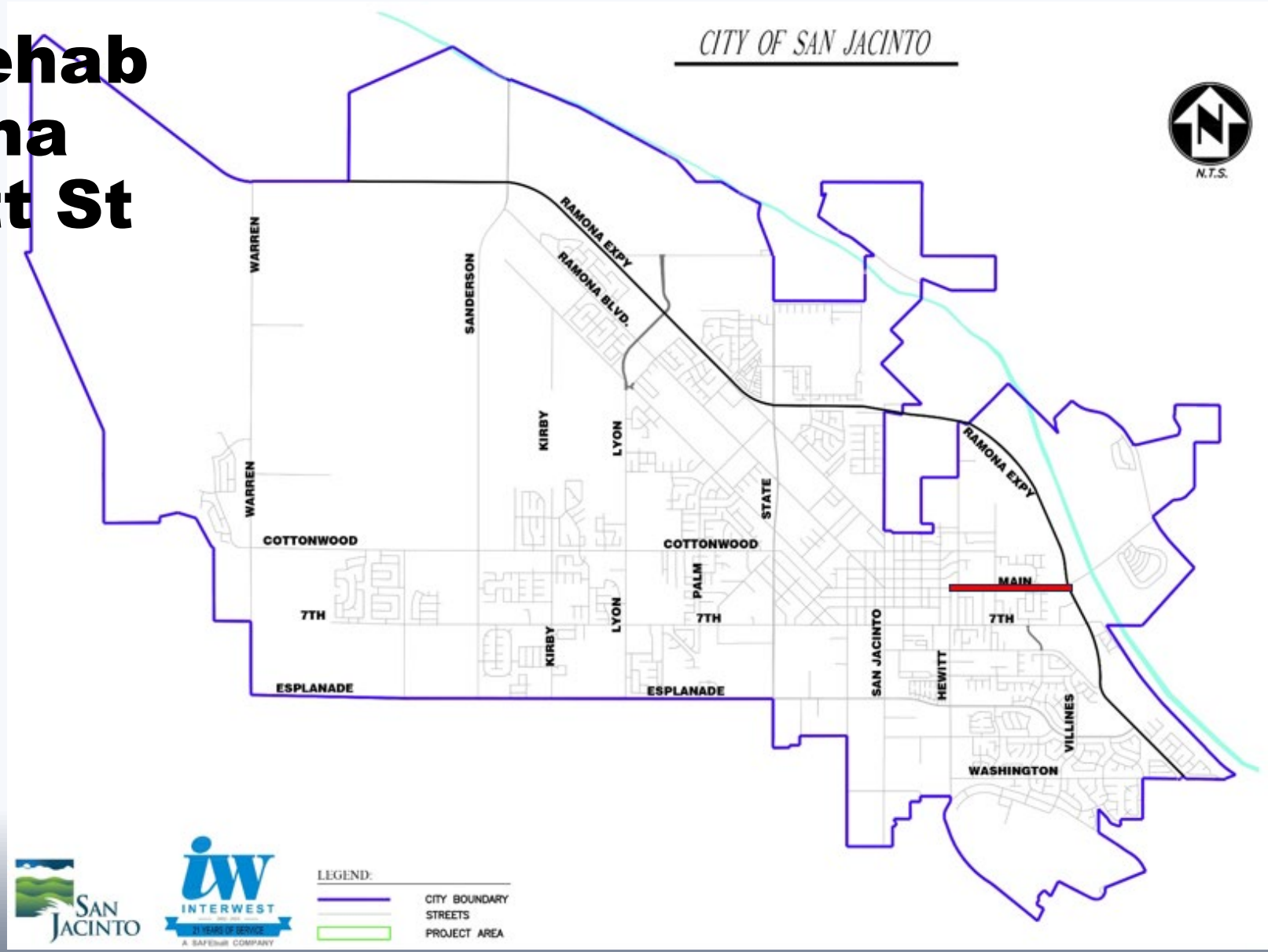
25-002 Esplanade Ave Rehab Between State St and San Jacinto Ave

- Budgeted Amount: $1,410,000
- Estimated Cost: $1,410,000
- Anticipated Completion: Fall 2027
- Funding Source: Measure A



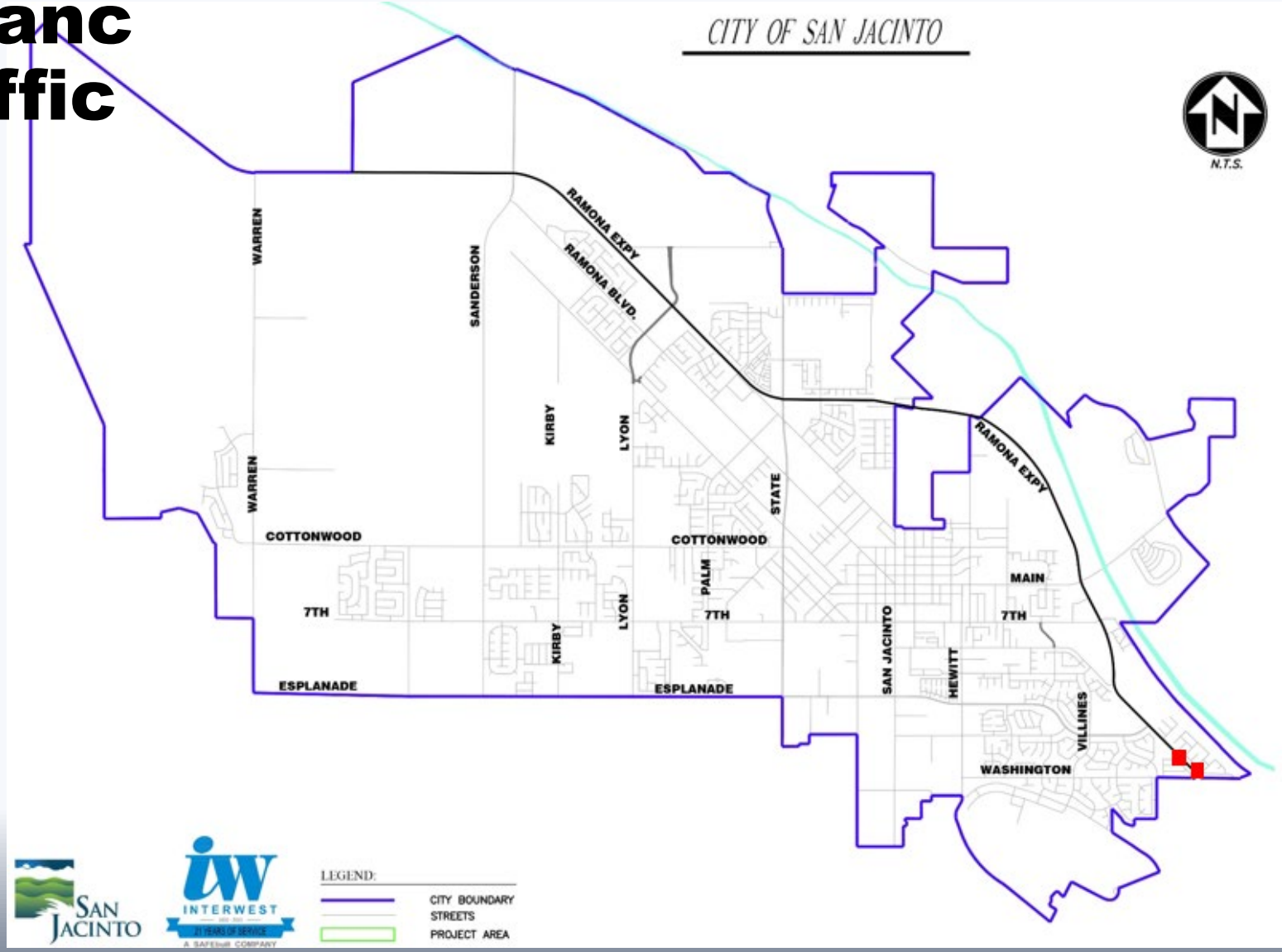
25-004 Main St Rehab between Ramona Expwy and Hewitt St

- Budgeted Amount: $986,000
- Estimated Cost: $986,000
- Anticipated Completion: Fall 2027
- Funding Source: Measure A



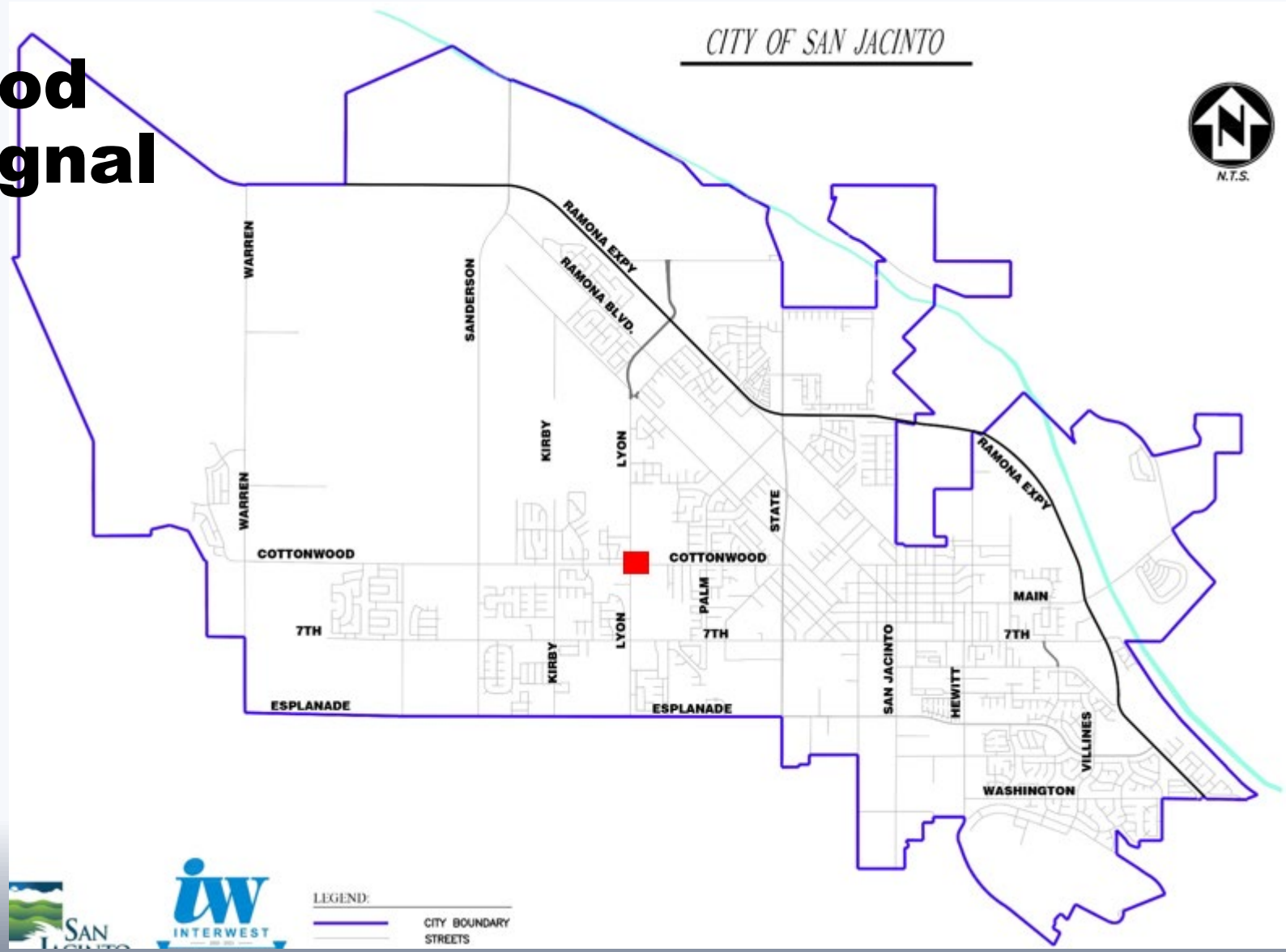
26-004 Rue Pinot Blanc and Rue Merlot Traffic Signal

- Budgeted Amount: $350,000
- Estimated Cost: $350,000
- Anticipated Completion: TBD
- Funding Source: DIF: Signal Fund 149



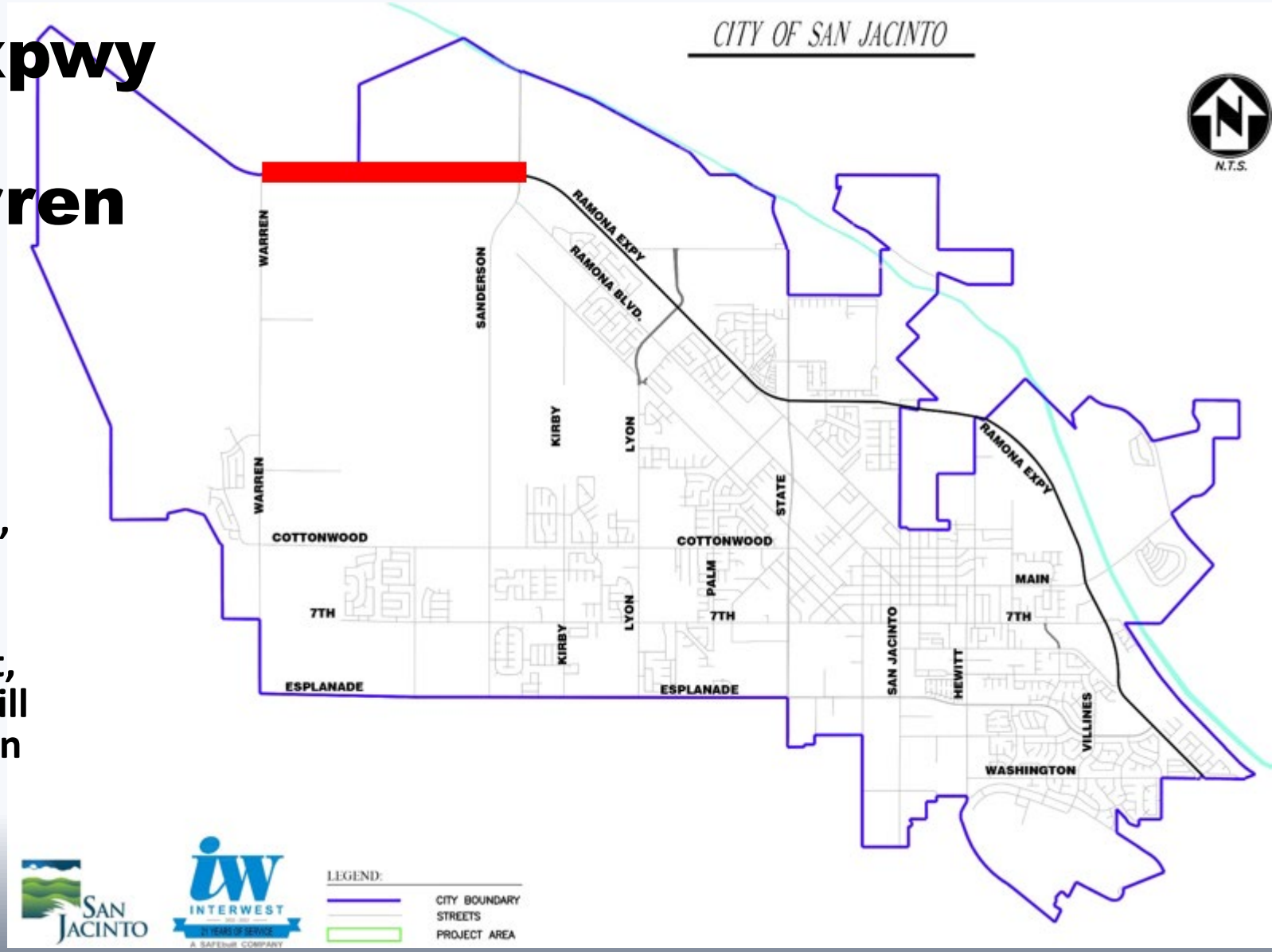
26-006 Cottonwood and Lyon Traffic Signal

- Budgeted Amount: $755,000
- Estimated Cost: $755,000
- Anticipated Completion: TBD
- Funding Source: Measure A



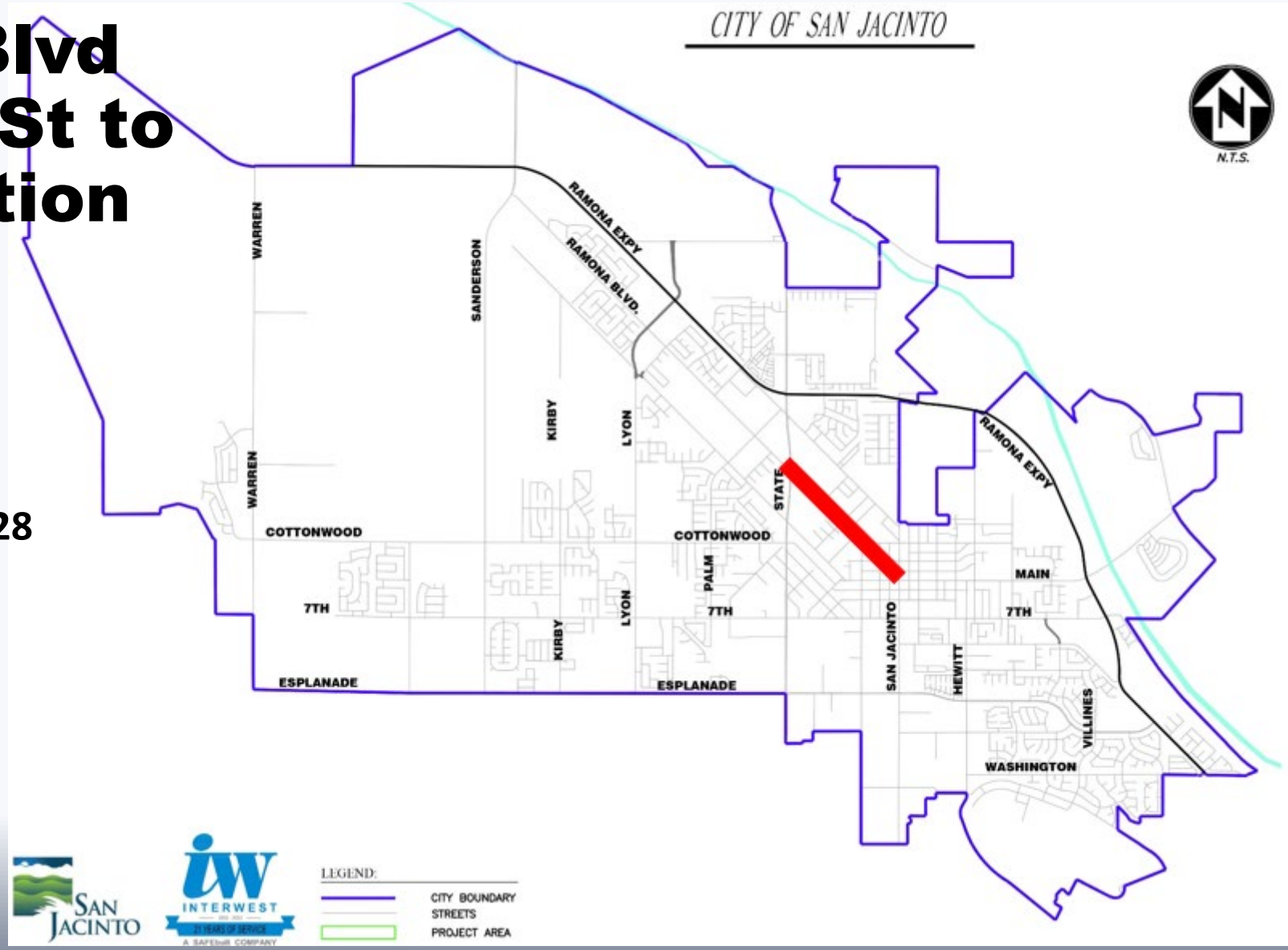
26-007 Ramona Expwy Repave from Sanderson to Warren

- Budgeted Amount: $2,000,000.00
- Estimated Cost: $12,000,000
- Anticipated Completion: TBD
- Funding Source: County, RCTC, RMRA, Measure A
- This is a joint project with RCTC, Riverside County Transportation Dept, and City of San Jacinto. San Jacinto will be responsible for 20% of construction cost within City right-of-way.



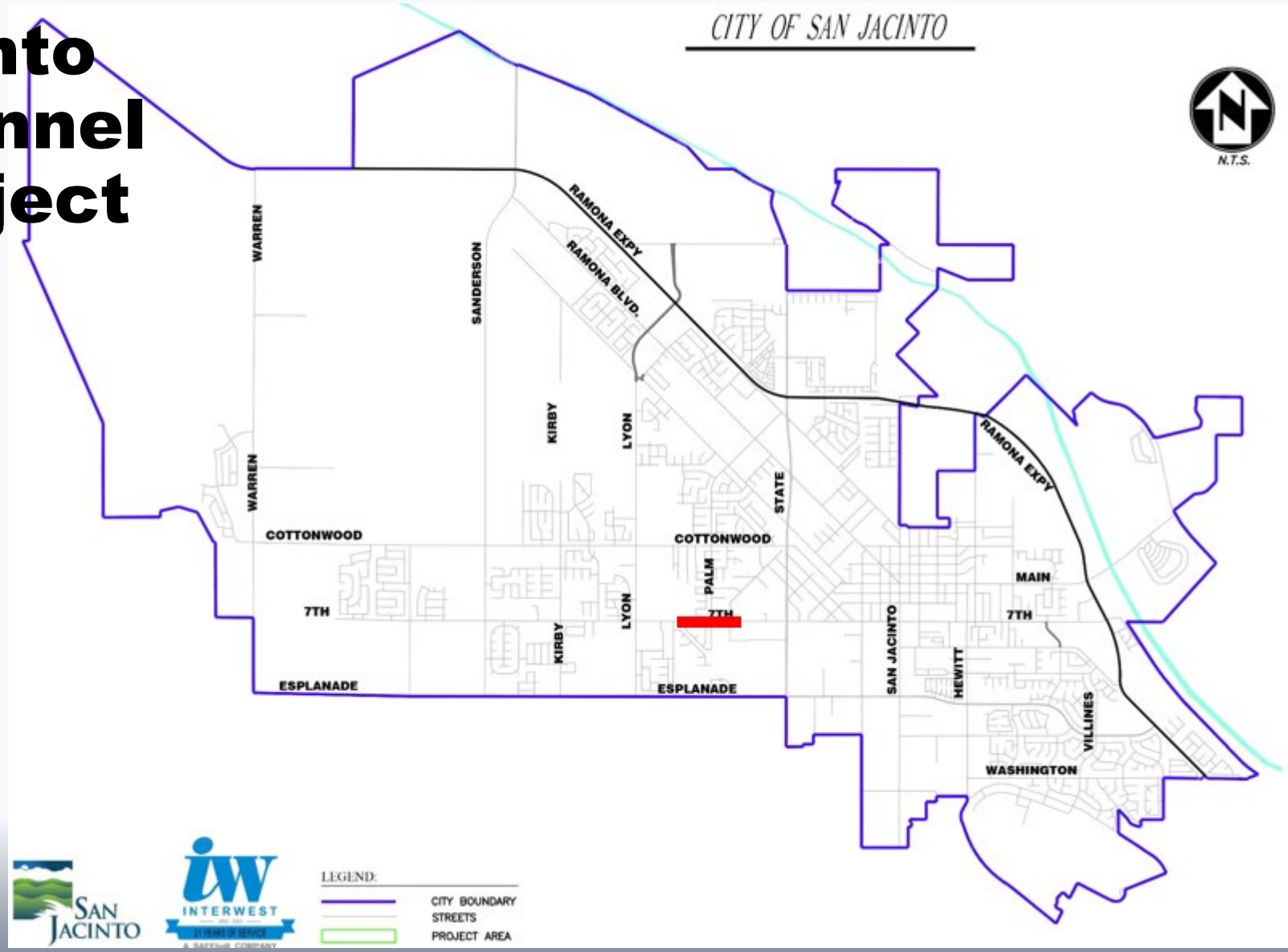
26-008 Ramona Blvd Rehab From State St to 5 Points Intersection

- Budgeted Amount: $1,450,000.00
- Estimated Cost: $1,410,000
- Anticipated Completion: Summer 2028
- Funding Source: RMRA



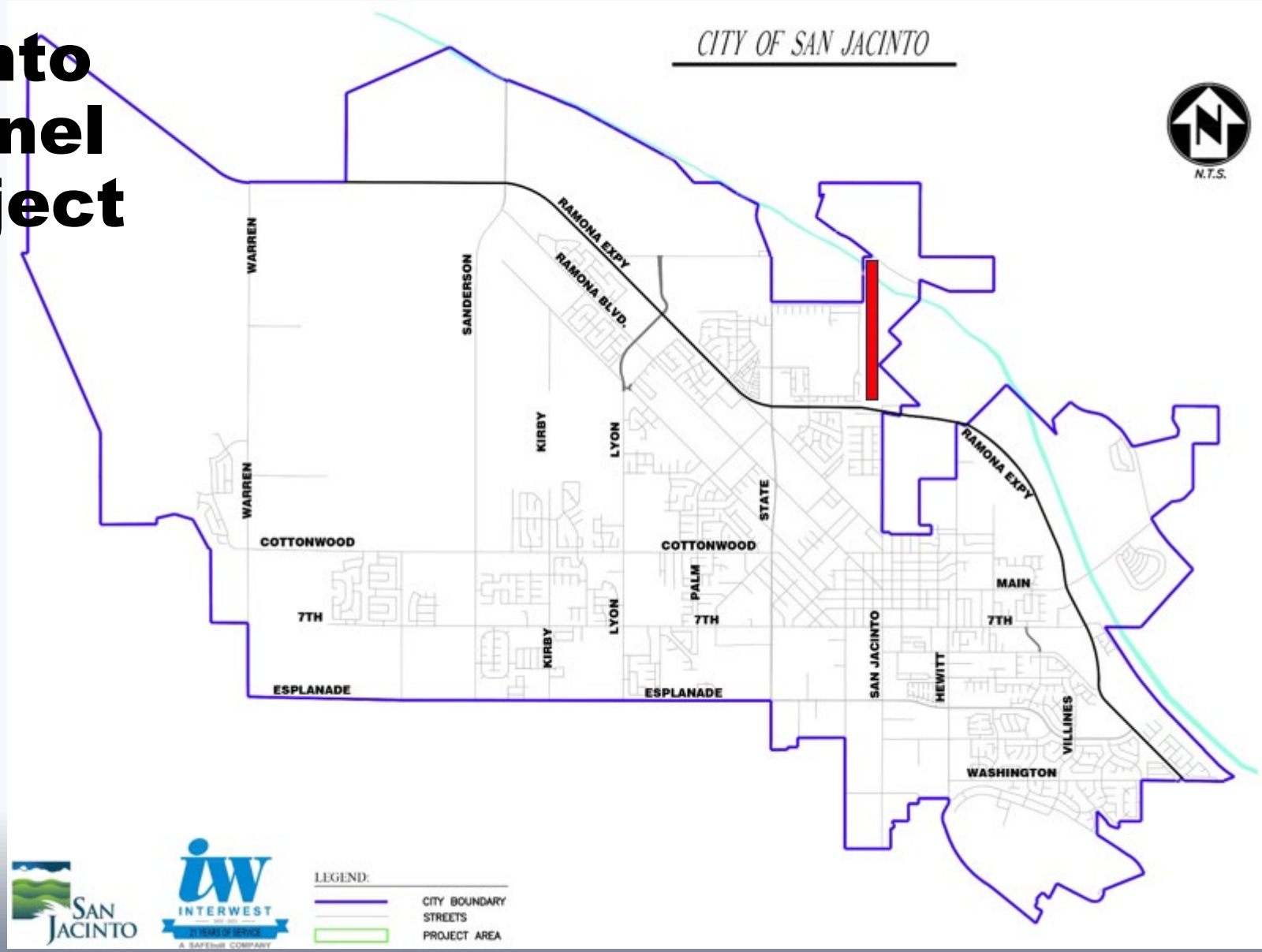
26-009 San Jacinto MDP Line E-4 Channel Improvement Project

- Budgeted Amount: $1,040,000
- Estimated Cost: $3,600,000
- Anticipated Completion: TBD
- Funding Source: RCFCD
  - City to request extra funds from Flood Control for expanded scope.



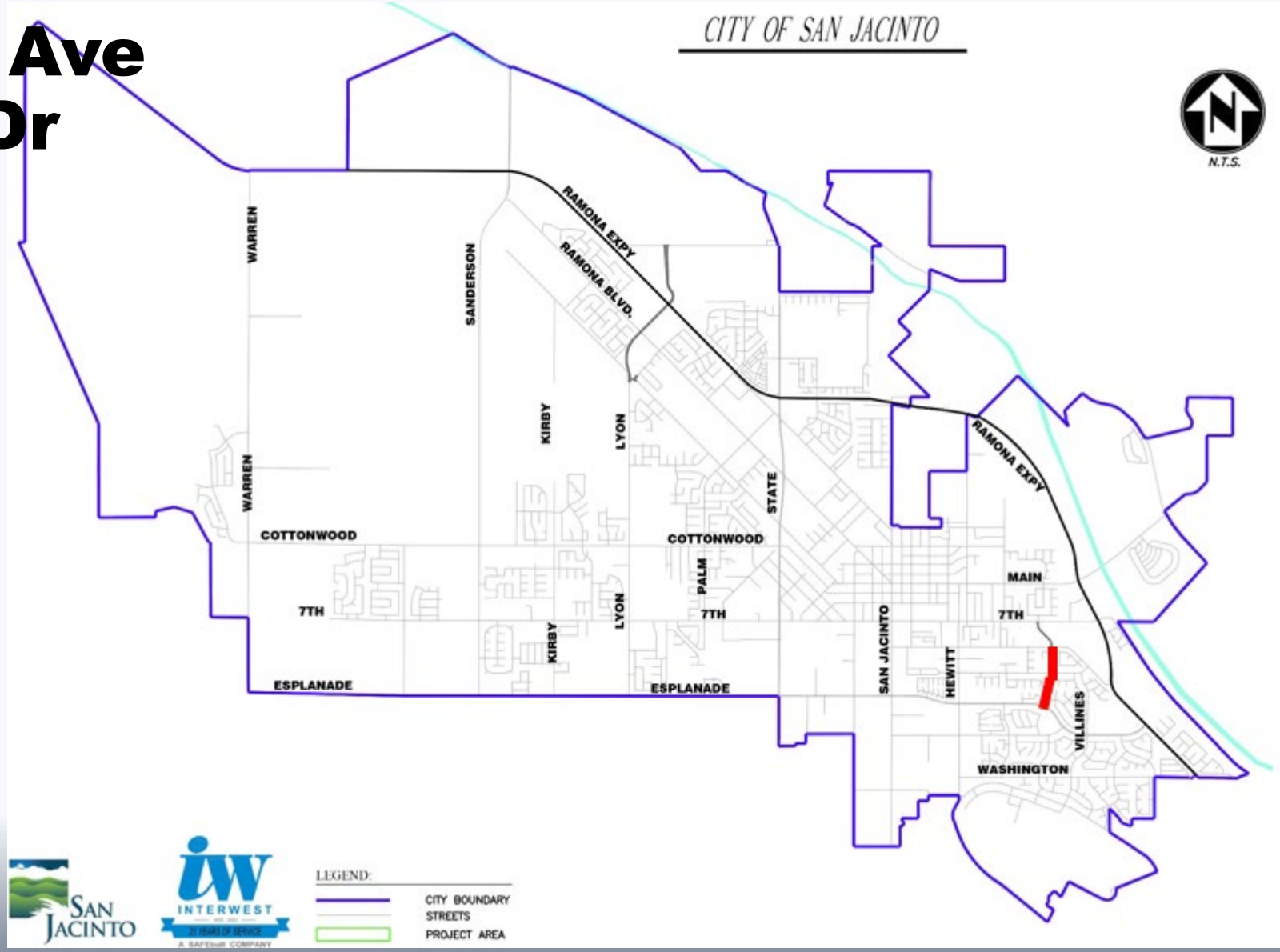
26-010 San Jacinto MDP Line J Channel Improvement Project

- Budgeted Amount: $4,040,000
- Estimated Cost: $4,038,000
- Anticipated Completion: TBD
- Funding Source: RCFCD



26-011 Esplanade Ave and Las Rosas Dr Improvements

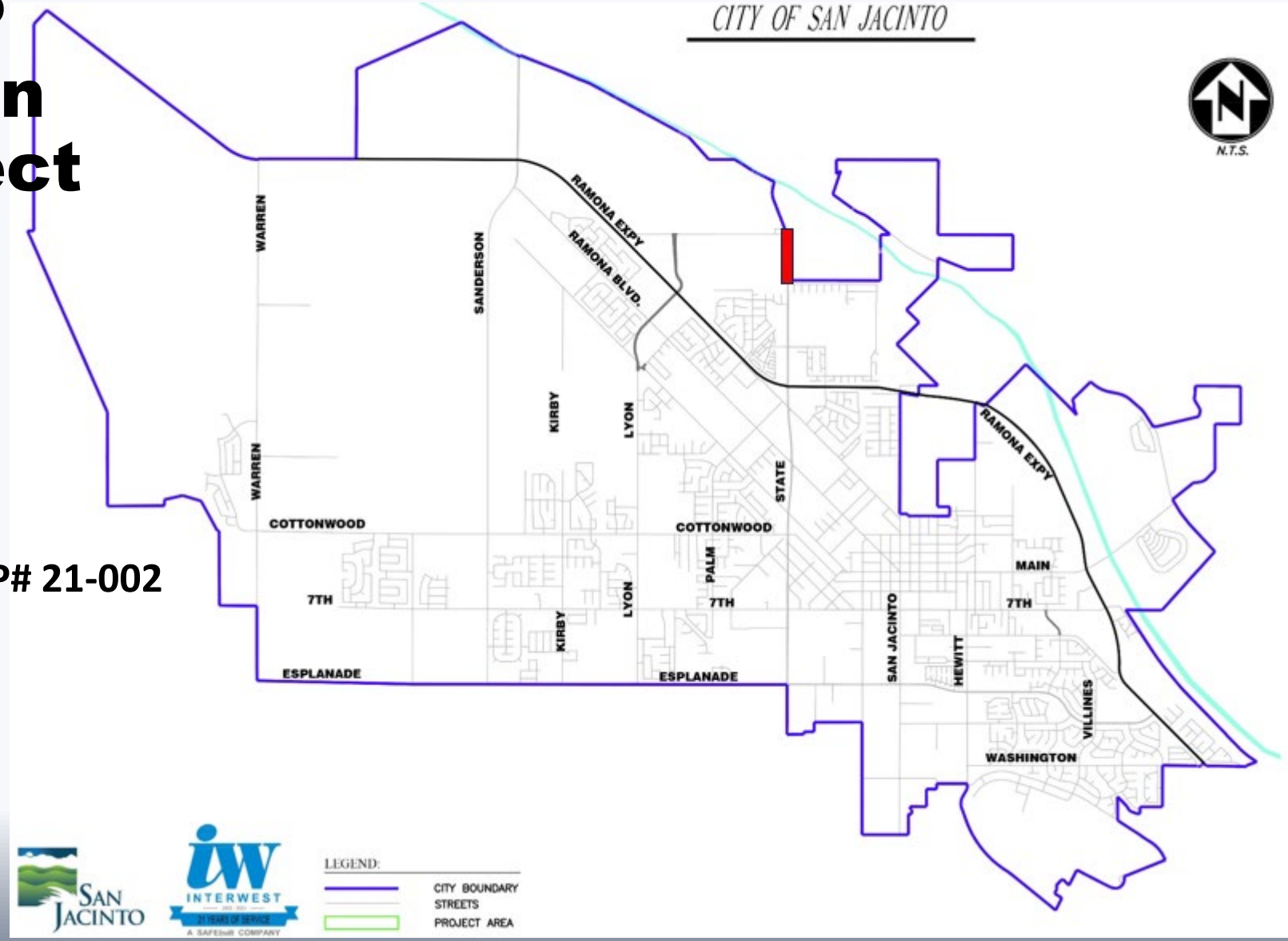
- Budgeted Amount: $751,000
- Estimated Cost: $752,000
- Anticipated Completion: Fall 2028
- Funding Source: RMRA



New CIP Projects

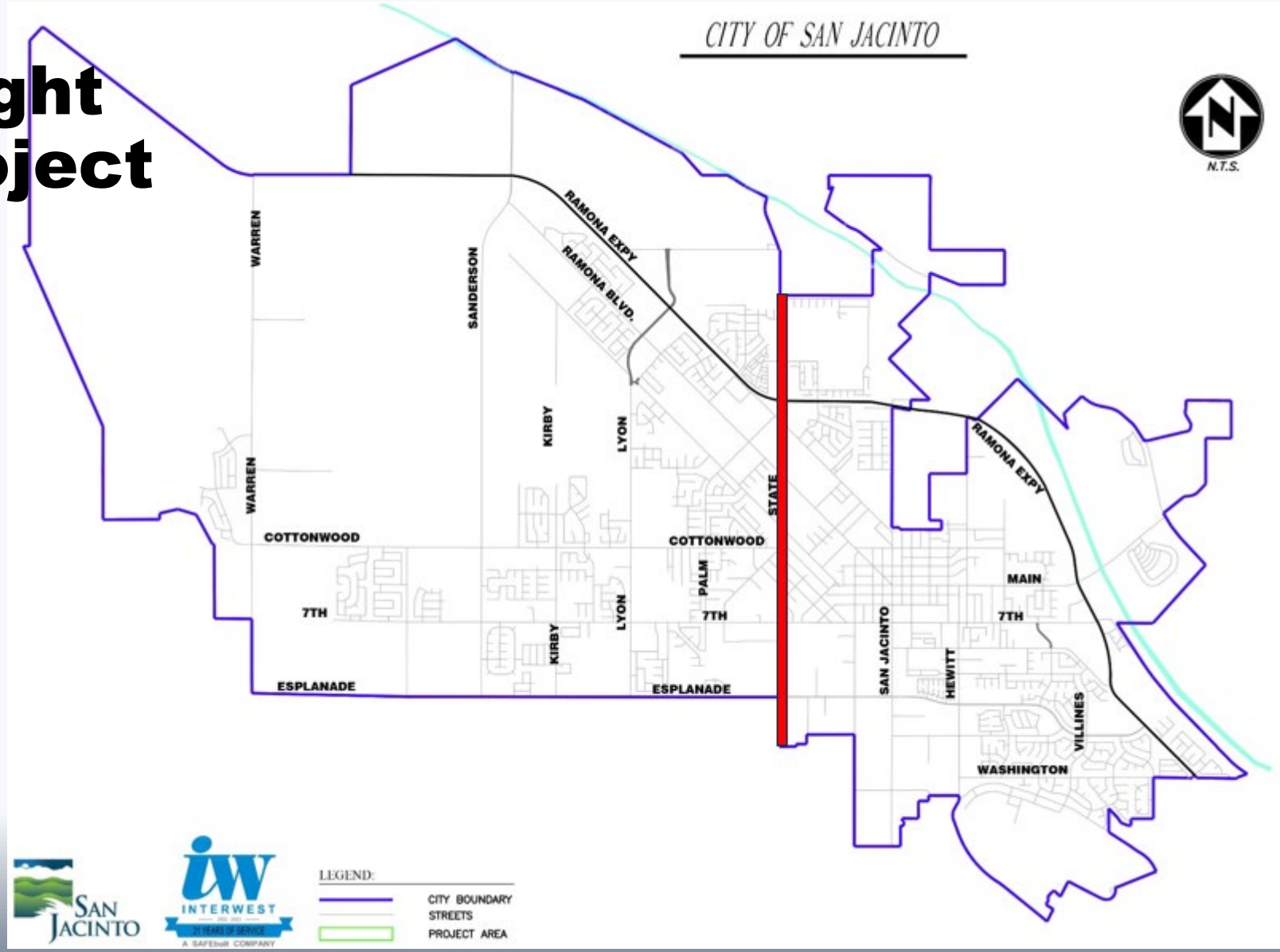
San Jacinto MDP Line H Storm Drain Improvement Project

- Budgeted Amount: $6,010,000
- Estimated Cost: $6,050,000
- Anticipated Completion: Fall 2027
- Funding Source: RCFCD
- Construction contract will include CIP# 21-002 State Street Widening Project



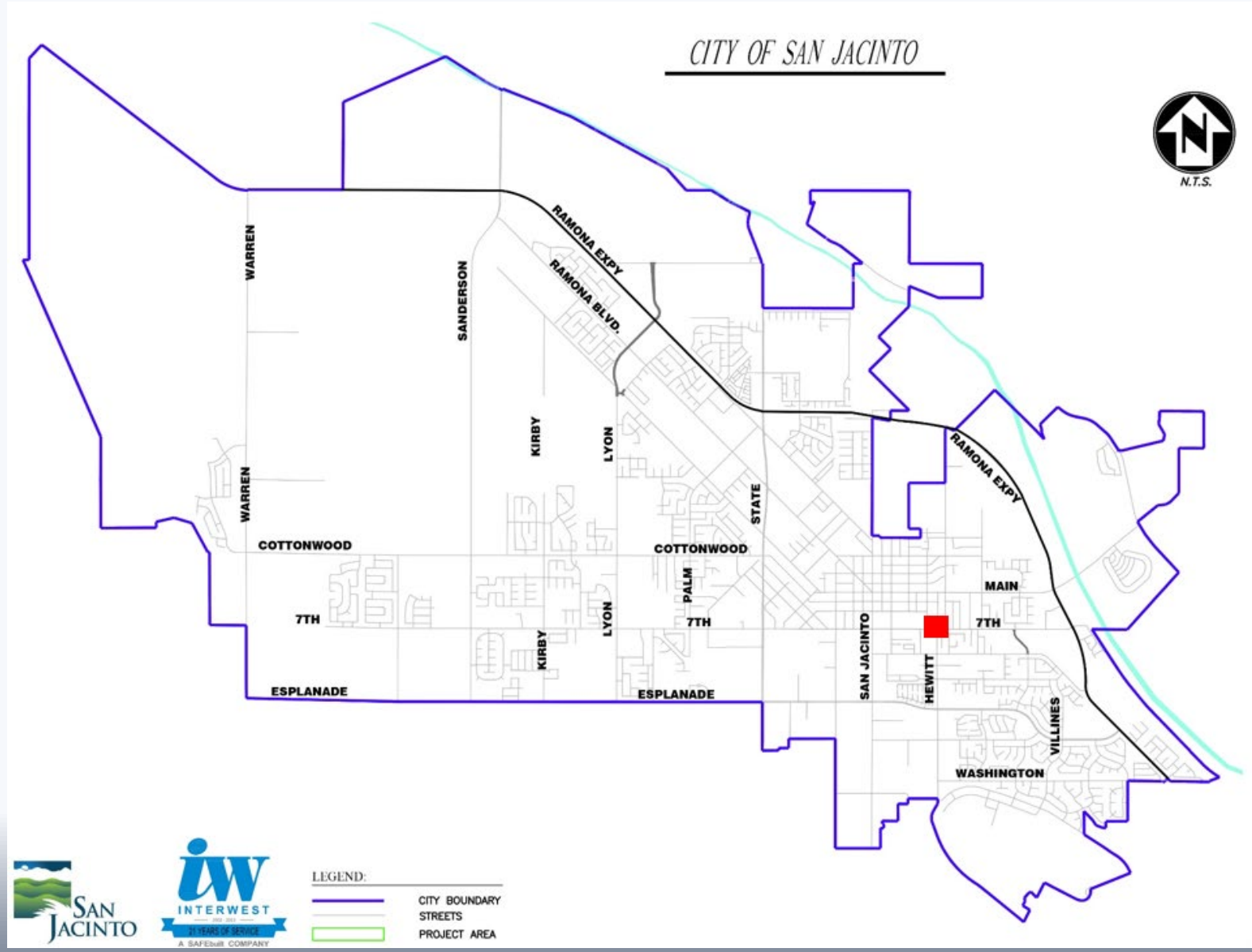
State St Streetlight Improvements Project

- Budgeted Amount: N/A
- Estimated Cost: $1,090,000
- Anticipated Completion: Fall 2028
- Funding Source: Need to identify funding sources.



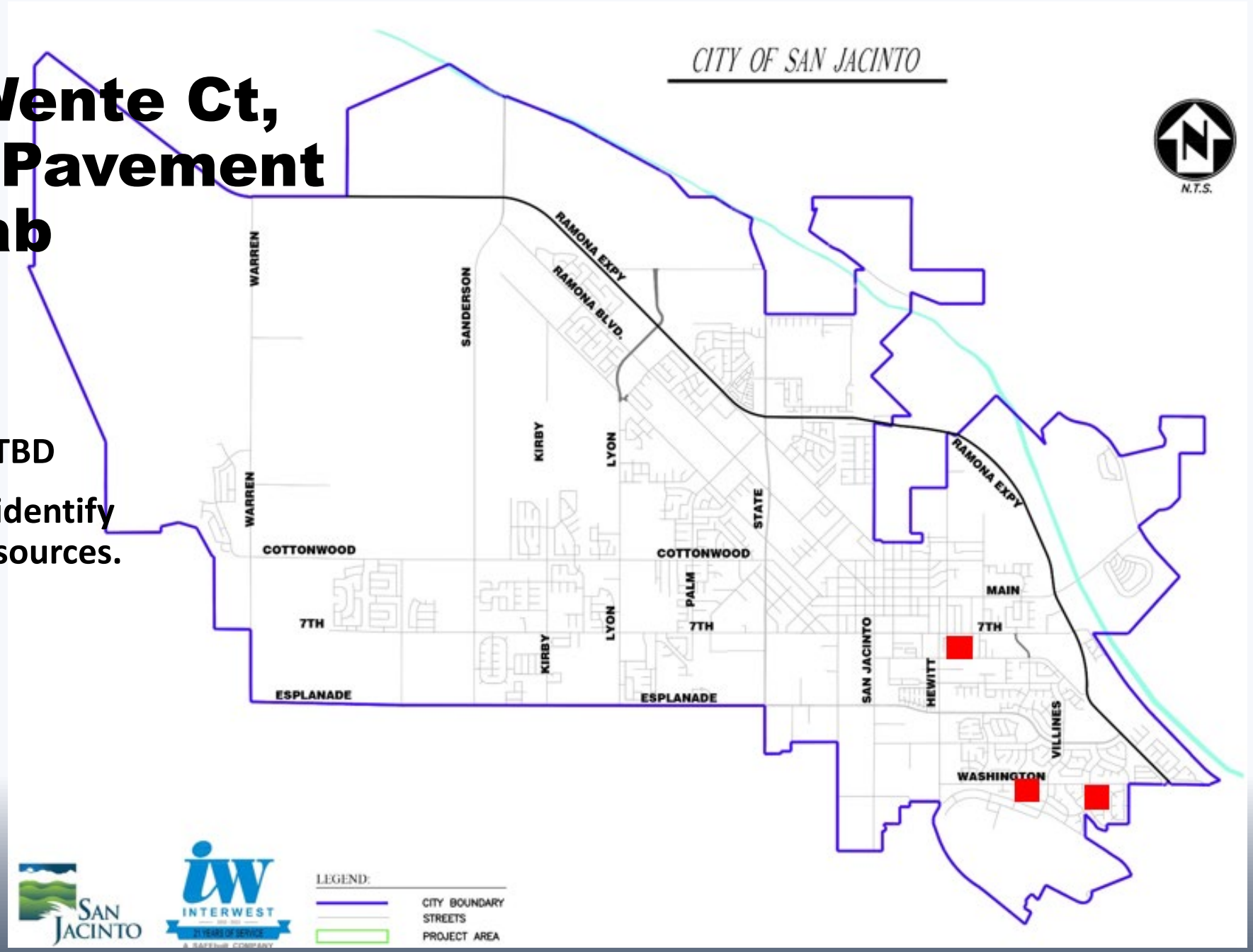
Hewitt St & 7th St Traffic Signal

- Budgeted Amount: $350,000
- Estimated Cost: $600,000
- Anticipated Completion: TBD
- Funding Source: Developer $350K



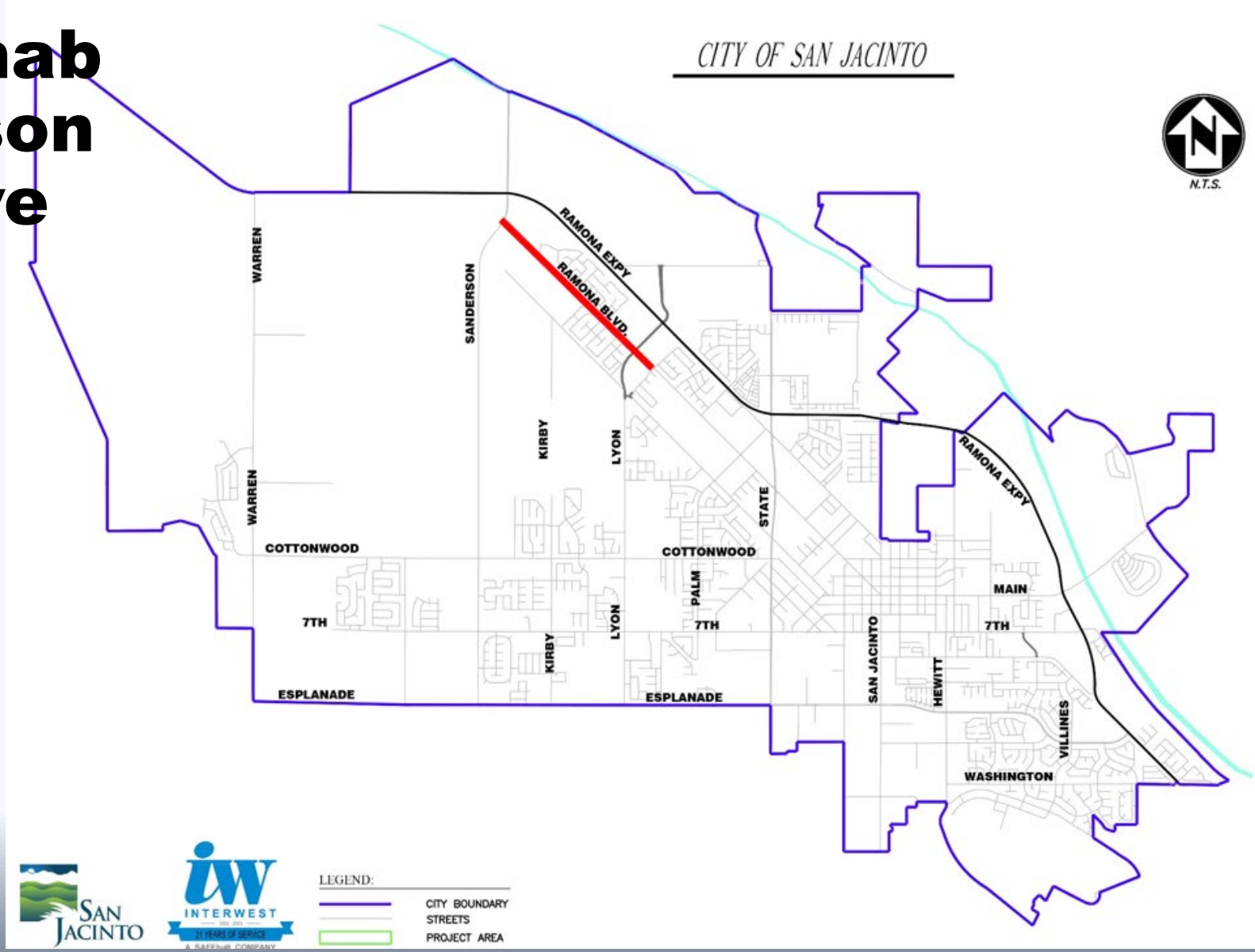
Kesha Ct, Wente Ct, and Napa Ct Pavement Rehab

- Budgeted Amount: N/A
- Estimated Cost: $630,000
- Anticipated Completion: TBD
- Funding Source: Need to identify funding sources.



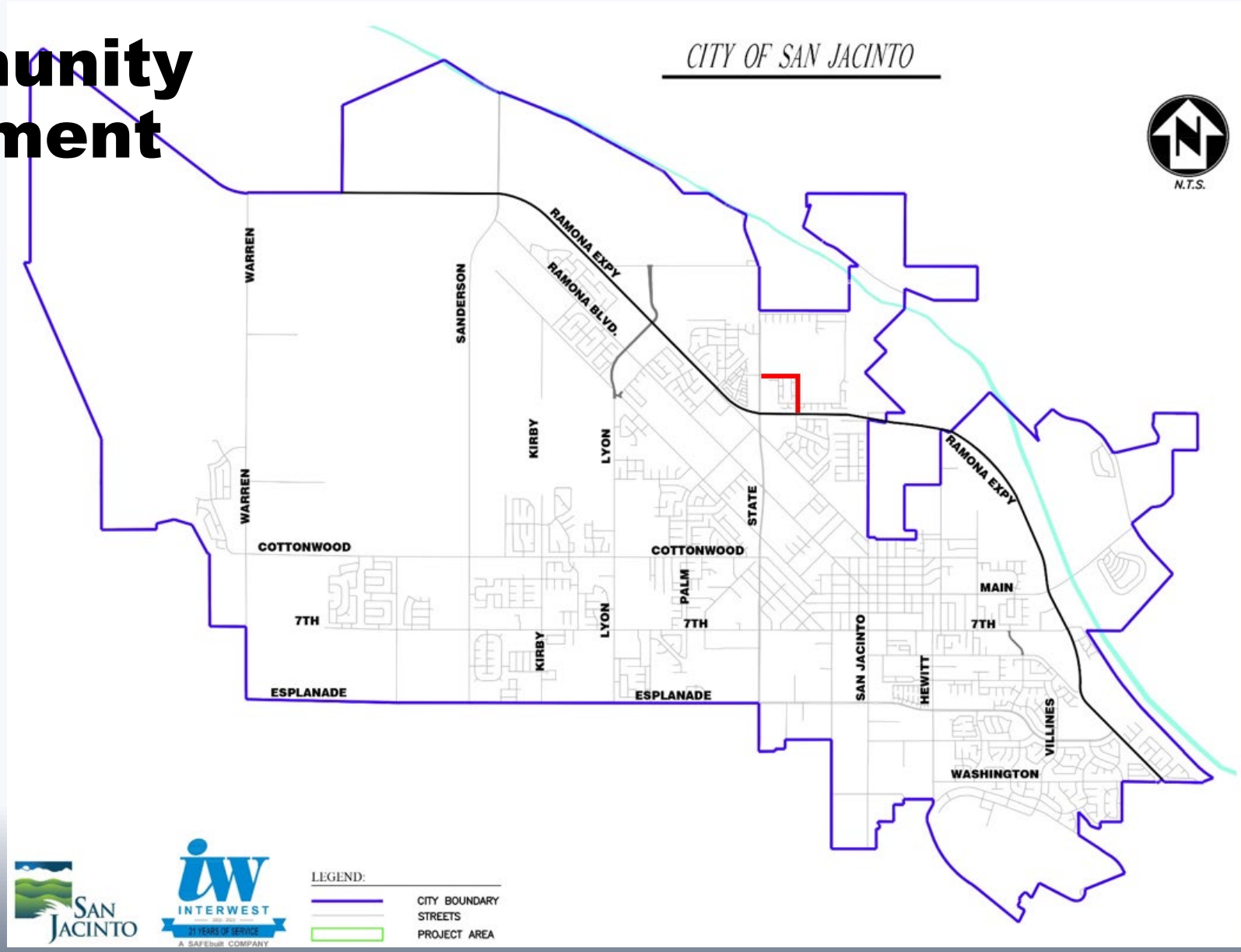
Ramona Expy Rehab Between Sanderson Ave and Lyon Ave

- Budgeted Amount: N/A
- Estimated Cost: $3,675,000
- Anticipated Completion: TBD
- Funding Source: Need to identify funding sources.



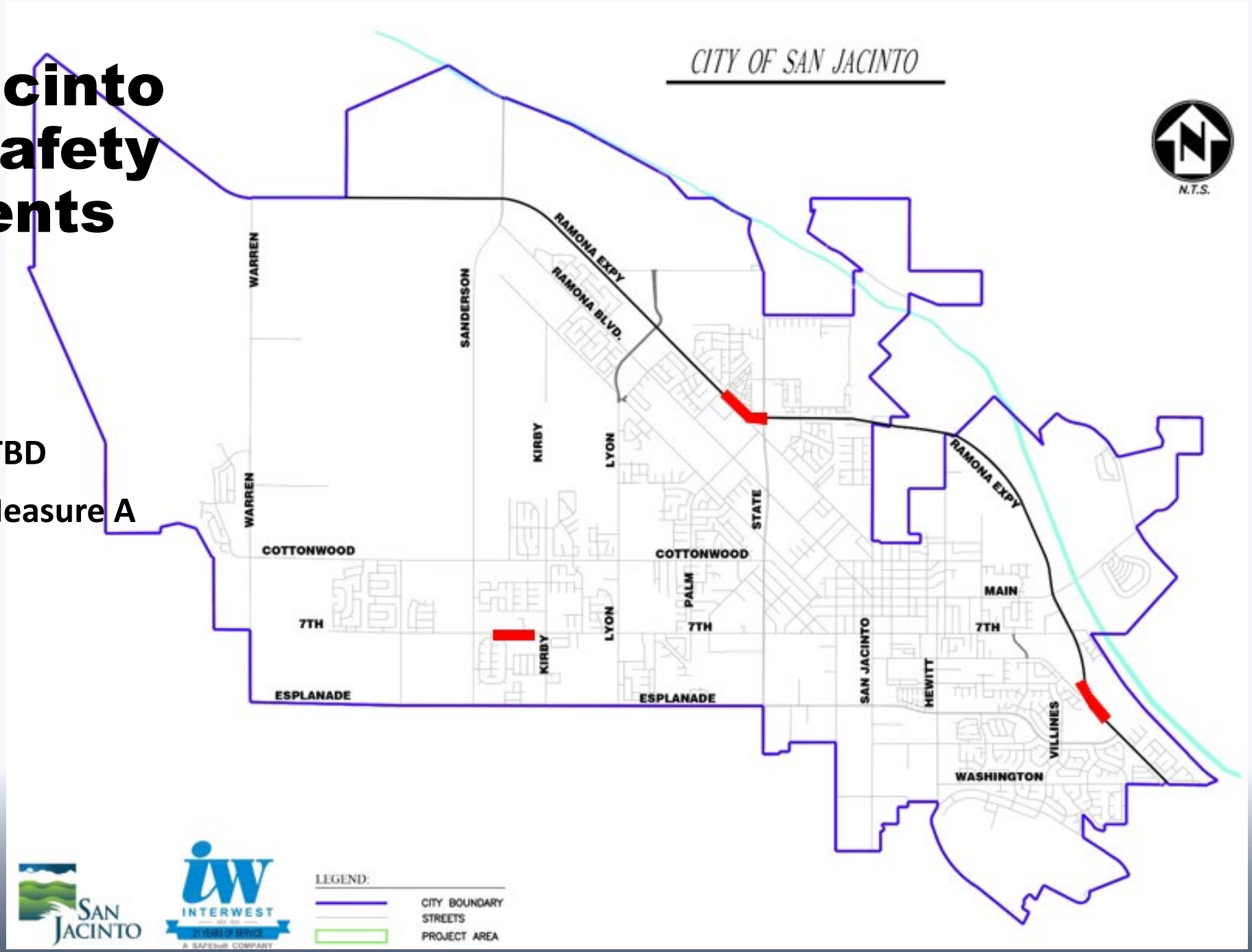
Eagle Road & Community College Drive Pavement Improvements

- Budgeted Amount: N/A
- Estimated Cost: $693,000
- Anticipated Completion: TBD
- Funding Source: RMRA



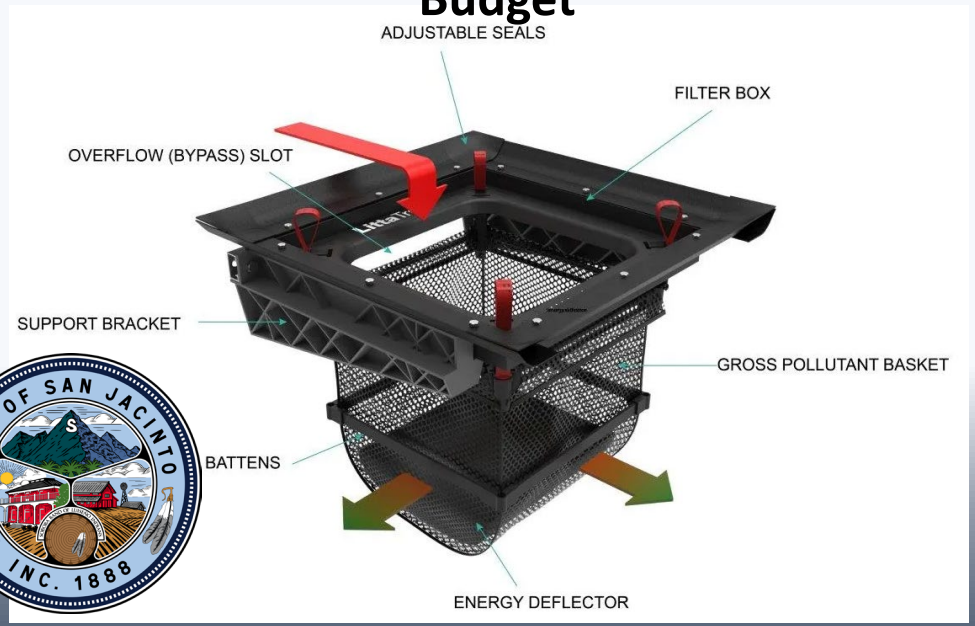
2026 San Jacinto Striping & Safety Improvements

- Budgeted Amount: N/A
- Estimated Cost: $400,000
- Anticipated Completion: TBD
- Funding Source: RMRA, Measure A



San Jacinto Catch Basin Retrofit Project

- **Budgeted Amount: N/A**
- **Estimated Cost: $321,000**
- **Anticipated Completion: TBD**
- **Funding Source: Public Utilities Budget**





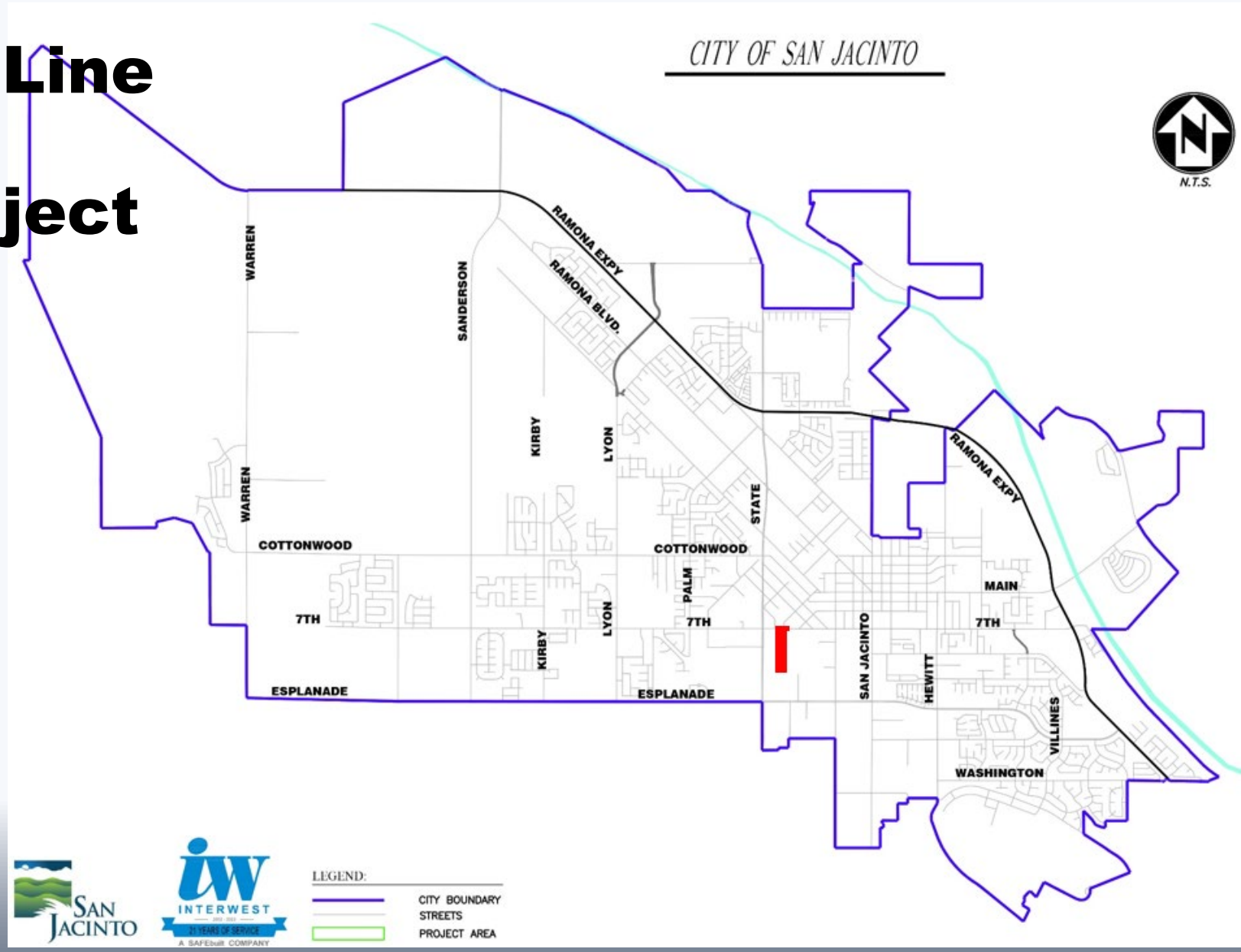






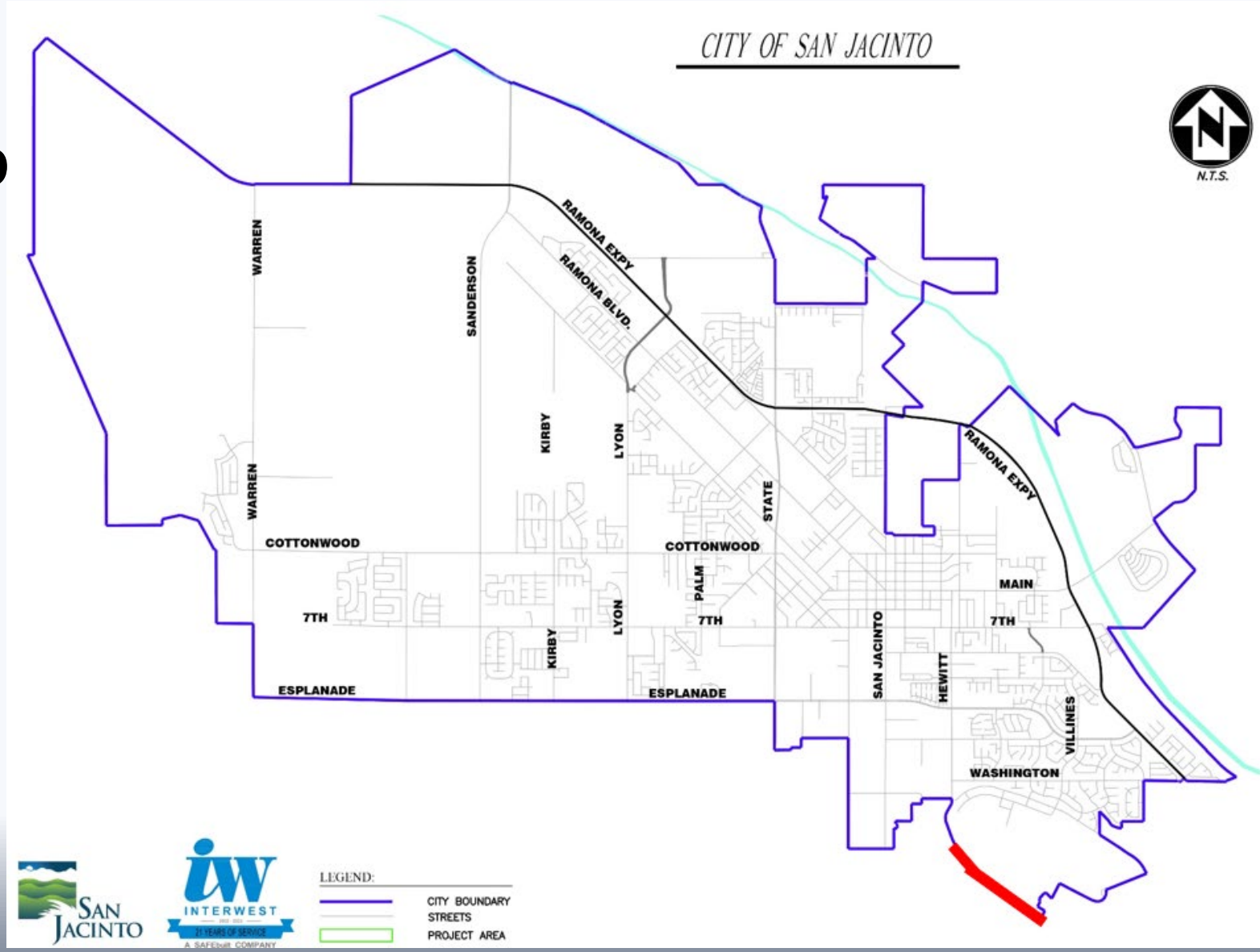
San Jacinto MDP Line E-1 Channel Improvement Project

- Budgeted Amount: N/A
- Estimated Cost: $372,000
- Anticipated Completion: TBD
- Funding Source: City will apply for RCFD funding.



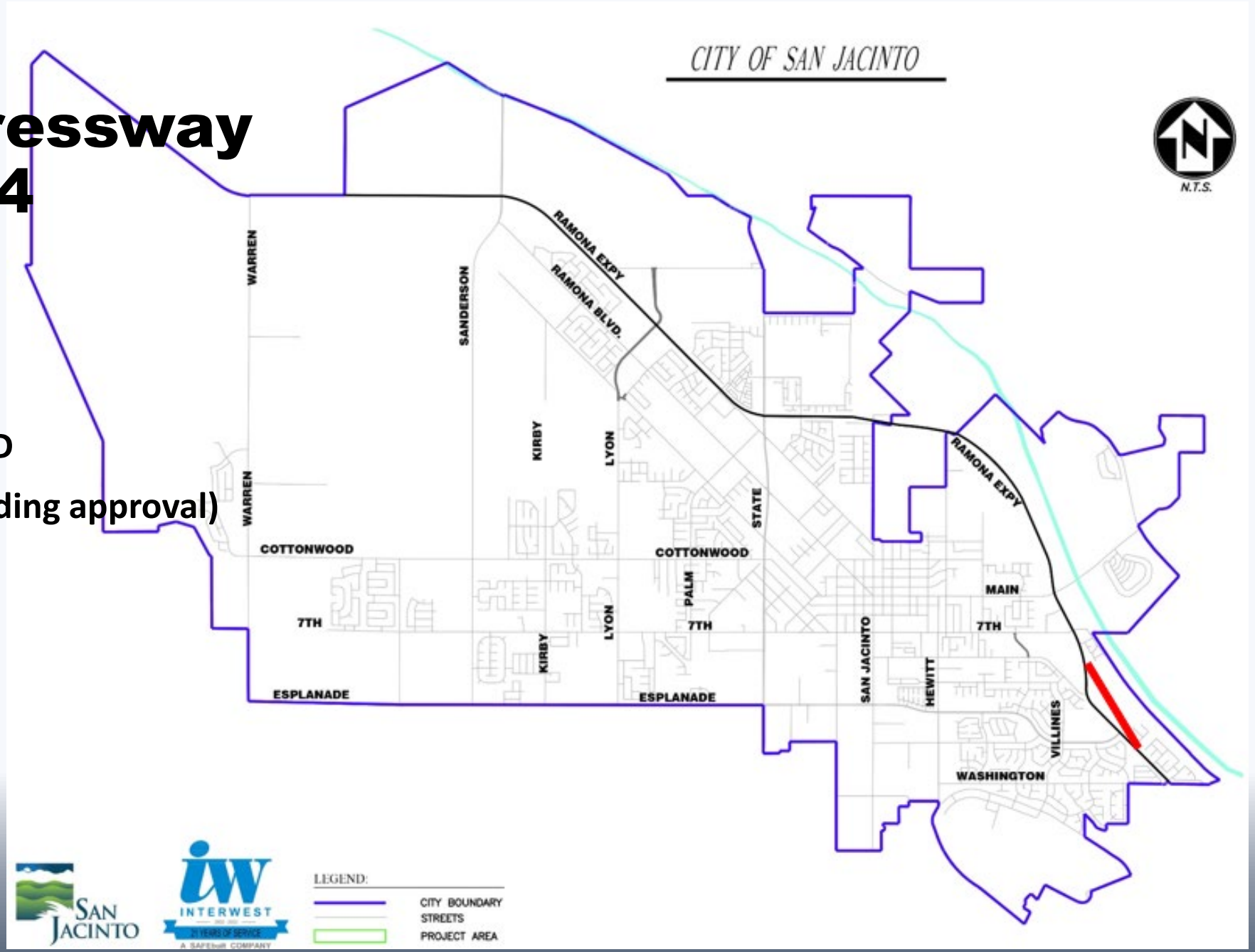
Park Avenue Pavement Rehab

- Budgeted Amount: N/A
- Estimated Cost: $734,000
- Anticipated Completion: TBD
- Funding Source: Need to identify funding sources.



Ramona Expressway Stage 4

- Budgeted Amount: N/A
- Estimated Cost: $1,000,000
- Anticipated Completion: TBD
- Funding Source: TUMF (pending approval)



Questions?

June 2, 2026

TO:	City Council
REQUESTED BY:	Stuart McKibbin
APPROVED BY:	Robert A. Johnson, City Manager
SUBJECT:	Revision to Line E of the San Jacinto Valley Master Drainage Plan

RECOMMENDATION:

Staff recommends the City Council:

1. **DETERMINE** that, in accordance with CEQA Guidelines Sections 15162 and 15164, that the proposed Addendum to the previously adopted Environmental Impact Report for the San Jacinto Valley Master Drainage Plan (MDP) adequately addresses the Revision to Line E of the MDP, and that no subsequent or supplemental environmental review is required because the revision to Line E would not result in new or more significant environmental impacts than those previously analyzed and no substantial changes in circumstances have occurred that would create new or more significant environmental impacts.
2. **APPROVE** the revision to Line E of the San Jacinto Valley Master Drainage Plan, in conformance with the Preliminary Design Report;
3. **DIRECT** Staff to revise the San Jacinto Valley Master Drainage Plan Map to reflect the modifications in the Preliminary Design Report.

DISCUSSION:

The Master Drainage Plan for the San Jacinto Valley (SJV-MDP) was adopted in October 2015 by the Board of Supervisors for the Riverside County Flood Control & Water Conservation District (RCFC&WCD). The SJV-MDP revised and replaced the San Jacinto Master Drainage Plan (SJMDP) and Northwest Hemet Master Drainage Plan (NW Hemet MDP) with a new master drainage plan for those areas plus additional areas to the west and north of the SJMDP and NW Hemet MDP. The boundaries of the SJV-MDP encompass approximately 27.4 square miles and are generally bounded by the San Jacinto River to the north, Meridian Street to the east, Florida Avenue to the south, and Warren Road to the west. The SJV-MDP includes land within the cities of San Jacinto and Hemet, in addition to unincorporated Riverside County.

Master Drainage Plans by their very nature, are living documents. They provide a baseline strategy that can be modified as areas build out. Such is the case with the SJV-MDP, which identifies, at a conceptual level, general alignments and locations of drainage facilities. Precise facility locations are dictated by conditions existing at the time each facility is designed. Likewise, the facility sizes identified in the SJV-MDP are preliminary.

An Environmental Impact Report (EIR) for the SJV- MDP and the San Jacinto Regional Area Drainage Plan (ADP) Amendment was certified by the San Jacinto City Council on January 14, 2013. The certified EIR analyzed the current alignment of MDP facilities (State Clearinghouse No. 2009041077).

On January 14, 2013, the San Jacinto City Council adopted Resolution No. 3454; certifying the SJV-MDP EIR, adopting the Mitigation Monitoring and Reporting Program (MMRP), and adopting a Statement of Overriding Considerations. That same date, the City Council also adopted Resolution No. 3455; adopting the San Jacinto Valley Master Drainage Plan, San Jacinto Regional Area Drainage Plan Amendment, and a revised interim drainage fee.

The SJV-MDP EIR provides a programmatic level analysis of the SJV-MDP and San Jacinto Valley Regional Area Drainage Plan Amendment (SJV-ADP Amendment) based on the conceptual location of the facilities identified in the SJV-MDP. Pursuant to Section 15168 of the State CEQA Guidelines, a program level environmental analysis enabled the City to examine the overall effects of implementing the SJV-MDP and SJV-ADP Amendment and approve that project. Following this approach, when individual SJV-MDP Facilities, also referred to as implementing projects, are proposed, the City, and/or RCFCWCD are required to examine each MDP Facility to determine if its effects were fully analyzed in the SJV-MDP EIR or if an additional facility-specific environmental document is required.

Line E is a planned regional drainage facility within the SJV-MDP that would provide a service to an approximately 1,870-acre tributary area. Construction of Line E does not remove properties from the 100-Year floodplain of the San Jacinto River. This will be accomplished by elevating them from the San Jacinto River Floodplain. Line E as identified in the SJV-MDP and evaluated in the SJV-MDP EIR is an earthen lined channel, extending upstream and north from the San Jacinto Reservoir west of Sanderson Avenue, turning west crossing Sanderson Avenue west continuing west parallel to and south of the Metropolitan Water District of Southern California's (Metropolitan's) Casa Loma Barrel No. 1 easement to SJV-MDP Line Z. The Line E-Y-Z Confluence Basin is identified in the SJV-MDP and evaluated in the SJV-MDP EIR as an unlined basin.

A Preliminary Design Report (PDR) and 30% long-axis plan were initiated for the construction of Line E. As the Project is within the jurisdiction of City of San Jacinto, Riverside County Flood Control & Water Conservation District, and impacts major existing or planned facilities operated by Eastern Municipal Water District ("EMWD"), Municipal Water District ("MWD"), and Riverside County Transportation Commission (RCTC), detailed coordination between all 5 agencies was required. During these meetings constraints were identified and an alternative alignment was identified during a process to avoid these constraints. Specifically, the proposed project alignment intentionally avoids the EMWD and MWD easements for pipelines located near the Project inlet, and, at the same time avoids the riparian habitat around the north side of the San Jacinto Reservoir. This has resulted in no hard connection between Line E and the San Jacinto Reservoir Spillway, as well as no hard connection between Line E and Line E-2. Maintenance access within private property has been considered and provided for in the Project. There is preliminary evidence of biological resources on the Chen Fei property (APN 436-010-003) located north of the proposed Golden Ocean Realty properties (APNs 436-030-001 and 436-170-001), as well as potentially environmentally sensitive areas along the south side of the Casa Loma Barrel No. 1 MWD right-of-way west of Sanderson Avenue, both of which the Project will avoid with the proposed design. The proposed Project also took into consideration several future projects planned by public agencies in the same area, such as RCTC and EMWD and was realigned to avoid conflicts with major sewer infrastructure located where the MDP planned a crossing of Sanderson Avenue near the De Anza Lift Station. Furthermore, the property, right-of-way acquisition is simplified and better controlled with the proposed alignment.

From upstream to downstream, the proposed Line E Channel begins north (downstream) of the San Jacinto Reservoir Spillway and north of Metropolitan's Casa Loma Barrel No. 2 easement, continuing north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue through an agricultural parcel (APN 436-030-004), turning west underneath Sanderson Avenue through APN 436-010-003 and turning north, then west before future Record Road through APNs 432-030-010, 432-030-012, and 432-030-006 to the proposed Confluence Basin. The outflows from the proposed Confluence Basin would be conveyed northerly across Metropolitan's Casa Loma Barrel No. 1 and outflow at the terminus of Line E to an existing low-flow drainage channel that would, at some point in the future, be constructed as an ultimate MDP facility ("Line Z"), but is currently in interim condition.

As part of the design of the proposed Project, multiple meetings were conducted to solicit input on the proposed design. In addition, the alignment, hydraulics, and hydrology for the Project underwent two rounds of review with RCFC&WCD prior to the final PDR; the first in October of 2023 and second in December of 2023. RCFC&WCD reviewed the full PDR in February of 2024. An additional review was completed in April of 2024. A maintenance, revised alignment, and hydraulics review was completed by RCFC&WCD in October of 2024.

There have been 2 reviews conducted by MWD. The first in November of 2024, where MWD reviewed the PDR, Geotechnical Report, and Structural Report and the second in February of 2025, with MWD approval on March 3, 2025.

Because the Line E Channel would be a regional flood control facility pursuant to the adopted SJV-MDP, the RCFC&WCD would need to be able to maintain the Line E Channel and corresponding access roads throughout the life of the facility. Specifically, RCFC&WCD would maintain the training berms and inlet line and grade via a drainage easement and slope easement for the portion of the Line E channel, plus access roads, RCBs and drop structures, located within right-of-way that would be owned by RCFC&WCD within APNs 436-170-001, 436-030-004, 436-010-003, and 430-100-016. RCFC&WCD would maintain the portion of Line E, that crosses over the Casa Loma Barrel No. 1 and Metropolitan right-of-way via a maintenance easement. Alignment of the Line E Channel through private property will require dedication from applicable property owners as a condition of development, consent of applicable property owners, or formal acquisition,

The City of San Jacinto would maintain the Confluence Basin and pump, and the segment of the Line E Channel with 15-foot access roads within APNs 432-030-011, 432-030-012 and 432-030-010.

The result of the proposed Project meets the objective to remove flooding risk to the area from the upstream tributary area, and Line E conveys the modeled 100-Year flow rates within the design parameters required by RCFC&WCD.

ENVIRONMENTAL REVIEW:

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000–21177), the City of San Jacinto (hereinafter “San Jacinto” or “the City”), as Lead Agency, the City of Hemet and Riverside County Flood Control and Water Conservation District, as Responsible Agencies, prepared the SJV-MDP EIR (State Clearinghouse No. 200904177). The SJV-MDP EIR was circulated for a 30-day public review period from May 17, 2010 to June 30, 2010, pursuant to State CEQA Guidelines Section 15073. On January 14, 2013, the San Jacinto City Council adopted Resolution No. 3454; certifying the SJV-MDP EIR, adopting the Mitigation Monitoring and Reporting Program (MMRP), and adopting a Statement of Overriding Considerations. That same date, the City Council also adopted Resolution No. 3455; adopting the San Jacinto Valley Master Drainage Plan, San Jacinto Regional Area Drainage Plan Amendment, and a revised interim drainage fee.

On October 6, 2015, Riverside County Flood Control and Water Conservation District Board of Supervisors, as Responsible Agency, adopted Resolution F2015-06 which, considered the SJV-MDP EIR certified by the City, made Responsible Agency Findings, adopted the City’s MMRP, and adopted a Statement of Overriding Considerations. This resolution also rescinded the San Jacinto Area Master Drainage Plan and the Northwest Hemet Master Drainage Plan, and approved the SJV-MDP.

The SJV-MDP EIR provides a programmatic level analysis of the SJV-MDP and San Jacinto Valley Regional Area Drainage Plan Amendment (SJV-ADP Amendment) based on the conceptual location of the facilities identified in the SJV-MDP. Pursuant to Section 15168 of the State CEQA Guidelines, a program level environmental analysis enabled the City to examine the overall effects of implementing the SJV-MDP and SJV-ADP Amendment and approve that project. Following this approach, when individual SJV-MDP Facilities, also referred to as implementing projects or MDP Facilities. are proposed, the City, Hemet, and/or RCFCWCD are required to examine each MDP Facility to determine if its effects were fully analyzed in the SJV-MDP EIR or if an additional facility-specific environmental document, such as a Notice of Exemption (NOE), Addendum, Initial Study leading to a Negative Declaration or Mitigated Negative Declaration, Supplemental EIR, or Subsequent EIR is required. (SJV-MDP EIR, p. 1.0-7.)

The process for preparing an Addendum to a previously certified EIR is set forth in State CEQA Guidelines Section 15164. Addendum No. 1 to the SJV MDP EIR is included as Appendix A to the Staff Report. Based on the Findings included in Section 3 of the Addendum, the City has reviewed the Line E Project design report in light of the requirements defined under the State CEQA Guidelines using the Supplemental Environmental Checklist Form in Section 4 of the Addendum. The City, as the CEQA lead agency, has determined that none of the above conditions requiring preparation of a subsequent or supplemental MND or EIR apply. Therefore, an Addendum to the San Jacinto Master Drainage Plan (MDP) EIR is the appropriate environmental documentation for the Line E Project.

ATTACHMENTS:

Final SJV MDP Line E EIR Addendum - May 2026

Appendix A.1 - Structures Report

Appendix A.2 Graft Geotechnical Investigation

Appendix B - Long Axis Plan

Appendix C - CalEEMod Output

Appendix D.1 - Biological Technical Report (no appendices)

Appendix D.2 - DBESP Analysis

Appendix D.2.1 - Line E DEBSP Approval Email 4-27-2026

Appendix D.3 - CBB Survey Results Report

Appendix E - Cultural Resources Report

Appendix F - Paleontological Resources Assessment

Appendix G - Energy Tables

Appendix H.1 - Phase I ESA

Appendix H.2 - Phase II ESA

FINAL PDR REPORT MDP LINE E 5-2025

Attachments

Final SJV MDP Line E EIR Addendum - May 2026.pdf
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Appendix D.2.1 - Line E DEBSP Approval Email 4-27-2026.pdf
Appendix D.3 - CBB Survey Results Report.pdf
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Appendix F - Paleontological Resources Assessment.pdf
Appendix G - Energy Tables.pdf
Appendix H.1 - Phase I ESA.pdf
Appendix H.2 - Phase II ESA.pdf
FINAL PDR REPORT MDP LINE E 5-2025.pdf

Addendum No.1
to the
Environmental Impact Report
for the
San Jacinto Valley Master Drainage Plan and San Jacinto Regional Area Drainage Plan Amendment (SCH # 2009041077)

for the

San Jacinto Valley Master Drainage Plan Line E Project

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May 2026

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Acronyms and Abbreviations

Acronyms	Abbreviations
AB	Assembly Bill
AE	Applied Earthworks
ACOE	U.S Army Corps of Engineers
AMSL	Above Mean Sea Level
APE	Area of Potential Effect
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BMP	Best Management Practices
BTR	Biological Technical Report
CAPSSA	Criteria Area Plant Species Survey Area
CARB	California Air Resources Board
CBB	Crotch's bumble bee
CCR	California Code of Regulations
CDFG	California Porter-Cologne Act
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CG	Commercial General
CGP	Construction General Permit
CIDH	Cast-in-drilled-hole
CNDDB	California Natural Diversity Data Base
CRS	Cultural Resources Study
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
CRHR	California Register of Historical Resources
EDR	Environmental Data Resources, Inc
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EPA	California Environmental Protection Agency
ESAs	Environmental Site Assessments
FEMA	Federal Emergency Management Agency
GHG	Greenhouse Gases
HSJ	Hemet-San Jacinto
HMMP	Habitat Mitigation and Monitoring Plan
HSC	State Health and Safety Code
ITP	Incidental Take Permit
LAPM	Los Angeles pocket mouse
LBV	Least Bell's vireo
LST	Localized Significance Thresholds
MMRP	Mitigation Monitoring and Reporting Program
MOU	Memorandum of Understanding
MRZ	Mineral Resource Zone
MSHCP	Western Riverside Multiple Species Habitat Conservation Plan
MWD or Metropolitan	The Metropolitan Water District of Southern California
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan

Acronyms and Abbreviations

Acronyms	Abbreviations
NEPSSA	Narrow Endemic Plants Species Survey Area
NHMLAC	Natural History Museum of Los Angeles County
NOE	Notice of Exemption
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NW Hemet MDP	Northwest Hemet Master Drainage Plan
OHWM	Ordinary high water mark
OP	Office Park
PBDB	Paleobiology Database
PDR	Preliminary Design Report
PRC	Public Resources Code
PRMMP	Paleontological Resources Mitigation Monitoring Plan
RCA	Regional Conservation Authority
RCB	Reinforced concrete box
RCFCWCD	Riverside County Flood Control and Water Conservation District
RCTC	Riverside County Transportation Commission
RL	Residential – Low Density
RM	Residential Medium
ROW	Right-of-way
RWQCB	Regional Water Quality Control Board
SBKR	San Bernardino kangaroo rat
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SHPO	State Historic Preservation Officer
SJDC	San Jacinto Development Code
SJFZ	San Jacinto Fault Zone
SJMDP	San Jacinto Master Drainage Plan
SJV-ADP	San Jacinto Valley Regional Area Drainage Plan Amendment
SJV-MDP	San Jacinto Valley Master Drainage Plan
SKR HCP	Stephens' Kangaroo Rat Habitat Conservation Plan
SLF	Sacred Lands File
SP	Specific Plan
SRA	Source Receptor Area
SWPPP	Storm Water Pollution Prevention Plan
TDA	Treatment and Disposition Agreement
UCMP	University of California Museum of Paleontology
USFWS	United States Fish and Wildlife Service
VMT	Vehicle miles traveled
WBWG	Western Bat Working Group
WEAP	Worker Environmental Awareness Program
WDR	Waste Discharge Permit
WSC	Western Science Center
WQMP	Water Quality Management Plan
WWTP	Wastewater Treatment Plant

Units of Measurement and Chemical Symbols

Unit/Symbol	Measurement
CH4	Methane
CO	Carbon monoxide
CO2E	carbon dioxide equivalent
CY	Cubic yards
hp	horsepower
kW	kilowatt
MTCO2E	metric tonnes of carbon dioxide equivalents
NOX	Oxides of nitrogen
N2O	Nitrous Oxide
PM-10	Particulate matter 2.5 to 10 microns in diameter
PM-2.5	Particulate matter 2.5 microns or less in diameter

1. Introduction and Background

Addendum No. 1 to the EIR for the San Jacinto Valley Master Drainage Plan and San Jacinto Regional Area Drainage Plan Amendment for the Line E Project analyzes the impacts associated with construction and operation of two of the facilities identified in the San Jacinto Valley Master Drainage Plan (SJV-MDP), Line E and the Line E-Y-Z Confluence Basin, which are hereinafter collectively referred to as the "Line E Project" or "Project" in this Addendum. A full description of the proposed Line E Project is provided in Section 2, Project Description and Setting. The following paragraphs describe the approvals of the San Jacinto Valley Master Drainage Plan and San Jacinto Regional Area Drainage Plan Amendment EIR (hereinafter "SJV-MDP EIR.")

Previous Environmental Document

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000–21177), the City of San Jacinto (hereinafter "San Jacinto" or "the City"), as Lead Agency, the City of Hemet and Riverside County Flood Control and Water Conservation District, as Responsible Agencies, prepared the SJV-MDP EIR (State Clearinghouse No. 200904177). The SJV-MDP EIR was circulated for a 30-day public review period from May 17, 2010 to June 30, 2010, pursuant to State CEQA Guidelines Section 15073. On January 14, 2013, the San Jacinto City Council adopted Resolution No. 3454; certifying the SJV-MDP EIR, adopting the Mitigation Monitoring and Reporting Program (MMRP), and adopting a Statement of Overriding Considerations. That same date, the City Council also adopted Resolution No. 3455; adopting the San Jacinto Valley Master Drainage Plan, San Jacinto Regional Area Drainage Plan Amendment, and a revised interim drainage fee. The SJV-MDP EIR and MMRP are available for review at the following locations:

City of San Jacinto 595 S. San Jacinto Ave., San Jacinto, CA 92583	Riverside County Flood Control and Water Conservation District 1995 Market St. Riverside, CA 92501

On October 6, 2015, Riverside County Flood Control and Water Conservation District Board of Supervisors, as Responsible Agency, adopted Resolution F2015-06 which, considered the SJV-MDP EIR certified by the City, made Responsible Agency Findings, adopted the City's MMRP, and adopted a Statement of Overriding Considerations. This resolution also rescinded the San Jacinto Area Master Drainage Plan and the Northwest Hemet Master Drainage Plan, and approved the SJV-MDP.

The SJV-MDP EIR provides a programmatic level analysis of the SJV-MDP and San Jacinto Valley Regional Area Drainage Plan Amendment (SJV-ADP Amendment) based on the conceptual location of the facilities identified in the SJV-MDP. Pursuant to Section 15168 of the State CEQA Guidelines, a program level environmental analysis enabled the City to examine the overall effects of implementing the SJV-MDP and SJV-ADP Amendment and approve that project. Following this approach, when individual SJV-MDP Facilities, also referred to as implementing projects or MDP Facilities. are proposed, the City, Hemet, and/or RCFCWCD are required to examine each MDP Facility to determine if its effects were fully analyzed in the SJV-MDP EIR or if an additional facility-specific environmental document, such as a Notice of Exemption (NOE), Addendum, Initial Study leading to a Negative Declaration or Mitigated Negative Declaration, Supplemental EIR, or Subsequent EIR is required. (SJV-MDP EIR, p. 1.0-7.)

The SJV-MDP EIR identified the following impacts as significant and unavoidable: agricultural resources, air quality, and population/housing. Impacts to agricultural resources were determined to be significant and unavoidable because implementation of the SJV-MDP could support and encourage planned development per the San Jacinto, Riverside County, and Hemet General Plans within the boundaries of

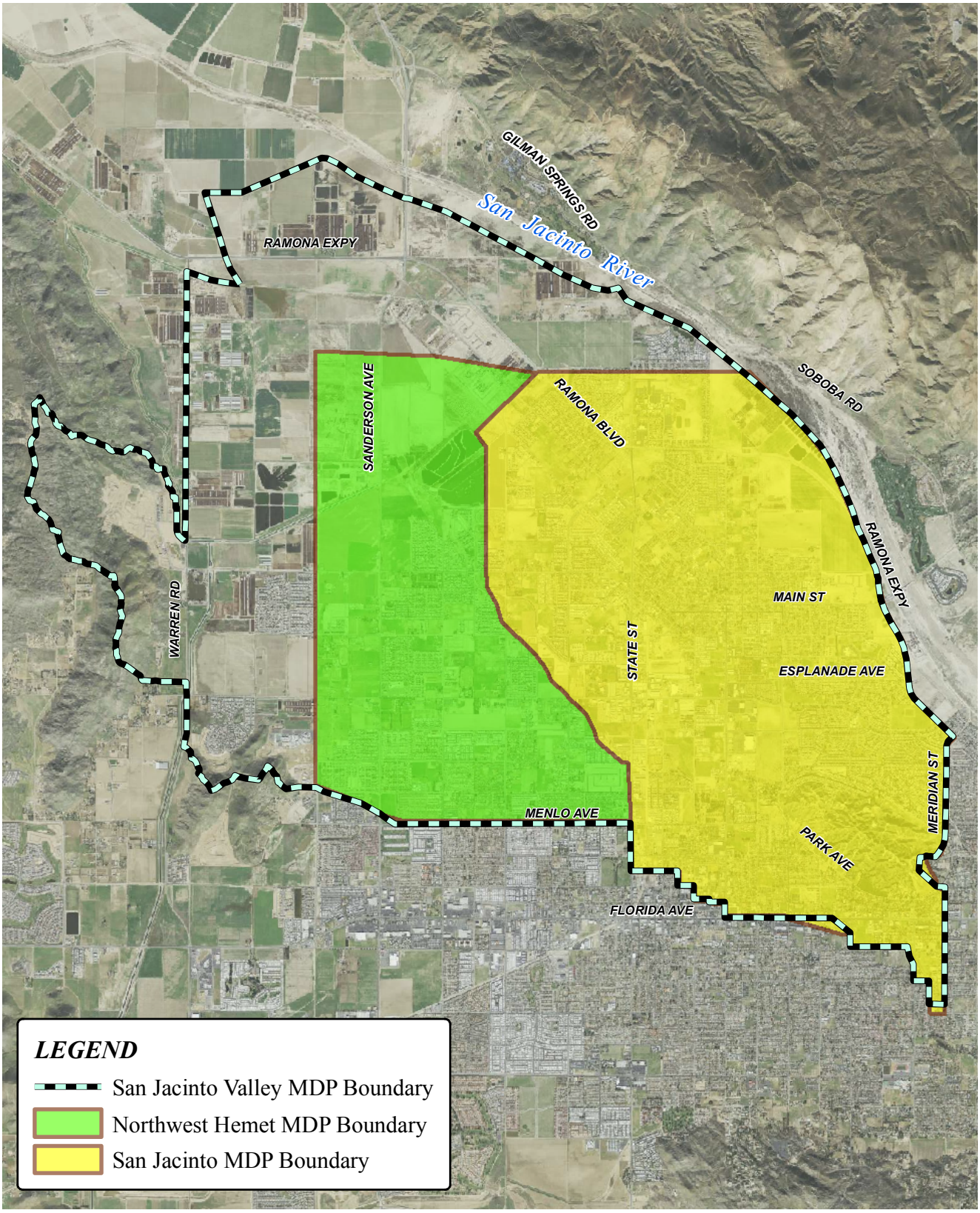
the SJV-MDP. Based on the conceptual locations of MDP facilities, construction of the Line D Basin, which is anticipated to encompass approximately 15 acres, in addition to the open channels designated as Lines 1, 2, E, G-3, H, J-3, K, W, and X, which are anticipated to encompass approximately 122 acres would result in the direct conversion of approximately 137 acres of Important Farmland to a non-agricultural use by converting the property to flood control facilities. All of these facilities are within the City of San Jacinto except a small portion of Line 1, a portion of Line 2, most of Line J-3, and Line K, which were in unincorporated Riverside County at the time the SJV-MDP EIR was prepared. Implementation of the SJV-MDP would also facilitate development consistent with the San Jacinto, Riverside County, and Hemet General Plans, which could indirectly convert Important Farmland to non-agricultural uses. (SJV-MDP EIR, pp. 3.2-12 – 3.12-13, 5.0-18.)

Impacts to air quality resulting from implementation of the SJV-MDP were determined to be significant and unavoidable because depending on the facility or combination of MDP facilities constructed at any given time, SCAQMD regional significance thresholds for NOx, PM-10, and PM-2.5 and SCAQMD LSTs for PM-10 and PM-2.5 could be exceeded during construction. Although these are direct, short-term impacts that will cease once construction is complete, they remain unavoidable and are unmitigable because neither the City, Riverside County, or Hemet can control the number of facilities constructed at a given time. (SJV-MDP EIR, pp. 3.3-42 – 3.3-43,5.10-18.)

Regarding impacts to population/housing, the SJV-MDP could indirectly induce growth by removing one potential barrier to growth through the provision of flood control infrastructure. The Hemet, San Jacinto, and Riverside County General Plans identify the type of development and growth that would be allowed within the boundaries of the SJV-MDP. The SJV-MDP does not propose any changes to the land uses from what is identified in the aforementioned General Plans; thus, potential indirect impacts from development in the MDP project area are not expected to exceed the potential impacts that have already been disclosed in the EIRs prepared for the Hemet, San Jacinto, and Riverside County General Plans. However, because implementation of the SJV-MDP could indirectly induce substantial population growth in the MDP project area, impacts are considered significant. (SJV-MDP EIR, pp. 3.8-8, 5.0-18.)

San Jacinto Valley Master Drainage Plan Description

The SJV-MDP revised and replaced the San Jacinto Master Drainage Plan (SJMDP) and Northwest Hemet Master Drainage Plan (NW Hemet MDP) with a new master drainage plan for those areas plus additional areas to the west and north of the SJMDP and NW Hemet MDP. The boundaries of the SJV-MDP encompass approximately 27.4 square miles and are generally bounded by the San Jacinto River to the north, Meridian Street to the east, Florida Avenue to the south, and Warren Road to the west as shown on **Figure 1 – San Jacinto Valley MDP Boundary**. The SJV-MDP includes land within the cities of San Jacinto and Hemet, in addition to unincorporated Riverside County as summarized in **Table A – Acreages and Municipalities within the SJV-MDP** on the page following **Figure 1**.



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Source: Digital Globe, March 2008.

Figure 1 - San Jacinto Valley MDP Boundary

Line E Addendum

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Table A – Acreage and Municipalities within the SJV-MDP

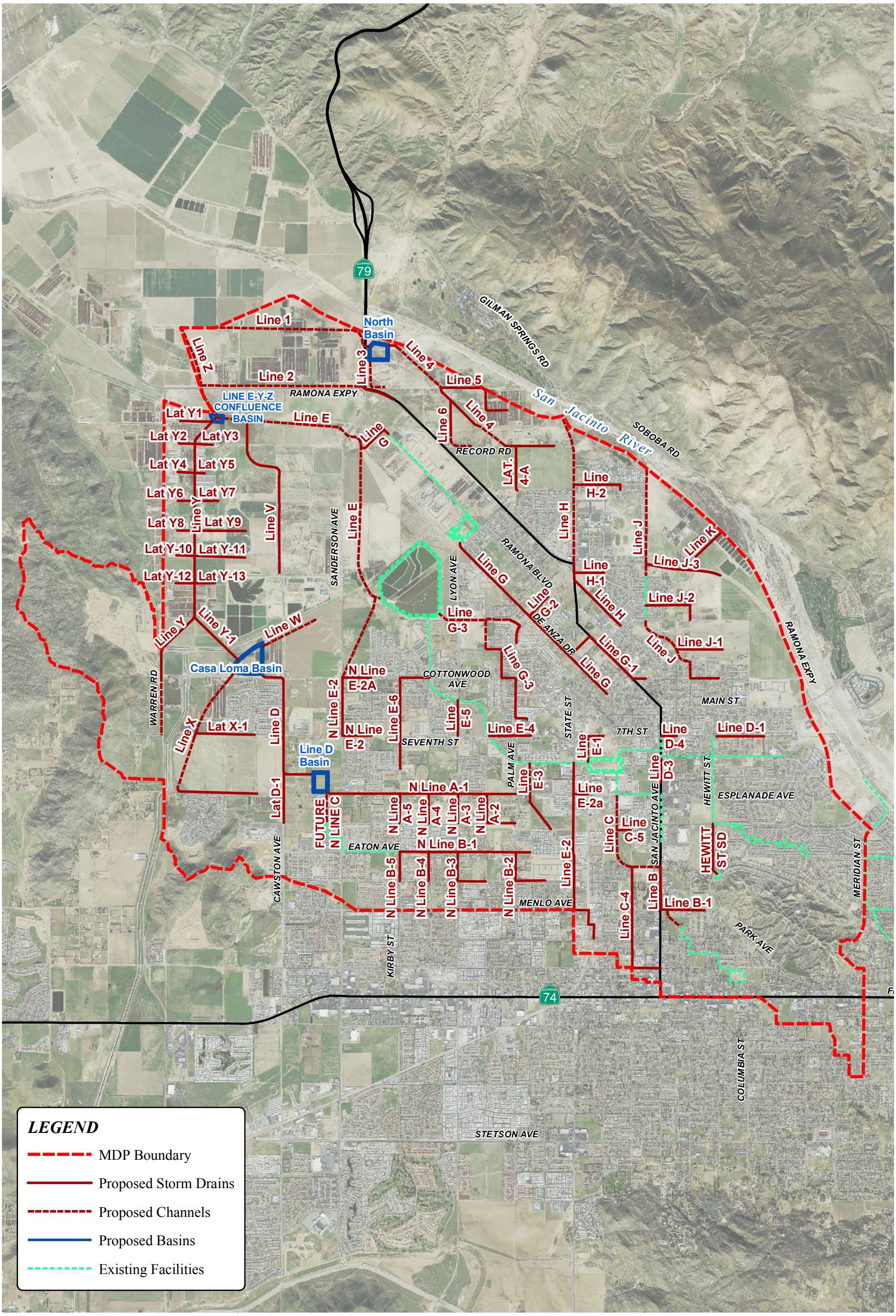
Municipality	Approximate Acreage	Portion of Total MDP Area
San Jacinto	12,812	73.3%
Hemet	3,216	18.4%
Unincorporated County	1,449	8.3%
Total	17,476	100.0%

Source: SJV-MDP EIR, p. 2.0-1

The SJV-MDP presents an overview of the drainage problems within its boundaries and provides a conceptual solution to those problems. The SJV-MDP proposes a system of open channels (lined and un-lined), underground storm drains, and four detention basins as shown **on Figure 2 – San Jacinto Valley MDP Facilities**. Master Drainage Plans by their very nature, are living documents. They provide a baseline strategy that can be modified as areas build out. Such is the case with the SJV-MDP, which identifies, at a conceptual level, general alignments and locations of drainage facilities; the precise alignments of which would be determined at the time an individual facility is designed. Precise facility locations would be dictated by conditions existing at the time each facility is designed. Likewise, the facility sizes identified in the SJV-MDP are preliminary. Final sizing would be determined based on detailed analysis performed at the design stage. The SJV-MDP proposes the construction of approximately 50 miles of drainage facilities**.** (SJV-MDP EIR, p. 2.0-8.)

The proposed SJV-MDP facilities, when constructed, would require maintenance in order to retain flood control capacity. Following construction of the facilities, it is expected that RCFCWCD would operate and maintain most of the SJV-MDP storm drains, channels, and basins. Maintenance of storm drains and concrete channels typically consists of keeping these facilities and their side drains clear of debris and sediment, as well as annual repair of access roads (at a rate of two miles per day), repair of fences (approximately three to four times per year), and removing graffiti. On rare occasions, major repairs may be required following damaging storm events. Thus, major grading would not routinely occur while maintaining the underground storm drains and open concrete channels. To maintain the constructed facilities, RCFCWCD would occasionally use equipment similar to the types used to construct the proposed facilities. (SJV-MDP EIR, p. 2.0-14.)

RCFCWCD inspects earthen channels and basins approximately six to eight times per year. The routine maintenance of the earthen channels and basins would likely require the following activities: removal of deposition, repair of eroded slopes, and reduction of fire hazard by annually mowing and application of herbicides (approximately four to six times per year) as well as the maintenance activities described in the previous paragraph. Vegetation must be removed or mowed annually (or as necessary) to provide the designed hydraulic capacity. Any vegetation that may pose a fire hazard to adjacent structures must also be maintained. The design capacity of the facility and the frequency, duration, and velocity of runoff usually dictate the frequency of vegetation maintenance. Most facilities require some annual vegetation control. Maintenance of the earthen facilities would also include occasional erosion repair and sediment removal.



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Sources: County of Riverside, 2009; Digital Globe, April 2008.

0 1 2 3 Miles

Figure 2 - San Jacinto Valley MDP Facilities

Line E Addendum

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The frequency of these maintenance activities is a function of storm flows, and is difficult to estimate. RCFCWCD would occasionally need to substantially grade and repair the earthen facilities. (SJV-MDP EIR, p. 2.0-14.)

Line E as identified in the SJV-MDP and evaluated in the SJV-MDP EIR is earthen lined channel, extending upstream and north from the San Jacinto Reservoir west of Sanderson Avenue, turning west crossing Sanderson Avenue west continuing west parallel to and south of the Metropolitan Water District of Southern California's (Metropolitan's) Casa Loma Barrel No. 1 easement[1] to SJV-MDP Line Z. The Line E-Y-Z Confluence Basin is identified in the SJV-MDP and evaluated in the SJV-MDP EIR as an unlined basin.

[1] Casa Loma Barrel (or "Siphon") Nos. 1 and 2 are buried water pipelines owned and operated by The Metropolitan Water District of Southern California (Metropolitan).

2. Project Description

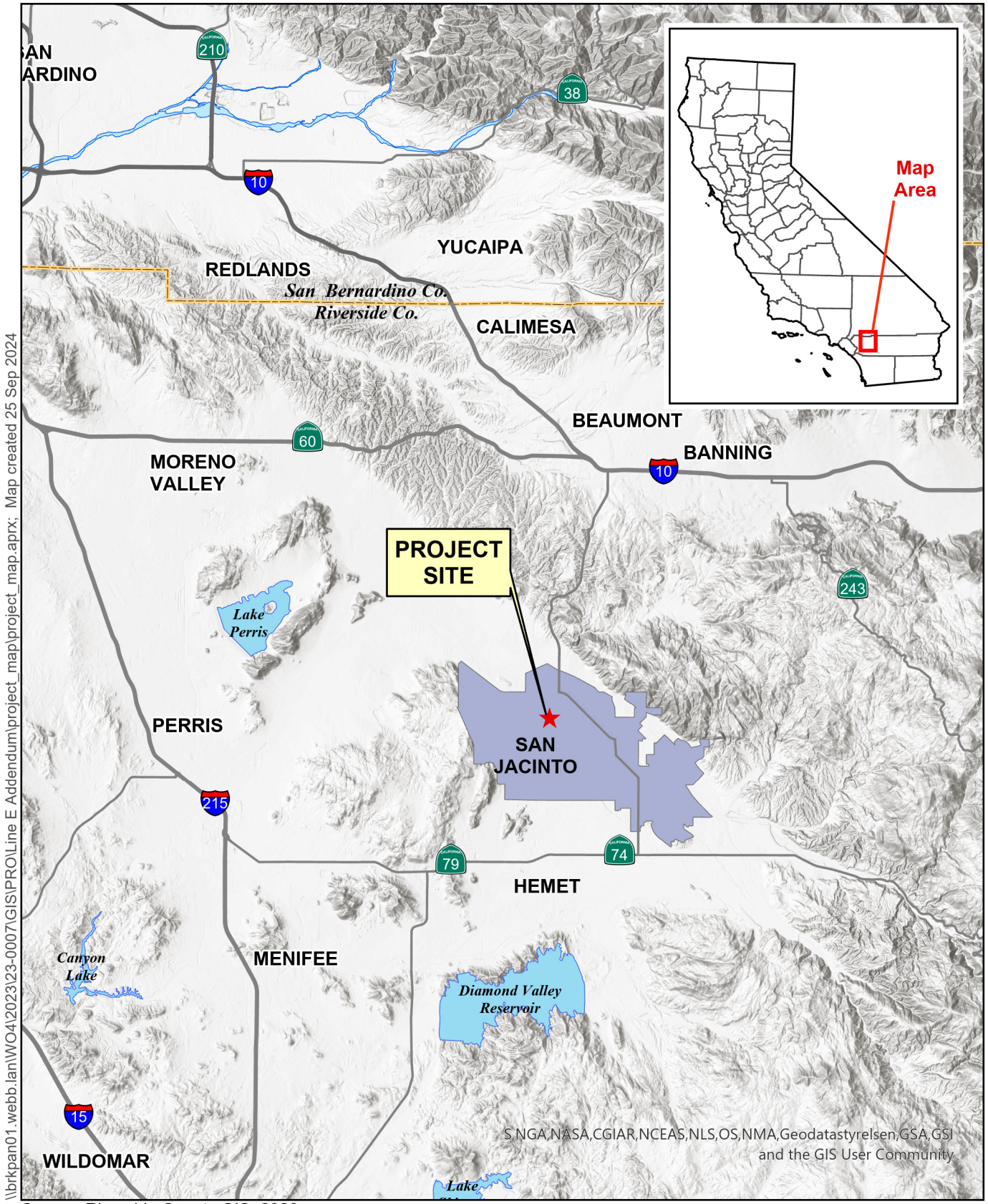
The proposed SJV-MDP Line E Channel and Line E-Y-Z Confluence Basin Project are located within San Jacinto (**Figure 3 – Regional Map**). As previously stated, the SJV-MDP identifies conceptual alignments, locations, and sizes of proposed drainage facilities with precise locations and sizes dictated by conditions existing at the time each facility is designed. Line E (hereinafter "Line E Channel") is one of the regional drainage facilities planned by the SJV-MDP that would serve an approximately 1,870-acre tributary area. The Line E-Y-Z Confluence Basin (hereinafter "Confluence Basin") is also a planned SJV-MDP facility to collect flows in a large basin from future SJV-MDP Lines E, Y, and Z. For purposes of this Addendum, the Line E Channel and Confluence Basin are collectively referred to as the "Project" or "Line E Project."

Drainage Facilities

From upstream to downstream, the Line E Channel begins north (downstream) of the San Jacinto Reservoir Spillway and north of Metropolitan's Casa Loma Barrel No. 2 easement, continuing north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue through an agricultural parcel (APN 436-030-004), turning west underneath Sanderson Avenue through APN 436-010-003 and turning north, then west before future Record Road through APNs 432-030-010, 432-030-012, and 432-030-006 to the proposed Confluence Basin. The outflows from the proposed Confluence Basin would be conveyed northerly across Metropolitan's Casa Loma Barrel No. 1 and outflow at the terminus of Line E to an existing low-flow drainage channel that would, at some point in the future, be constructed as an ultimate MDP facility ("Line Z"), but is currently in interim condition. Refer to **Figure 4 – Project Map** and **Figure 5 – Project Components.**

The Line E Project components are shown on **Figure 5 – Project Components** and summarized as follows, from upstream (south) to downstream (north):

- Two earthen training berms with 20-foot-wide access roads on the top of each, with a 2:1 slope on the wet side of each training berms and a 20:1 slope on the dry side of each training berm. The Westerly Training Berm is 900 linear feet long and the Easterly Training Berm is approximately 1,514 linear feet long.
- Approximately 1,398 linear feet of earthen trapezoidal channel with 20-foot-wide access roads on both sides of the channel, a channel base width of 65-feet, channel height of up to 10-feet and channel side slopes with 4:1 ratio, and a total right-of-way width of 200-feet east of Sanderson Avenue within APNs 436-030-004 and 436-010-003. This portion of the channel includes three sets of six-cell 12-feet wide by 7-feet high reinforced concrete box (RCB) and concrete transition structures, each for future road crossings. This portion of the channel also includes three sloped rip-rap drop structures.
- One 14-feet wide by 7-feet high stub-out RCB connection for future SJV-MDP Line G, including channel paving and scour protection.
- Approximately 4,468 linear feet of earthen trapezoidal channel within APNs 432-030-010, 432-030-012, and 432-030-006 with 15-foot-wide access roads on both sides of the channel, a channel base width of 65-feet, channel height of up to 10-feet, channel side slopes with 4:1 ratio, and total right-of-way width of 200 feet. This segment of channel includes three sets of four-cell 20-feet wide by 9-feet high RCB and concrete transition structures and two sloped rip-rap drop structures.



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Source: Riverside County GIS, 2020

0 2 4 6 Miles

Figure 3 - Regional Map

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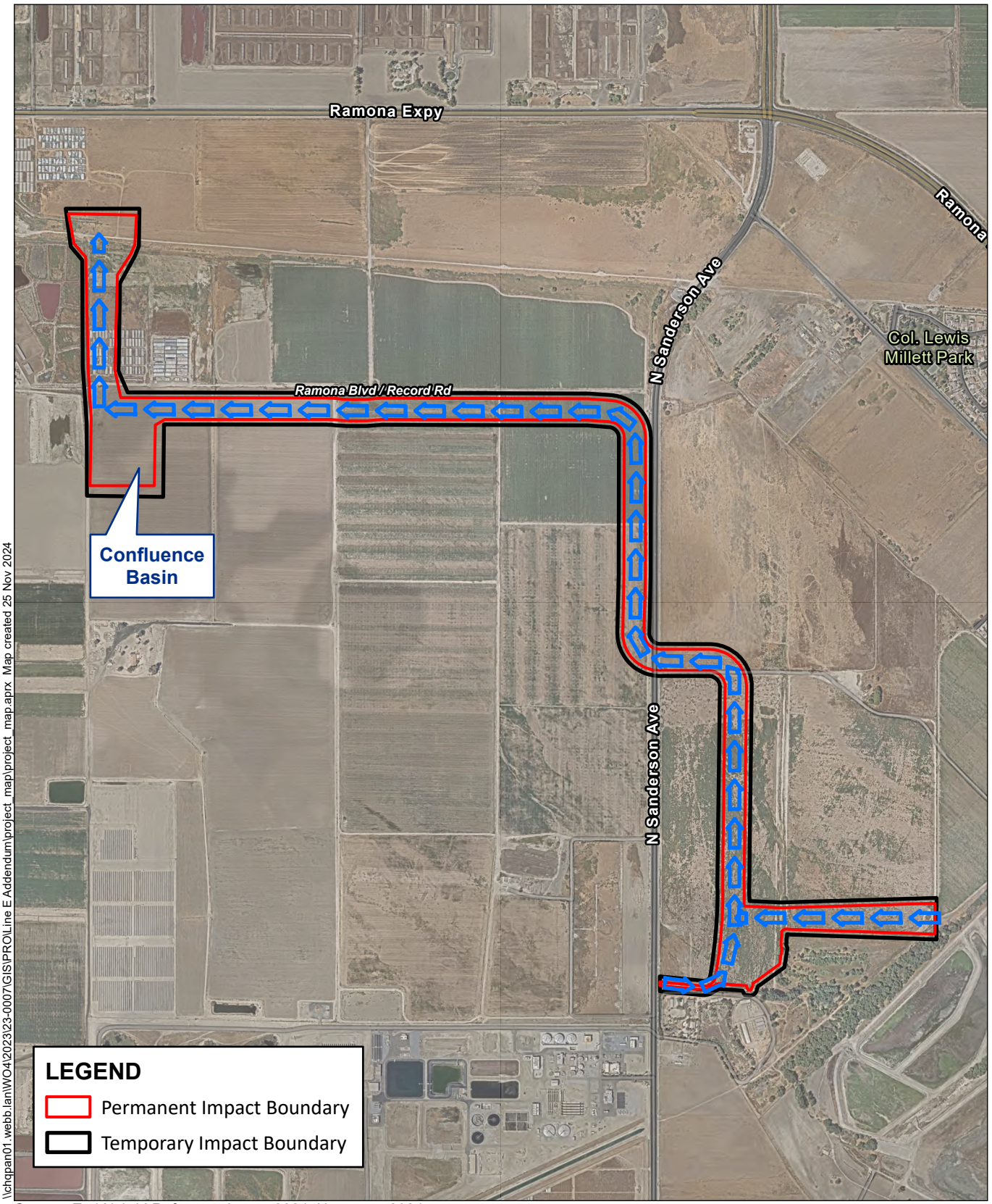

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Source: Esri Hybrid Reference Layer, 2024; Nearmap, 2024.

0 500 1,000 1,500 Feet

Figure 4 - Project Map

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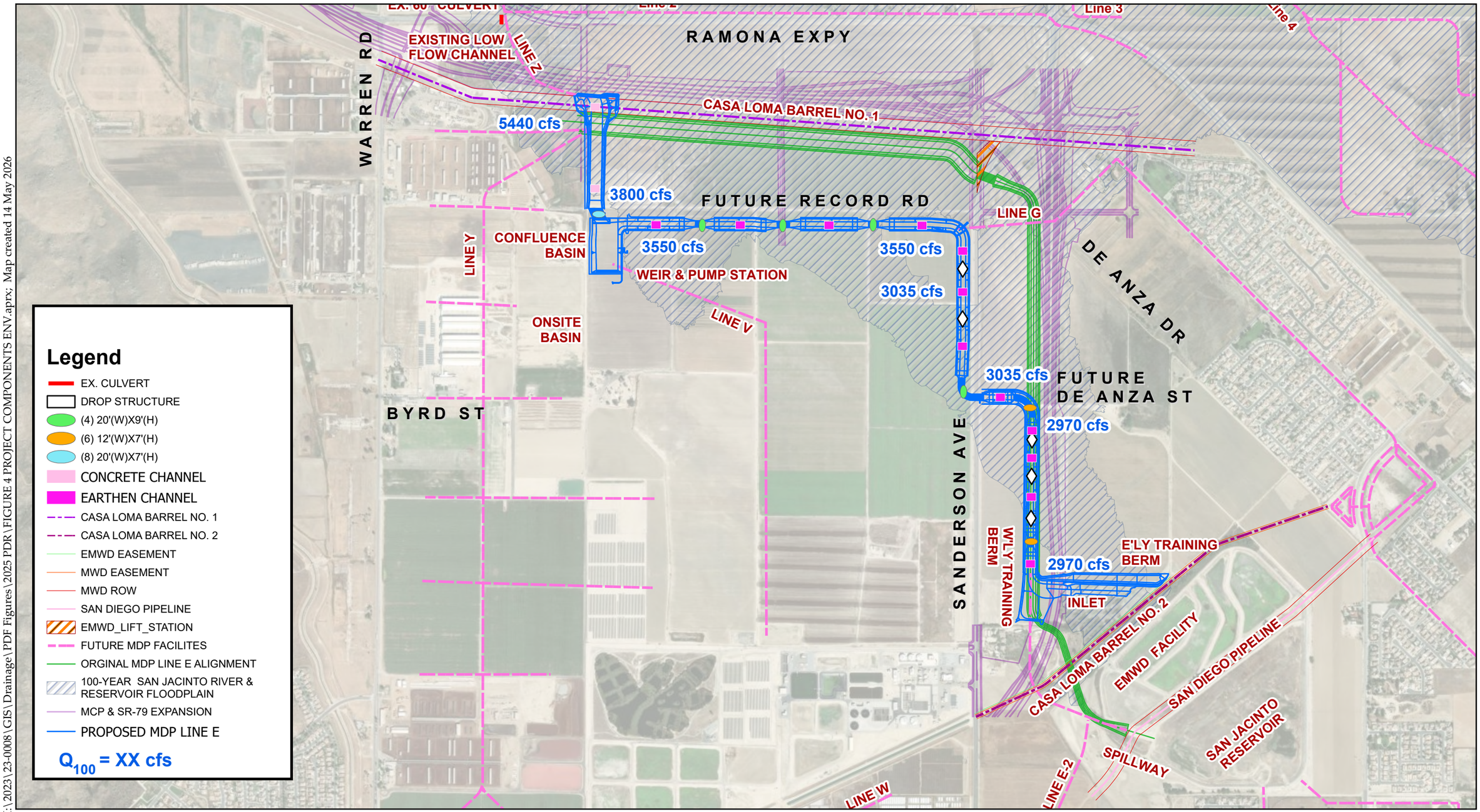

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 4 PROJECT COMPONENTS ENV.aprx; Map created 14 May 2026

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 5 - PROJECT COMPONENTS
Line E Addendum

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- Approximately 1,122 linear feet of concrete trapezoidal channel with 20-foot-wide access roads on both sides of channel, a channel base width of 155-feet, channel height of up to 5.5-feet, and channel side slopes with 1.5:1 ratio, and total right-of-way width of 270-feet for the channel segment, within APN 430-100-018, from future Record Road to the Metropolitan right-of-way. This segment includes one set of eight-cell 20-feet wide by 7-feet high RCB crossing Record Road (Ramona Boulevard).

- One unlined SJV-MDP Confluence Basin with 57.5 acre-feet capacity over an area of 6.25 acres on APN 432-030-006, with a 72-hour drawdown. A City-maintained pump station would also be located on the Confluence Basin parcel (APN 432-030-006) to drain the Confluence Basin as well as a basin proposed by a separate project south of the Confluence Basin on APN 432-030-006.

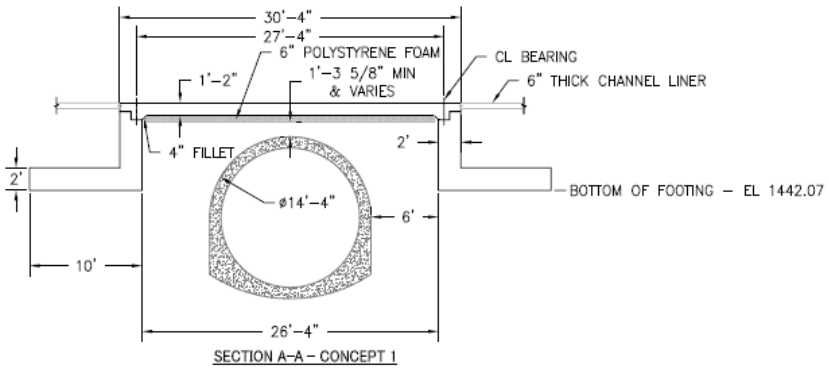
- North of the Confluence Basin, across APNs 430-100-018, 430-100-012, and 430-100-013, approximately 200 linear feet of concrete trapezoidal channel crossing the Metropolitan Water District Casa Loma Barrel No. 1 right-of-way with 20-foot-wide access roads on both sides of the channel, a channel base width that 155 feet, channel height of up to 5.5-feet, channel side slopes that vary from a 10:1 ratio to a 23:1 ratio, and a 560-feet Metropolitan easement width. This segment of channel will provide access to easterly and westerly Metropolitan access roads from Record Road.

Casa Loma Barrel No. 1 Crossing

The Casa Loma Barrel No. 1 is an approximately 14.5-foot diameter reinforced concrete pipe. (Kleinfelder-B, p. 1.) Metropolitan has design policies for structures built over their buried pipelines. Given that the Line E Channel would cross over Casa Loma Barrel No. 1, two designs are being analyzed in this Addendum. Both design concepts support a reinforced concrete slab isolated from the soil above the Casa Loma Barrel No. 1 by a 6-inch layer of polystyrene foam. Concept 1 supports the concrete slab on shallow spread footing foundations and Concept 2 supports the concrete slab on cast-in-drilled-hole (CIDH) concrete piles drilled into deeper soil layers. The purpose of these designs is to prevent additional weight on the existing Casa Loma Barrel No. 1 from the proposed Line E channel, including the weight of maintenance vehicles and channel water. The crossing structure will be placed where soil cover over the existing Casa Loma Barrel No. 1 is less than four feet, or where needed according to soil settlement tests. (Kleinfelder-A.) An easement application with Metropolitan is being processed by RCFC&WCD for review and approval of the crossing of Metropolitan's Casa Loma Barrel No. 1. This easement would be in place prior to any construction in this right-of-way. Metropolitan approved the geotechnical and structural reports for the Casa Loma Barrel No. 1 Crossing in March 2025.

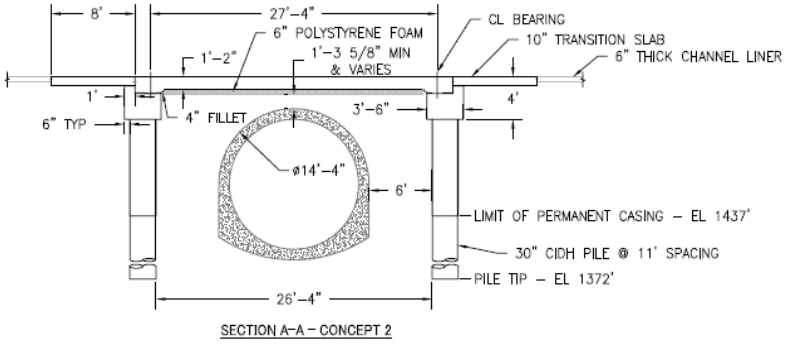
Concept 1: Relieving Slab on Spread Footings

A cross-section of the Concept 1 crossing, which is the preferred structural design, is shown on the following page.



Concept 1 is more consistent with the Detail SK-1 from Metropolitan's *Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Right-of-Way*. (Kleinfelder-A, pp. 1–2.)

Concept 2: Relieving Slab on Cast-in-Drilled-Hole Concrete Piles
A cross-section of the Concept 2 crossing is shown below.



Concept 2 is supported on CIDH concrete piles that rely on skin friction along the length of the pile. The top portion of these concrete piles are cased in a smooth steel casing to limit the transfer of the forces from the piles to the Casa Loma Barrel No. 1.

The *Structures Report,* which presents the design criteria, plans for the preliminary crossing, and preliminary design calculations for crossing the Casa Loma Barrel No. 1 is included as Appendix A.1 to this Addendum.

Geotechnical Recommendations for Crossing the Casa Loma Barrel No. 1.
Geotechnical recommendations for earthwork, design, and construction considerations for the Line E Channel crossing the Casa Loma Barrel No. 1 are set forth in the *Draft Geotechnical Investigation Report, San Jacinto Line E Strom Drain, San Jacinto California,* February 13, 2025, prepared by Klienfelder and included as Appendix A.2 to this Addendum.

Construction of the Line E Channel would involve cuts and fills over the Casa Loma Barrel No. 1. Grade changes, construction sequencing, flooding, and crossing structure footings could subject this pipeline to change in loads that could cause settlement due to an increase in overburden stress or heave due to a decrease in overburden stress. Metropolitan requires proposed improvements in the vicinity of their pipe to not induce displacements on their pipe of more than ¼-inch per 100 feet. As part of the Draft

Geotechnical Investigation Report, Kleinfelder performed numerical modeling of the subsurface conditions and proposed structures .The results of this analysis indicate the proposed improvements will meet Metropolitan's tolerance provided the key recommendations and assumptions presented below shall be implemented in the design and construction of the Casa Barrel No. 1 crossing and Line E Channel. (Kleinfelder-B, p. 18.) These recommendations are hereby made part of the Project Description.

- Excavations would not be completed at a time when Metropolitan has emptied the Casa Loma Barrel No. 1 (i.e. this pipeline is not in-service).
- The crossing structure footings are constructed following the 1/3 sequence of excavation and footing placement.
    - Excavation of the subsequent 1/3 shall not progress until the footing for the previous 1/3 is in-place.
    - Excavation slopes and benches shall not be flatter than 1.5H:1V.
- Excavation and footing construction sequence shall be completed simultaneously on the upstream and downstream sides of the Casa Loma Barrel No. 1. Simultaneously shall mean:
    - Elevations in excavations on either side shall not be more than 1 ft different.
    - The concrete footings shall be poured on both sides at the same time.
- Excavations shall not be backfilled until the full footing construction sequence is completed.
    - Backfill will consist of a medium weight flowable fill material (e.g. LCC) with a unit weight of approximately 85 pcf which does not require high vibration compactor equipment during placement. The medium weight flowable fill should have a friction angle of at least 30 degrees and cohesion of at least 50 pounds per square foot.
    - Backfill shall be completed simultaneously on the upstream and downstream sides of Casa Loma Barrel No. 1. Simultaneously shall mean elevations of the backfill on each side shall not be more than 1 ft different.
- Lightweight flowable fill shall be used for embankments within 50 feet from the edge of the Casa Loma Barrel No. 1. Embankment fill shall consist of lightweight flowable fill material (e.g. LCC) not to exceed a unit weight of 30 pcf and does not require compaction to limit vibration impacts.
- Embankment fill shall be placed such that the elevation difference across (upstream to downstream sides) the Casa Loma Barrel No. 1 is not greater than one foot at any time until final grades are established.
- The Line E Channel section shall limit the 100-yr flood event to a peak water elevation of 1453.47 feet.
- Vibrations on the Casa Loma Barrel No. 1 should be less than 0.5 inches/second for "continuous" sources based on guidance provided by Metropolitan. Based on *Caltrans Transportation and Construction Vibration Guidance Manual* (2020), vibratory rollers or similar equipment should not be used within 20 feet of the Casa Loma Barrel No. 1 to meet Metropolitan's limit.
- Any excavation within two feet of the Casa Loma Barrel No. 1 should be performed by "hand" equipment as approved by Metropolitan.
- Areas to receive fill that are not specified to require flowable fill as described above may utilize the on-site soil or import soil as structural fill in accordance with Section 6.9 of the *Draft Geotechnical Investigation Report*.

- Appropriate observations and inspections should be completed to ensure that the recommendations and assumptions made in the *Draft Geotechnical Investigation Report*. are followed during construction. Construction within Metropolitan's right-of-way should conform to the relevant Metropolitan construction standards, observations and inspections.

Proposed Line E Alignment Compared to the Conceptual MDP Alignment

The location of the proposed Line E Project alignment is compared with the conceptual SJV-MDP alignment on **Figure 6 – MDP EIR Alignment Compared to Addendum Alignment**. The Project is an improved design and the result of an iterative process to engineer around constraints that were identified during many stakeholder meetings including representatives from the City, RCFC&WCD, Metropolitan, Eastern Municipal Water District (EMWD), San Jacinto Master Developer, LLC (SJMD LLC),[2] and Riverside County Transportation Commission (RCTC). In addition, the alignment, hydraulics, and hydrology for the Project underwent three rounds of review with RCFC&WCD prior to preparation of the Preliminary Design Report (PDR) dated May 15, 2025. Two reviews have been conducted by Metropolitan. Metropolitan's substructures group approved the proposed Line E Alignment on March 3, 2025. (PDR, p. 4.) The PDR is available for review at the RCFC&WCD office.

Specifically, the Project alignment intentionally avoids EMWD and Metropolitan easements for pipelines located near the Line E Project inlet, and, at the same time avoids the riparian habitat around the north side of the San Jacinto Reservoir. This has resulted in no hard connection between Line E and the San Jacinto Reservoir Spillway, as well as no hard connection between Line E and Line E-2 (**Figure 5 – Project Components**). Maintenance access for RCFC&WCD within private property has been considered and provided for in the Project, as discussed herein. The Project design also avoids potentially environmentally sensitive areas on neighboring properties and along the south side of the Casa Loma Barrel No. 1 Metropolitan right-of-way west of Sanderson Avenue. The locations of several future projects planned by public agencies in the same area were also accounted for by the Line E Project. The Line E Channel was realigned to avoid conflicts with major sewer infrastructure located at the SJV-MDP planned crossing of Sanderson Avenue near the De Anza Lift Station. There are existing utilities that conflict with the proposed Line E Channel alignment, specifically the proposed RCB's that cross Sanderson Avenue. These utilities would be relocated as part of the Project and proposed utility crossings would be coordinated with adjacent developers and projects. Finally, by locating a portion of the Line E Channel on APNs 432-030-012, 432-030-011, and 432-030-010, which is owned by a willing property owner (SJMD, LLC), right-of-way acquisition is simplified. (PDR, pp. 7 – 8.) The location of existing utilities are shown on the Long-Axis Plan included in Appendix B of this Addendum.

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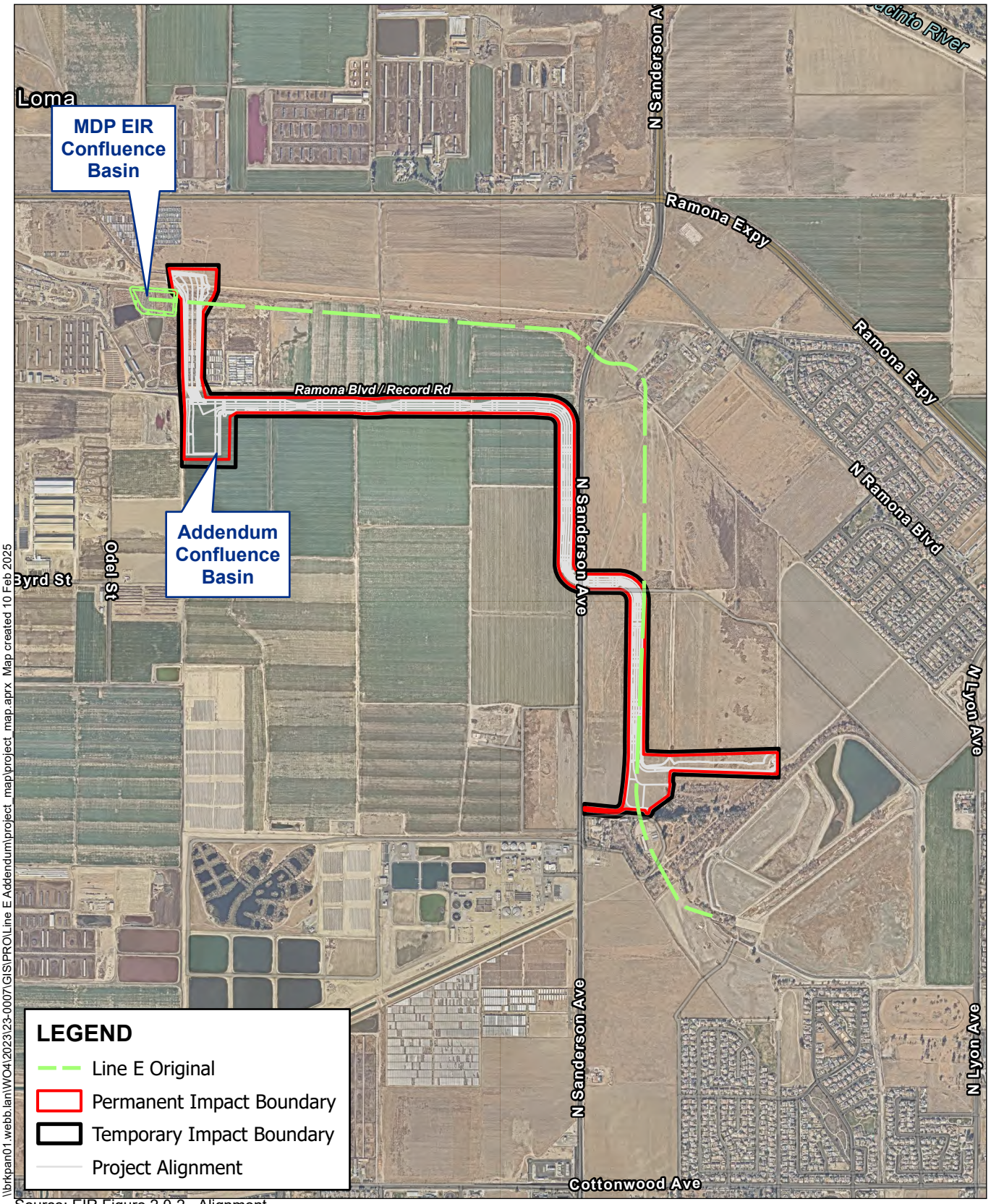
[2] San Jacinto Master Developer LLC, (SJMD, LLC) is the owner of approximately 514 acres within the SJV-MDP boundary consisting of APNs 432-030-006, 432-030-012, 432-030-010, and 432-030-011.



Source: EIR Figure 2.0-2 - Alignment

0 1,000 2,000 3,000 Feet

Figure 6 - MDP EIR Alignment Compared to Addendum Alignment

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Proposed Line E Project Hydrology Compared to SJV-MDP Hydrology

The existing SJV-MDP hydrology is based on the *Master Drainage Plan Update for San Jacinto Valley West Area,* updated October 2008. Contributing flows to Line E include overflows from the San Jacinto Reservoir, tributary flows from SJV-MDP N Line E-2 located south of Line E, future SJV-MDP Line G, future SJV-MDP Line V, and future SJV-MDP Line Y. (PDR, p. 15.) The existing conditions for Line E flow rates have accounted for the contributing flows shown in **Table B –Existing MDP Hydrology Compared to Proposed Line E Project Hydrology** and on **Figure 7 – Original MDP Hydrology & Facilities**.

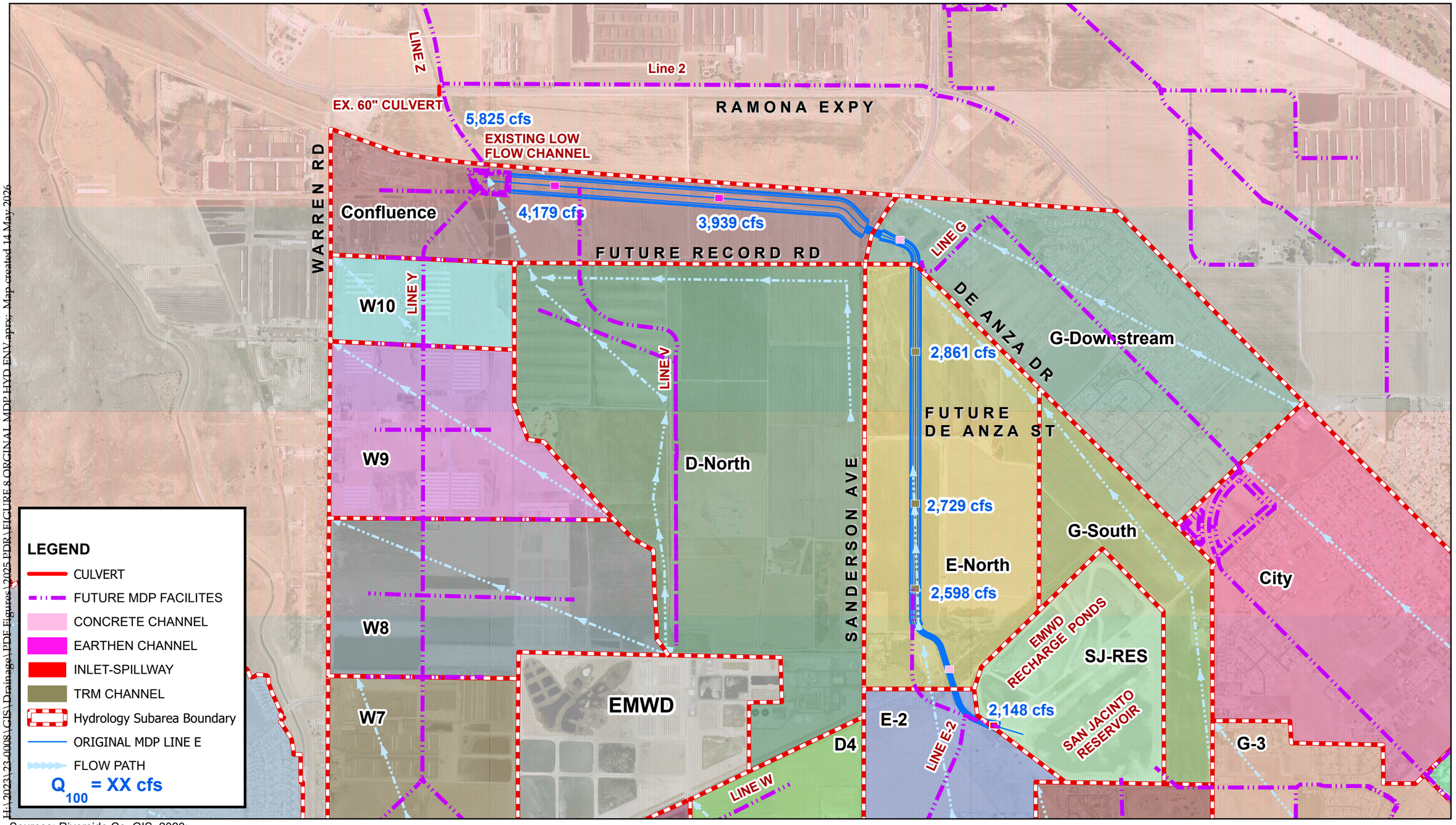
Table B – Existing MDP Hydrology Compared to Proposed Line E Project Hydrology

SJV-MDP Components	Existing MDP Flow Rates	Revised Flow Rates
Overflow from San Jacinto Reservoir	Q_{100} = 2,148 cfs	Q_{100} = 2,148 cfs
SJV-MDP N Line E-2	Q_{100} = 686 cfs Trap B=6 ft, D=6 ft, Z=1.5	Q_{100} = 527 cfs Trap B=6 ft, D=6 ft, Z=1.5
APN 436-170-001 contribution	Q_{100} = 521 cfs, RCP 14 ft (W) x 7 ft (H), assuming slope = 0.1%	Q_{100} = 295 cfs RCP 14 ft (W) x 7 ft (H), assuming slope = 0.1%
SJV-MDP Line G	Q_{100} = 518 cfs; RCB 8 ft (W) x 4 ft (H)	Q_{100} = 580 cfs; RCB 14 ft (W) x 6 ft (H)
SJV-MDP Line V On-Site System	Q_{100} = 962 cfs; Trap B=60 ft, D=5 ft, Z=4	Q_{100} = 1,440 cfs; Onsite drainage system and detention basin
SJV-MDP Line Y	Q_{100} = 1,646 cfs	Q_{100} = 1,646 cfs

Source: PDR, Table 1 and Table 2

Note: cfs = cubic feet per second; MDP = Master Drainage Plan; RCP = reinforced concrete pipe; RCB = reinforced concrete box; W = width; H = height; Trap = trapezoidal; Q_{100} means the flow rate in a 100-Year storm event.

The proposed Line E Project hydrology analysis is based on the same watershed subareas delineated in the original SJV-MDP *Master Drainage Plan Update for San Jacinto Valley West Area*. However three adjustments have been made to the Line E hydrology analysis: 1) land use revisions in Subarea E-2 to reflect actual land use conditions of APN 436-170-016, 2) changes in land use from residential to commercial for property , and 3) the removal of Subarea D north of the existing EMWD wastewater treatment plant (WWTP) because runoff from this area would be collected and treated by EMWD on their WWTP boundary. The land uses in the current condition have changed since the SJV MDP was prepared. The land uses changes outlined in number 1 and 2 above, results in the amount of stormwater comes off those sites, therefore the flow rates needed to be modified. Item number 3 above means that the storm water flows from Subarea D are now not a part of the flows that would influence Line E, therefore flow rates were adjusted down to accommodate for this change since the SJV MDP was prepared. These three conditions reflect the current conditions, which affect how the baseline hydrology analysis is conducted to design master plan level flood control facilities. Therefore, revised flow rates based on these three changed conditions were incorporated into the Line E Project analysis. The revised flow rates for the Line E Project are shown above in **Table B** and on **Figure 8– Revised MDP Hydrology & Facilities** . The results of these updates to the hydrology modeling represent a decreased flow rate reaching Line E than was previously analyzed in the SJV-MDP. (PDR, p. 17.)



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 8 ORGINAL MDP HYD ENV.aprx; Map created 14 May 2026

Sources: Riverside Co. GIS, 2020; USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 7 - ORGINAL MDP HYDROLOGY & FACILITIES

Line E Addendum

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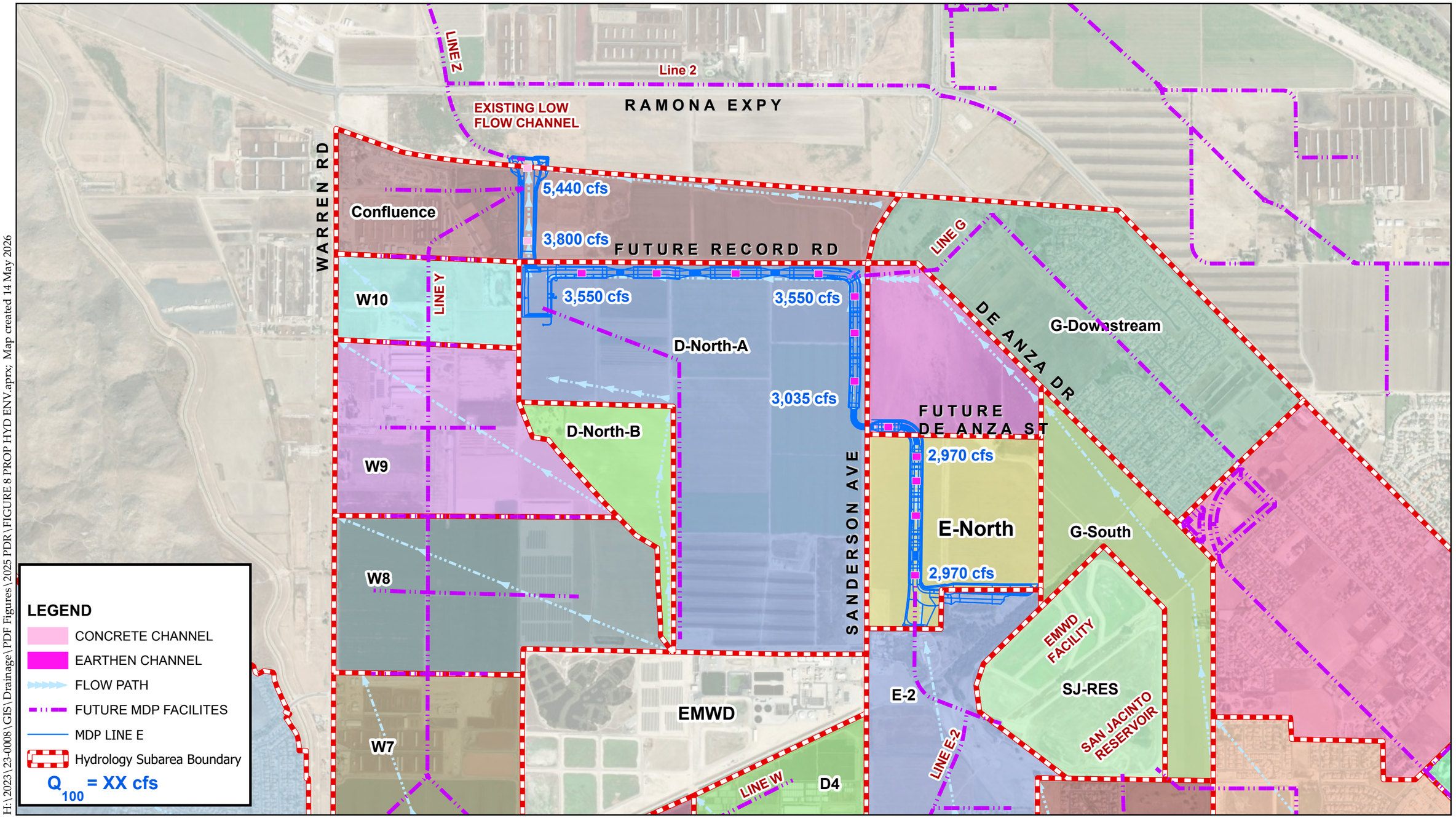

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 8 PROP HYD ENV.aprx; Map created 14 May 2026

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 8 - REVISED MDP HYDROLOGY & FACILITIES

Line E Addendum

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The proposed Line E design resulted in a need to confirm that the other facility connections into Line E could still be achieved. Therefore, the following facilities in the SJV MDP were rearranged from the original assumptions in the SJV-MDP. No changes to these other MDP facilities outlined below are being proposed; rather the list below demonstrates that these facilities can still function in the future even with the Line E alignment as proposed.

- Tributary flows from the south are directed to Subarea D-North-A and then into the proposed Confluence Basin or a basin proposed by a separate project south of the Confluence Basin on APN 432-030-010 to be pumped out to the Line E Channel north of Record Road (**Figure 8 – Revised MDP Hydrology & Facilities**);
- Proposed MDP Line Y would no longer join the Confluence Basin and would instead join Line E upstream of Casa Loma Barrel No. 1;
- Flows from the Confluence Subarea are being added to the Line E Channel in the area of Casa Loma Barrel No. 1, which was previously coming into Line E at Sanderson Avenue under the SJV MDP as originally proposed; and
- Line G is proposed on the opposite side of Sanderson Avenue as compared to the conceptual location shown in the SJV-MDP. (PDR, p. 17.)

The changes to SJV-MDP Facilities identified above, are not a part of the Line E Project evaluated in this Addendum because, there are no plans or funding to construct these facilities nor are the necessary for the Line E facility to function as proposed.

Local Hydrology at Sanderson Avenue
Currently, in the non- SJV-MDP implementation condition, a roadside ditch conveys stormwater along the east side of Sanderson Avenue as shown in the image below.



Because the proposed Line E Channel would cross Sanderson Avenue and intersect with this existing ditch, the contribution of flow from this roadside ditch to the Line E Channel was analyzed in the PDR. Results suggest that 49 acres drain to this roadside ditch, as shown on **Figure 9 – Local Flow Analysis**. The hydrology subareas are already accounted for in the overall SJV-MDP hydrology analysis. Therefore, the Line E Channel has been designed to accommodate the confluence of this ditch. A rate of 95 cubic feet per second (cfs) of runoff is generated and was used to size an inlet and lateral to Line E Channel. (PDR, p. 19.)

Local Flow Pattern at Casa Loma Barrel No. 1
The existing local drainage pattern is represented by the flow paths shown on **Figure 10 – Existing Local Drainage Patterns**. During small rain events, a significant amount of runoff sheet flows to either side of Sanderson Avenue and is conveyed northerly. As shown on **Figure 10**, the local existing drainage pattern flows northeasterly from the area south of Record Road (Ramona Boulevard) eventually to two existing culverts that cross the Casa Loma Barrel No. 1 right-of-way. Both culverts are 24-inch diameter corrugated metal pipes that sit atop the Casa Loma Barrel No. 1. During any rain event that generates flooding, these culverts are responsible for draining the area south of the Casa Loma Barrel No. 1 and bounded by Sanderson Avenue and the EMWD WWTP. In the post-Line E Project condition, the existing drainage patterns north of Record Road and east of Sanderson Avenue (i.e., east of the Line E Channel) would remain. The Line E Project would replace the existing low flow 24-inch diameter corrugated metal pipes that cross the Casa Loma Barrel No. 1 easement with two 24-inch diameter reinforced concrete pipes (RCPs) that outlet into Line E. (PDR, p. 21.)

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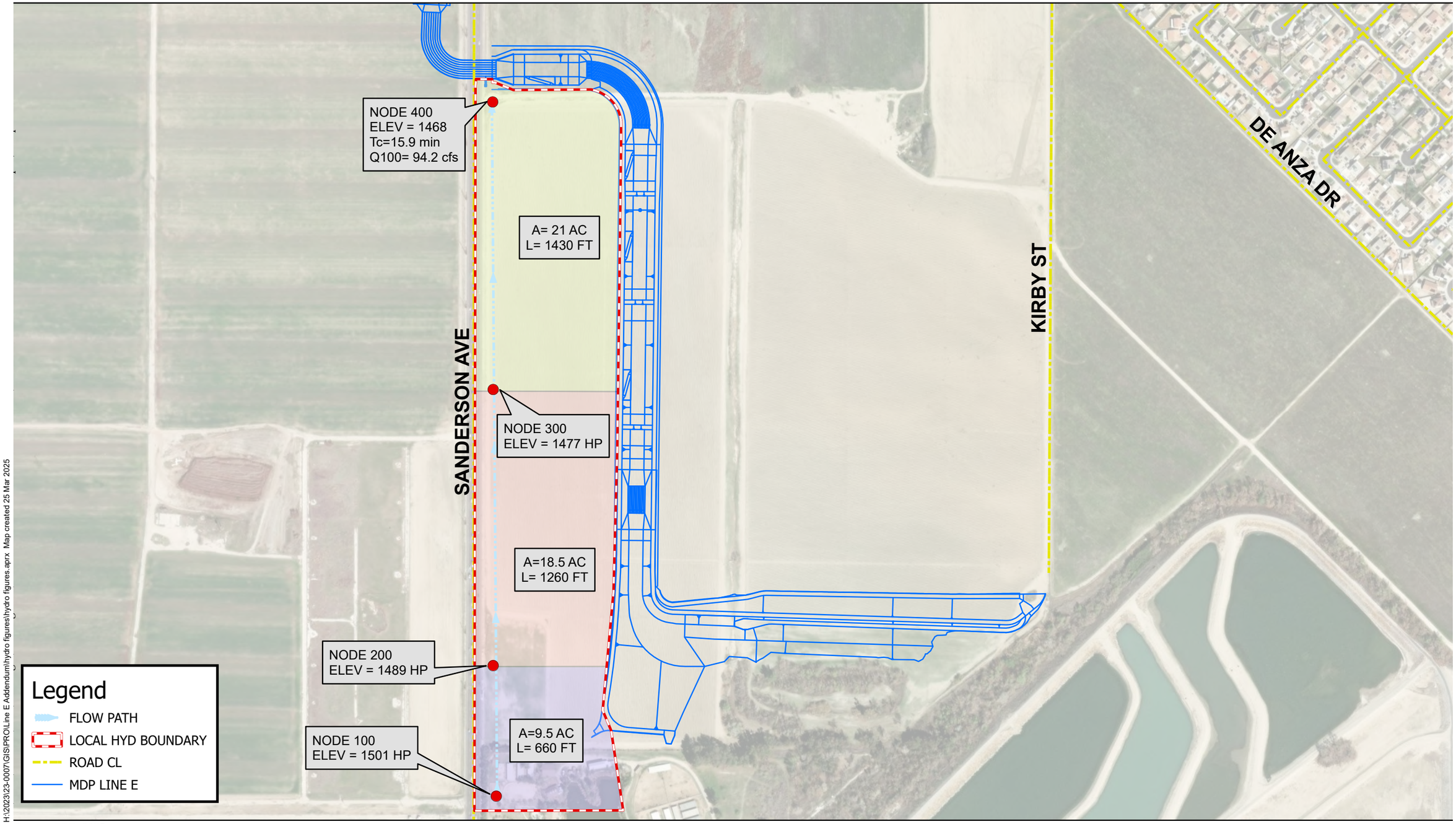

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Source: PDR, 2025.

Figure 9 - Local Flow Analysis

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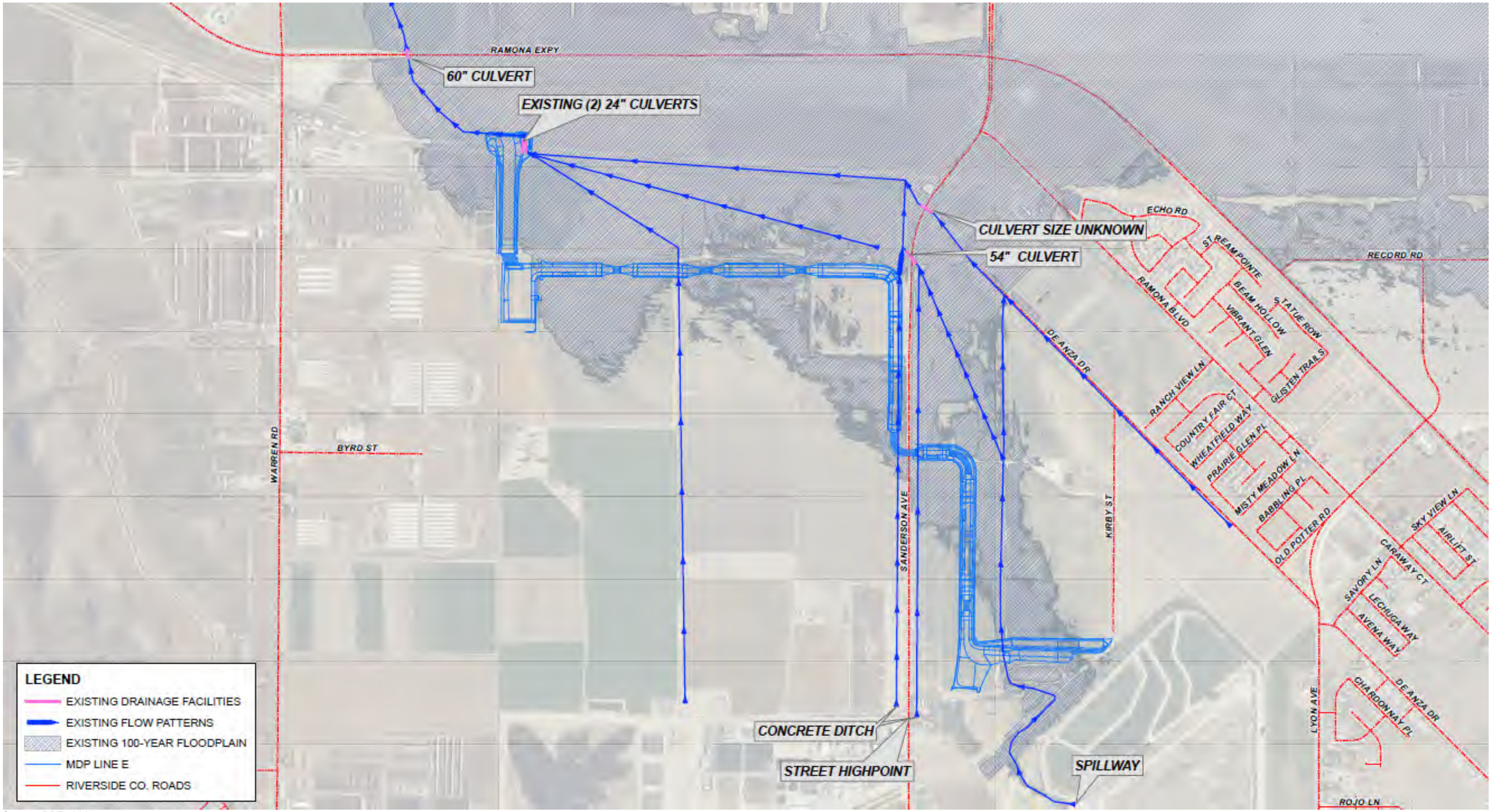

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Source: PDR, 2025.

Figure 10 - Existing Local Drainage Patterns

Line E Addendum

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Maintenance

Because the Line E Channel would be a regional flood control facility pursuant to the adopted SJV-MDP, the RCFC&WCD would need to be able to maintain the Line E Channel and corresponding access roads throughout the life of the facility. Specifically, RCFC&WCD would maintain the training berms and inlet line and grade via a drainage easement and slope easement for the portion of the Line E channel, plus access roads, RCBs and drop structures, located within right-of-way that would be owned by RCFC&WCD within APNs 436-170-001, 436-030-004, 436-010-003, and 430-100-016. RCFC&WCD would maintain the portion of Line E, that crosses over the Casa Loma Barrel No. 1 and Metropolitan right-of-way via a maintenance easement. (PDR, p. 38.)

Maintenance activities to be undertaken by RCF&WCD include vegetation management, clean out of debris, slope and bottom repairs, access road maintenance and repair. Given the presence of potentially sensitive biological resources in the Line E Project area, the RCFC&WCD would not use rodenticides or pesticides for vegetation management. Mechanical and hand removal of vegetation would be used.

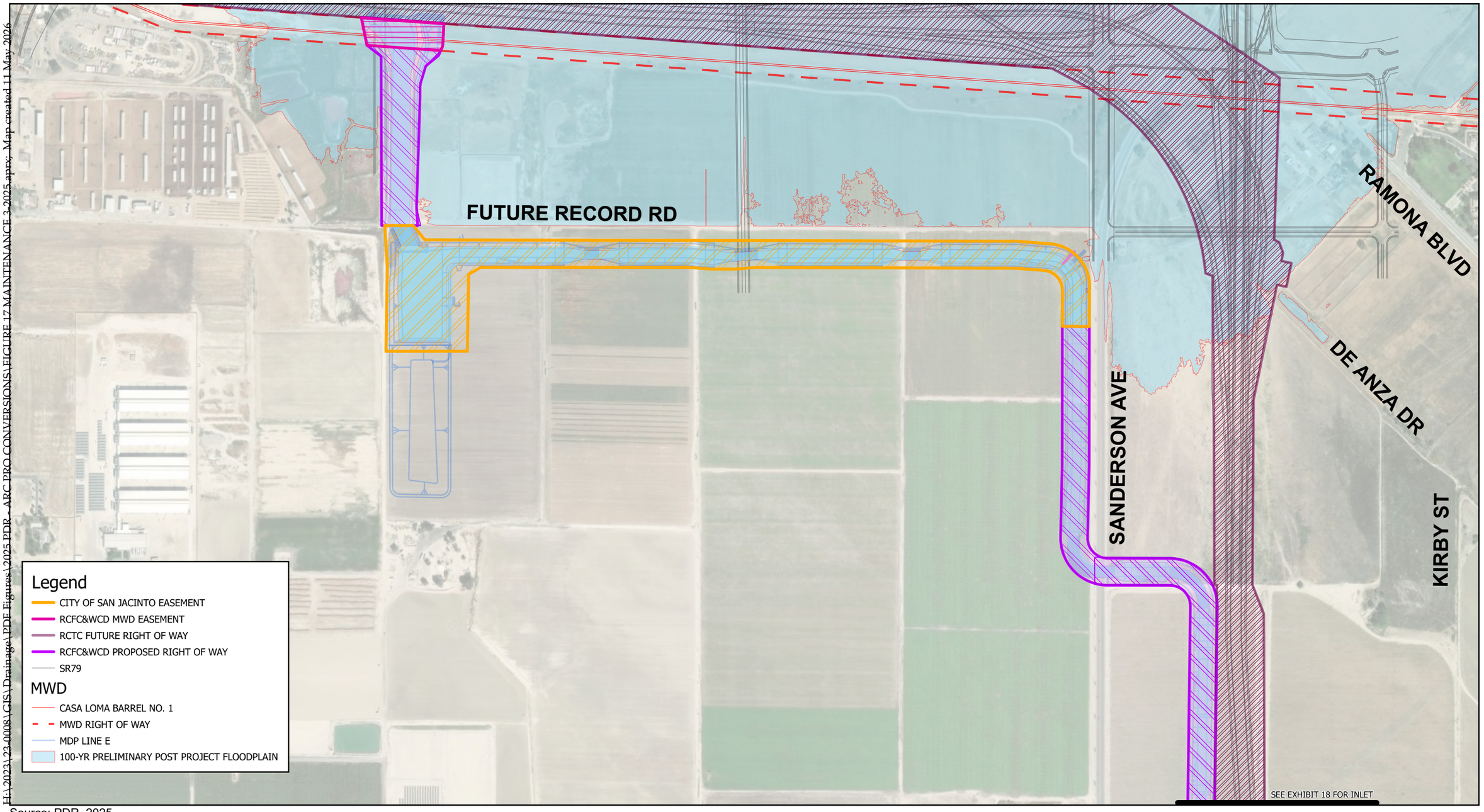
The City of San Jacinto would maintain the Confluence Basin and pump, and the segment of the Line E Channel with 15-foot access roads within APNs 432-030-011, 432-030-012 and 432-030-010. The City of San Jacinto would conduct the same types of maintenance activities as needed for the Line E Channel. (PDR, p. 38.)

Figure 11 – Lower Reach Maintenance Delineation and **Figure 12 –Upper Reach Maintenance Delineation** shows the overall maintenance and easement areas for the Line E Project. The activities needed to construct and the maintenance activities outlined above have been analyzed in this Addendum.

Discretionary Approvals by the City of San Jacinto

- As the CEQA Lead Agency, the City would approve the Line E Project Design Report (PDR) and adopt this Addendum for the Line E Project.
- At such time the City determines the entity to construct the Line E Project, per the SJV MDP EIR, "… all new facilities constructed by developers, San Jacinto, or Hemet, that require maintenance by RCFCWCD, would require RCFCWCD execution of a cooperative agreement and approval of plans and specifications".

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 17 MAINTENANCE 3-2025.aprx; Map created 11 May 2026



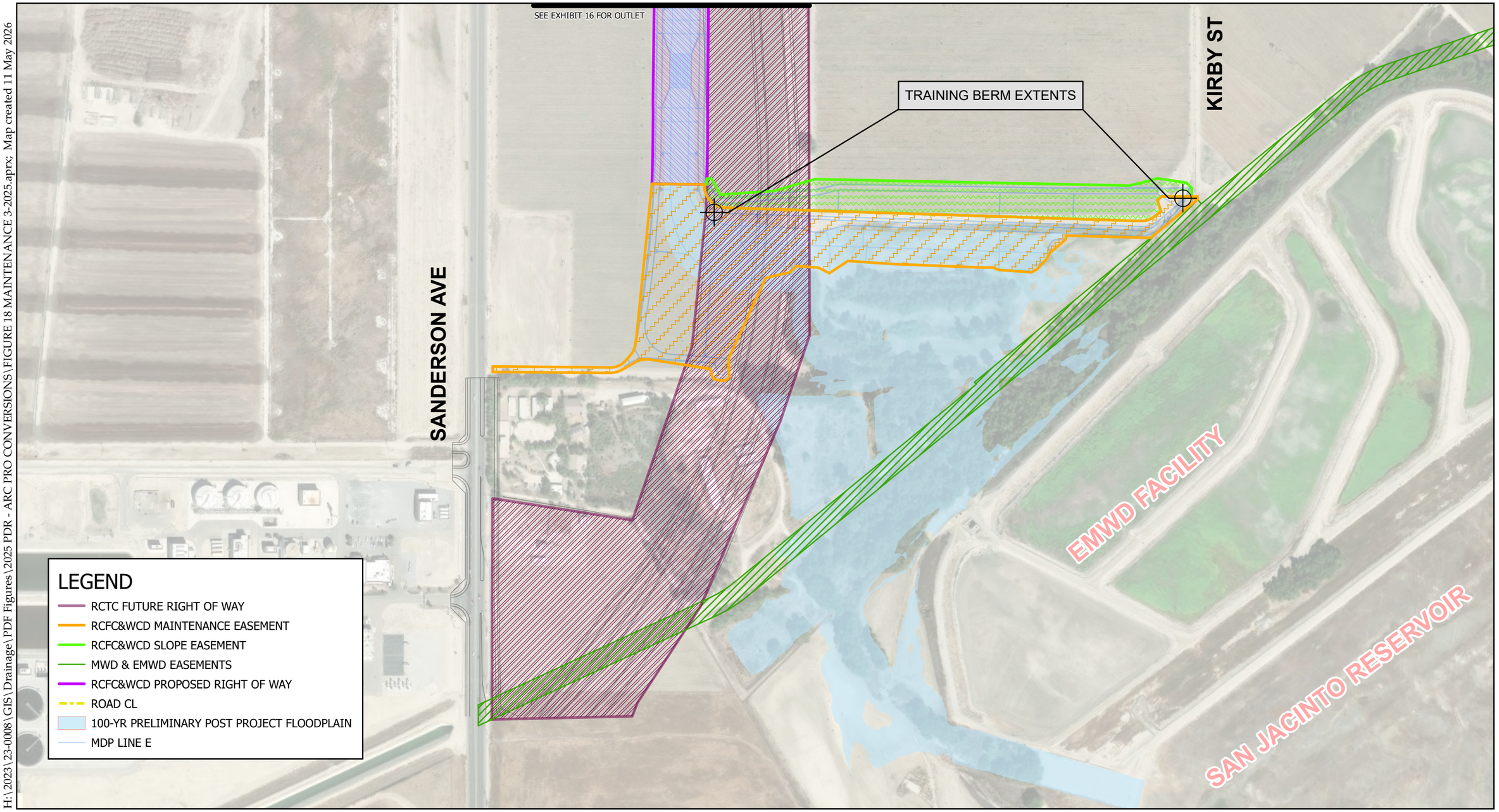
Source: PDR, 2025.

Figure 11 - Lower Reach Maintenance Delineation

Line E Addendum

ALBERT A. WEBB ASSOCIATES

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 18 MAINTENANCE 3-2025.aprx; Map created 11 May 2026



Source: PDR, 2025.

Figure 12 - Upper Reach Maintenance Delineation

Line E Addendum

ALBERT A. WEBB ASSOCIATES

Required Permits and/or Approvals, Trustee and Responsible Agencies

Implementation of the Line E project would require permits or other forms of approval from the following public agencies prior to construction.

Riverside County Flood Control and Water Conservation District

As with the SJV-MDP EIR, RCFC&WCD would be a CEQA Responsible Agency for the Line E Project because RCFC&WCD would approve a cooperative agreement with the City of San Jacinto as well as any private entity that might be constructing the Line E facility. RCFC&WCD would ultimately own and maintain the portions of Line E described under the Maintenance subheading above and shown on **Figure 11 – Lower Reach Maintenance Delineation** and **Figure 12 –Upper Reach Maintenance Delineation.** RCFC&WCD would also have to approve all Line E-related plans and specifications prior to construction. As a CEQA responsible Agency, RCFC&WCD would utilize this Addendum for these subsequent approvals.

California Department of Fish and Wildlife

In addition to being a Trustee Agency for all wildlife resources in California, CDFW would be a Responsible Agency for the Line E Project. As discussed in the response to item D.3, implementation of the Line E Project would impact non-riparian streambed regulated by CDFW; therefore, a Section 1600 Streambed Alteration Agreement is required from CDFW per SJV-MDP EIR **MM Bio 3**.

Regional Water Quality Control Board, Santa Ana Region (RWQCB)

As discussed in the response to item D.3, implementation of the Line E Project would impact of non-wetland waters regulated by the Regional Board; therefore, a Waste Discharge Permit (WDR) would be required prior to construction. is required from the Regional Board and a Section 1600 Streambed Alteration Agreement is required from CDFW per SJV-MDP EIR **MM Bio 3**. Additionally, a National Pollutant Discharge Elimination System (NPDES) General Construction Permit would be required since the Project entails more than on acre of grading.

Metropolitan Water District of Southern California

Encroachment permits will be required to construct SJV-MDP facilities within the rights-of-way of the Colorado River Aqueduct, Casa Loma Siphons 1 and 2, Casa Loma Canal, San Diego Pipelines 1 and 2, San Diego Canal, Lakeview Pipeline, San Jacinto Pipeline, and the Inland Feeder. As part of that process, Metropolitan would also have to review the plans and specifications for the portion of Line E within its rights-of-way.

County of Riverside, City of San Jacinto

Encroachment permits would be required to construct any portion of the Line E Project within road rights-of-way. Obtaining right-of-way on private property would also be required.

3. Regulatory Background and Addendum CEQA Findings

This section sets forth the regulatory authority for the preparation of an Addendum and makes the findings necessary for consideration by San Jacinto, as lead agency, or any responsible agency, to adopt this Addendum. The process for preparing an Addendum to a previously certified EIR is set forth in State *CEQA Guidelines* Section 15164. Sections 15164(a) and (b) state:

(a) The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

(b). An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.

The Line E Project proposes drainage facilities, specifically the Line E channel and Line E-Y-Z Confluence Basin identified in the SJV-MDP and evaluated at a program level in the certified SJV-MDP EIR. As demonstrated in the following analysis, no new significant impacts will result from implementing the Line E Project.

State *CEQA Guidelines* Section 15162(a) lists the specific conditions that require preparation of a subsequent EIR or negative declaration rather than an addendum. These include one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new, significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The following discussion presents a summary of each condition in State *CEQA Guidelines* Section 15162 and how the Line E Project is consistent with such condition.

Section 15162(a)1: Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new, significant environmental effects or a substantial increase in the severity of previously identified significant effects.

No major changes or revisions, nor new significant effects or an increase in severity of previously identified significant effects in the SJV-MDP EIR have occurred. As outlined in the original SJV-MDP EIR, the SJV-MDP identifies a general alignment and location of the proposed MDP facilities, including Line E. Precise facility locations and final sizing would be dictated by conditions existing at the time each facility is designed based on detailed analysis performed at the design stage. (SJV-MDP EIR, p. 2.0-8.)

The Project is an improved design vs. the conceptual design set forth in the SJV-MDP. The Project design being evaluated herein is the result of an iterative process to engineer around constraints that were identified during many stakeholder meetings with representatives from the City, RCFC&WCD, Metropolitan, Eastern Municipal Water District (EMWD), the adjacent property owner (SJMD LLC), and the Riverside County Transportation Commission (RCTC) once the need for implementation of Line E was identified. In addition, the proposed alignment, hydraulics, and hydrology for the Line E Project underwent three rounds of review with RCFC&WCD as part of the Preliminary Design Report (PDR) preparation. **Figure 6 – MDP EIR Alignment Compared to Addendum Alignment** shows the locational refinements to the Line E Channel based on the design rationale discussed below as compared to the conceptual alignment identified in the SJV-MDP.

Specifically, the Line E Project alignment intentionally avoids EMWD and Metropolitan easements near the Project inlet, and, at the same time avoids riparian habitat around the north side of the San Jacinto Reservoir. This has resulted in no hard connection between Line E and the San Jacinto Reservoir Spillway, as well as no hard connection between Line E and Line E-2, which in turn has resulted in less biological impacts than was previously identified in the SJV-MDP EIR. Therefore, related to biological resources, the Proposed Project now lessens what could have been significant biological impacts associated with the hard connection of Line E to the San Jacinto Reservoir and Line E-2 (see **Figure 6**).

The Project design also avoids potentially environmentally sensitive areas on neighboring properties and along the south side of the Casa Loma Barrel No. 1 Metropolitan right-of-way west of Sanderson Avenue. The locations of several future projects planned by public agencies in the same area were also accounted for in the alignment now presented for the Line E Project. The Line E Channel was realigned to avoid conflicts with major sewer infrastructure located where the original SJV-MDP conceptual alignment planned a crossing of Sanderson Avenue near the De Anza Lift Station. There are also existing utilities that conflict with the proposed Project alignment, specifically the proposed RCBs that cross Sanderson Avenue. These utilities would be relocated as part of the area analyzed for the Line E Project and proposed utility crossings would be coordinated with adjacent developers and projects.

As shown by the analysis in Section 4 Supplemental Environmental Checklist Form, the shift in the proposed alignment of the Line E Channel namely the elimination of hard connections between Line E and the San Jacinto Reservoir Spillway and Line E-2, avoids potentially sensitive environmental areas, as well as major sewer infrastructure. These modifications now reflected in the Line E Project do not constitute a substantial change that would require major revisions of the SJV-MDP EIR due to the involvement of new, significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Section 15162(a)2: Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

There are no substantial changes in the circumstances under which the Project would be undertaken compared to the analysis in the SJV-MDP EIR. There are no new significant environmental effects in the Line E Project area that have a substantial increase in severity. As shown in the analysis in Section 4 Supplemental Environmental Checklist Form herein, implementation of the proposed Project would not result in new significant environmental effects or any increase in the severity of previously identified environmental effects.

Section 15162(a)3: New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

The significant effects found in the SJV-MDP EIR were related to agricultural resources, air quality and population/housing. There are no new issues or areas of substantial importance related to these issue areas that would constitute new information. Since the SJV-MDP EIR was prepared and certified, one new species has been listed as Candidate Species per the California Department of Fish and Wildlife; the Crotch's Bumble bee is now a species that under CEQA has to be considered and impacts evaluated and mitigated for as appropriate. The results of the analysis in Section 4 Supplemental Environmental Checklist Form, which includes current biological studies, indicates that no new significant effects related to biological resources will result from Line E implementation. It is settled law in California that subsequent changes to the guidelines or other regulations are not "new information" triggering section 21166(c). (*Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal.App.4th 1301, 1318-1320.) Accordingly, the listing of Crotch's Bumble bee does not necessitate the preparation of subsequent EIR or negative declaration.

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

The significant effects found in the SJV-MDP EIR were related to agricultural resources, air quality, and population/housing. The City adopted a Statement of Overriding Considerations for these areas. (SJV MDP EIR, p. 1.0-9.)

Direct impacts regarding agricultural resources were determined to be significant because implementation of the SJV-MDP would result in the conversion of approximately 122 acres of Farmland to flood control facilities. Indirect impacts to agricultural resources were determined to be significant because implementation of the SJV-MDP could support and encourage planned development per the Riverside County, San Jacinto, and Hemet General Plans within the boundaries of the SJV-MDP. This area contains approximately 4,600 acres of Agricultural Land as defined in CEQA Section 210060.1. Potential direct and indirect impacts associated with the loss of Farmland remains unavoidable and are unmitigable. (SJV-MDP EIR, p. 5.0-18.)

Direct impacts regarding air quality were determined to be significant because depending on the MDP Facility or combination of Facilities constructed at any given time, construction emissions may exceed the regional significance thresholds established by the South Coast Air Quality

Management District (SCAQMD) for oxides of nitrogen (NOx,) particulate matter that is 10 microns or less in diameter (PM-10) and particulate matter that is 2.5 microns or less in size (PM-2.5.) SCAQMD local significance thresholds (LSTs) for PM-10 and PM-2.5 could be exceeded during construction. Although these are direct, short-term impacts that will cease once construction is complete; they remain unavoidable and are unmitigable. (SJV-MDP EIR, p. 5.0-18.)

Implementation of the SJV-MDP could indirectly induce growth by removing one potential barrier to growth through the provision of flood control infrastructure. The Hemet, San Jacinto, and Riverside County General Plans identify the type of development and growth that would be allowed within the boundaries of the SJV-MDP. The SJV-MDP does not propose any changes to the land uses from what is identified in the aforementioned General Plans; thus, potential indirect impacts from development in the Project area are not expected to exceed the potential impacts that have already been disclosed in the EIRs prepared for the Hemet, San Jacinto, and Riverside County General Plans. However, because implementation of the proposed Project could indirectly induce substantial population growth in the Project area, impacts regarding population/housing are considered significant. (SJV-MDP EIR, p. 5.0-18.)

The following issue areas were found to be less than significant with or without mitigation: aesthetics, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, mineral resources, noise, public services, recreation, transportation/traffic, and utilities/service systems. (SJV MDP EIR, p. 1.0-9.)

As shown in the analysis in Section 4 Supplemental Environmental Checklist Form, no new significant impacts to areas previously determined to be less than significant, nor any of the previously identified significant impact areas will be more severe, as a result of implementation of the proposed Project.

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

Table C – Mitigation Measures identifies the mitigation measures adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the SJV-MDP, the applicability to the Line E Project, and, in certain instances, a clarified or new mitigation measure.

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
MM Air 1: During construction, ozone precursor emissions from all vehicles and construction equipment shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications to the satisfaction of the jurisdiction in which the construction is taking	Not Applicable	**MM Air 1** through **MM Air 4** do not apply to the Line E Project because the Line E Project emissions are below the SCAQMD thresholds.

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
place, i.e., San Jacinto Public Works Department, Hemet Public Works Department, Riverside County Department of Building and Safety, or RCFCWCD. Equipment maintenance records and equipment design specification data sheets shall be kept on site during construction. Compliance with this measure shall be subject to periodic verification by the Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD		
MM Air 2: Signs shall be posted stating that all vehicles are prohibited from idling in excess of five minutes, both on and off site.	Not Applicable	
MM Air 3: Electricity from power poles shall be used instead of temporary diesel- or gasoline-powered generators to reduce the associated emissions.	Not Applicable	
MM Air 4: To reduce construction vehicle (truck) and equipment idling while waiting to enter/exit the site, the contractor shall submit a traffic control plan that will describe in detail safe detours to prevent traffic congestion to the best of the Project's ability, and provide temporary traffic control measures. To reduce traffic congestion, and therefore NOx, the plan shall include, as necessary, appropriate, and practicable the following: dedicated turn lanes for movement of construction trucks and equipment on and off site, scheduling of construction activities that affect traffic flow on the arterial system to off-peak hour, rerouting of construction trucks away from	Not Applicable	

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
congested streets or sensitive receptors, and/or signal synchronization to improve traffic flow.		
MM Bio 1: In order to avoid violation of the MBTA and California Fish and Game Code, site-preparation activities (removal of trees and vegetation) shall be avoided, to the greatest extent possible, during the nesting season (generally February 1 to August 31) of potentially occurring native and migratory bird species. If site-preparation activities are proposed during the nesting/breeding season (February 1 to August 31), a pre-activity field survey shall be conducted by a qualified biologist prior to the issuance of grading permits, for private development projects, or prior to construction for public agency contracts, to determine if active nests of species protected by the MBTA or the California Fish and Game Code are present in the construction zone. If active nests are not located within the Project area and appropriate buffer, 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected bird nests (non-listed), or within 100 feet of sensitive or protected songbird nests, construction may be conducted during the nesting/breeding season. However,	Revised/Clarified	**CMM[3] Bio 1:** In order to avoid violation of the MBTA and California Fish and Game Code, site-preparation activities (removal of trees and vegetation) shall be avoided, to the greatest extent possible, during the nesting season (generally February 1 to September 15 ~~August 31~~) of potentially occurring native and migratory bird species. If site-preparation activities are proposed during the nesting/breeding season (February 1 to September 15 ~~August 31~~), a pre-activity field survey shall be conducted by a qualified biologist ~~be to the issuance of grading permits, for private development projects, or~~ prior to ~~construction for public agency contracts~~, within three days prior to any disturbance of the Line E Project site, including disking, demolition activities, and grading, to determine if active nests of species protected by the MBTA or the California Fish and Game Code are present in the construction zone. ~~If active nests are not located within the Project area and appropriate buffer, 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected bird nests (non-listed), or within 100 feet of sensitive or protected songbird nests, construction may be~~

[3] CMM – Clarified Mitigation Measure

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
if active nests are located during the pre-activity field survey, no grading or heavy equipment activity shall take place within at least 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected (under MBTA or California Fish and Game Code) bird nests (non-listed), or within 100 feet of sensitive or protected songbird nests until the nest is no longer active.		~~conducted during the nesting/breeding season. However,~~ ~~i~~ If active nests are located during the pre-activity field survey, ~~no grading or heavy equipment activity shall take place within at least 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected (under MBTA or California Fish and Game Code) bird nests (non-listed), or within 100 feet of sensitive or protected songbird nest~~s the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nest is no longer occupied and juvenile birds can survive independently from the nests.~~ active.~~
MM Bio 2: Facility-specific habitat assessments and focused surveys for burrowing owls will be conducted within burrowing owl survey areas. A pre-construction survey for resident burrowing owls will also be conducted by a qualified biologist within 30 days prior to commencement of grading and construction activities within those portions of the Project site containing suitable burrowing owl habitat. If ground-disturbing activities in these areas are delayed or suspended for more than 30 days after the pre-construction survey, the area shall be resurveyed for owls. Take of active nests shall be avoided. The pre-construction survey and any relocation activity	Satisfied	Because a portion of SJV-MDP EIR **MM Bio 2** has already been fulfilled through preparation of the *Biological Technical Report for San Jacinto Valley Master Drainage Plan Line E, Located in the City of San Jacinto, Riverside County, California*, January 28, 2025, which is included as Appendix D.1 to this Addendum. Mitigation measure **MM Bio E7**, which amplifies the requirements of the preconstruction survey clarifies and replaces SJV-MDP **MM Bio 2** for the Line E Project. **MM Bio E7**[4]**: Burrowing Owl Preconstruction Survey:** To avoid direct impacts to burrowing owls and comply with MSHCP Objective 6 for burrowing owls, a 30-day pre-

[4] E – New Line E Mitigation Measure

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
will be conducted in accordance with MSHCP instructions and/or guidelines.		construction survey for burrowing owls shall be conducted prior to any future Project-related ground-disturbing activities (e.g., vegetation clearing, clearing and grubbing, tree removal, site watering, equipment staging, etc.) to ensure that no owls have colonized the Project site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the Project site prior to the initiation of ground-disturbing activities, the Project proponent shall immediately inform the Regional Conservation Authority (RCA) and the Wildlife Agencies and shall coordinate with the RCA and the Wildlife Agencies (CDFW and United States Fish and Wildlife Service), including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground disturbing activities take place, but the Project site is left undisturbed for more than 30 days, another preconstruction survey shall be conducted to ensure that burrowing owl have not colonized the Project site since it was last disturbed. If burrowing owls are found, the Project proponent shall immediately inform the RCA and the Wildlife Agencies and shall coordinate with the RCA and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan before construction resumes.
MM Bio 3: Project-specific delineations will be required to determine the limits of the U.S. Army Corp of Engineers (ACOE),	Satisfied	This mitigation measure has been satisfied by preparation of the *Jurisdictional Delineation of the Master Drainage Plan (MDP) Line E*

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
RWQCB, and CDFG jurisdiction. Impacts to jurisdictional waters will require authorization by the corresponding regulatory agency. If impacts are indicated, then jurisdictional water will either a) be avoided or b) necessary permits from requisite jurisdictions will be obtained.		*Project, an Approximately 14,000 Linear-Foot Drainage Alignment in the City of San Jacinto, Riverside County, California*, October 30, 2024, prepared by Glenn Lukos Associates, Inc. which is included as Appendix H to the *Biological Technical Report*, which is Appendix D.1 to this Addendum.
MM Bio 4: The project-specific mapping of riparian and unvegetated riverine features will be required pursuant to Section 6.1.2 of the MSHCP. For areas not excluded as artificially created, the MSHCP requires 100 percent avoidance of riparian/riverine areas. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation to offset the loss of functions and values as they pertain to the MSHCP-covered species. Riparian vegetation will also need to be evaluated for the least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. If suitable habitat is present, focused surveys for the species will be required. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, payment into habitat mitigation banks or in lieu fee programs, or a combination of one or more of these options.	Satisfied	This mitigation measure has been satisfied by preparation of the *Biological Technical Report for San Jacinto Valley Master Drainage Plan Line E, Located in the City of San Jacinto, Riverside County, California*, January 28, 2025, which is included as Appendix D.1 to this Addendum.
MM Bio 5: The project-specific mapping of vernal pools will be required pursuant to Section 6.1.2	Satisfied	This mitigation measure has been satisfied by preparation of the *Biological Technical Report for San*

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
of the MSHCP. As noted above, vernal pools (or similar seasonal ponding alkali playa areas) are expected to occur at least in the area comprising Cell Group V, but have the potential to occur elsewhere within the Project area. For areas not excluded as artificially created, the MSHCP requires 100 percent avoidance of vernal pools areas. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation to offset the loss of functions and values as they pertain to the MSHCP covered species. Vernal pools and other seasonal ponding depressions will also need to be evaluated for Riverside and Vernal pool fairy shrimp.		*Jacinto Valley Master Drainage Plan Line E, Located in the City of San Jacinto, Riverside County, California*, January 28, 2025, which is included as Appendix D.1 to this Addendum.
MM Bio 6: Within areas of suitable habitat associated with the Narrow Endemic Plant Species Survey Area (NEPSSA) and Criteria Area Plant Species Survey Area (CAPSSA), facility-specific focused plants surveys will be required. Including the smooth tarplant mapped as part of this study, the MSHCP requires at least 90 percent avoidance of areas providing long-term conservation value for the NEPSSA and CAPSSA target species. If avoidance is not feasible, then individual projects will require the approval of a DBESP, including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, payment into habitat mitigation banks or in lieu fee programs, or a combination of one	Satisfied	This mitigation measure has been satisfied by preparation of *Biological Technical Report for San Jacinto Valley Master Drainage Plan Line E, Located in the City of San Jacinto, Riverside County, California*, January 28, 2025, which is included as Appendix D.1 to this Addendum. NEPSSA surveys were conducted for the Line E Project and no NEPSSA plant species were detected during the focused surveys. While smooth tarplant is specifically called out in the original MM, this species is not subject to focused surveys because the project site is not located within the CASSA. However, smooth tarplant will be mitigated as part of **MM Bio E8.**

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
or more of these options. Furthermore, the smooth tarplant mapped within Cell Group V is expected to be required for conservation as part of the Cell Group V criteria.		
MM Bio 7: Focused surveys shall be conducted within potentially suitable habitat for Chaparral sand-verbena and South coast salt scale by a qualified biologist during the flowering season of these species and prior to construction activities. If special status plant species are found to be present in the footprint, further measures as recommended by a qualified biologist shall be taken to avoid or minimize adverse project effects to these species and their habitat. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation.	Not Applicable	This mitigation measure is not applicable, as the Line E Project does not have habitat for Chaparral sand-verbena or South coast salt scale.
MM Bio 8: Focused surveys shall be conducted within potentially suitable habitat for the San Bernardino kangaroo rat and Los Angeles pocket mouse by a qualified biologist during the appropriate season of these species and prior to construction activities. If these species are found to be present in the footprint, occupied habitat shall be fenced and avoided. If occupied habitat cannot be avoided, further measures as recommended by a qualified biologist and in consultation with the California Department of Fish and Game, shall to be taken to avoid or minimize adverse project effects to these species and their habitat.	Not Applicable	This mitigation measure is not applicable because there is no SBKR or LAPM habitat within the limits of the Line E Project.

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
The SJV MDP EIR did not specifically require LBV focused surveys, but in order to be compliant with the MSHCP, as required by the SJV MDP, the Line E Project does need to do additional mitigation related to LBV.	Added/Clarified	
The SJV MDP EIR did not specifically require preparation of a Habitat Mitigation and Monitoring Plan (HMMP); however, in order to be compliant with the MSHCP, as required by the SJV MDP, an HMMP will be required to reduce direct impacts to non-wetland waters of the Regional Board and non-riparian stream under California Department of Fish and Wildlife jurisdiction.	Added/Clarified	**MM Bio E8: Habitat Mitigation and Monitoring Plan.** In order to mitigate the 4.03 acres of riverine resources, including impacts associated with smooth tarplant found in these riverine areas, the Project proponent shall prepare a Habitat and Mitigation and Monitoring Plan (HMMP) and secure conservation property to be restored for alkali playa/meadow resources, including smooth tarplant. The HMMP shall be prepared on a property that is to be secured for conservation in perpetuity which will support at least 8.06 acres (2:1) of restored riverine alkali playa/meadow. The HMMP shall be submitted to the City of San Jacinto, CDFW and USFWS for review and approval. The HMMP will be used to support the mitigation necessary for impacts to the Waters of the State which require permits through the CDFW and Regional Board. The property shall be conveyed to a conservation entity such as Rivers and Lands Conservancy or other such entity as approved by CDFW and USFWS. The Project proponent will provide a non-wasting endowment to fund the management of the conservation/mitigation property in perpetuity.

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
MM Cultural 1: A paleontological resources field survey (or surveys) shall be completed prior to the earlier of issuance of a grading permit or construction of any SJV-MDP facility subject to further CEQA analysis. If the results of such survey (or surveys) identify the presence of potentially significant paleontological resources, avoidance or other appropriate measures (such as excavation, analysis, and interpretation of resources) potentially leading to curation in perpetuity in a facility that meets the standards of the State of California Guidelines for the Curation of Archaeological Collections (OHP 1993) and 36 CFR 79, shall be implemented.	Satisfied	This mitigation measure has been satisfied by preparation of the *Paleontological Resource Assessment for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California, January 2024,* prepared by Applied Earthworks (AE) and included as Appendix F of this Addendum.
MM Cultural 2a: Prior to the earlier of issuance of a grading permit or construction of any SJV MDP facility subject to further CEQA analysis, the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD shall require the Project applicant to commission an assessment of the potential for archeological and cultural resources to be performed by a qualified archaeologist in conjunction with recognized Native American tribes, including the Soboba Band of Luiseno Indians (Soboba), in order to determine the presence and extent of any such resources within the Project area and evaluate the significance of such resources. The assessment shall include a NAHC and CHRIS records search, a Phase I walkover survey, and preparation of an	Satisfied	This mitigation measure has been satisfied by preparation of the *Cultural Resource Study for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California, January 2024,* prepared by Applied Earthworks for the Line E Project and is included as Appendix E to this Addendum.

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
archaeological report containing the results of this assessment. Phase II archaeological evaluations will be completed prior to project approval if recommended in the assessment.		
MM Cultural 2b: The San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD shall enter into a Treatment and Disposition Agreement (TDA) with Soboba to address treatment and disposition of archaeological and cultural resources and human remains associated with Soboba that may be uncovered or otherwise discovered during construction within the jurisdiction of the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD. The TDA may establish provisions for tribal monitors. Following execution of the TDA by the San Jacinto Public Works Department or Hemet Public Works Department and Soboba, the TDA will be incorporated by reference into individual grading permits for portions of the Project that are within the jurisdiction of San Jacinto Public Works Department or Hemet Public Works Department; TDAs executed between RCFCWCD and Soboba will be incorporated into the construction specifications.	Revised/Clarified	**CMM Cultural-2b: Archaeological Monitoring, Cultural Resources Worker Sensitivity Training, and Treatment and Disposition Plan.** Prior to the initiation of any Line E-Project-related surface grubbing or clearing and initial grading, the entity carrying out the project ~~the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD~~ shall retain a qualified professional archaeologist (the "Project Archaeologist") meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology as defined at 36 CFR Part 61, Appendix A. The primary task of the Project Archaeologist shall be to monitor the initial ground-disturbing activities at the Line E Project site for the identification of any previously unknown archaeological and/or cultural resources. The Project Archeologist shall attend the pre-grading meeting with the City of San Jacinto Staff, the Line E Project construction manager, and any Line E Project contractors to conduct a mandatory **Cultural** Resources Worker Sensitivity Training to those in attendance. The Project Archaeologist or designated archaeological monitor shall have the authority to temporarily halt and redirect earth moving activities in

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
		the affected area if suspected archaeological resources are unearthed. Also prior to the initiation of any Line E Project-related surface grubbing or clearing and initial grading, the entity carrying out the project ~~San Jacinto Public Works Department~~, shall enter into a Treatment and Disposition Agreement (TDA) with the Soboba Band of Luiseño Indians to address treatment and disposition of archaeological and cultural resources and human remains associated with the Soboba Band of Luiseño Indians that may be uncovered or otherwise discovered during construction within the jurisdiction of the San Jacinto Public Works Department~~, Hemet Public Works Department, or RCFCWCD~~. The TDA may establish provisions for tribal monitors. Following execution of the TDA ~~by the San Jacinto Public Works Department and Soboba~~, the TDA ~~be incorporated by reference into individual grading permits for portions of the Project that are within the jurisdiction of San Jacinto Public Works Department or Hemet Public Works Department; TDAs executed between RCFCWCD and Soboba~~ will be incorporated into the Line E Project construction specifications.
MM Cultural 2c: If the archaeological/cultural resources assessment described in **MM Cultural 2a** demonstrates the potential for archaeological/cultural resources to occur on the Project site, tribal monitors, including those	**Revised/Clarified**	**CMM Cultural 2c**: **Inadvertent Finds.** ~~If the archaeological/cultural resources assessment described in MM Cultural 2a demonstrates the potential for archaeological/cultural resources to occur on the Project site, tribal monitors, including those~~

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
from Soboba, may be allowed to monitor, at such tribe's sole cost and expense, all grading, excavation, and ground-disturbing activities, including further surveys. Following the agreement of the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD, the designated archaeologist, the tribal monitor, and any applicable responsible or trustee agencies, grading, excavation, ground-disturbing activities shall be halted temporarily, and redirected in the event that any archaeological/cultural resources are discovered, in order to evaluate the significance of said archaeological /cultural resources. Any artifacts collected or recovered shall be cleaned, identified, catalogued, analyzed, and prepared for curation at an appropriate repository with permanent retrievable storage to allow for additional research in the future. Site records or site record updates (as appropriate) shall be prepared and submitted to the Eastern Information Center as a permanent record of the discovery.		~~from Soboba, may be allowed to monitor, at such tribe's sole cost and expense, all grading, excavation, and ground-disturbing activities, including further surveys. Following the agreement of the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD, the designated archaeologist, the tribal monitor, and any applicable responsible or trustee agencies,~~ Grading, excavation, ground-disturbing activities shall be halted temporarily by the Project Archaeologist, and redirected in the event that any archaeological/cultural resources are discovered during initial ground disturbing activities, in order to evaluate the significance of said archaeological/cultural resources. Any artifacts collected or recovered shall be cleaned, identified, catalogued, analyzed, and prepared for curation at an appropriate repository with permanent retrievable storage to allow for additional research in the future. Site records or site record updates (as appropriate) shall be prepared and submitted to the ~~Eastern Information Center~~ South Coastal Information Center as a permanent record of the discovery.
MM Cultural 3: Earth-moving activities encountering soils that are identified as Pleistocene-age or older alluvium, by the soils engineer, shall be monitored by a qualified paleontological monitor. Continuous monitoring shall be restricted to undisturbed older alluvium, which might be present	**Revised/Clarified**	**CMM Cultural 3: Paleontological Resources Mitigation Monitoring Plan.** Prior to the commencement of ground-disturbing activities, the City (or designee) shall retain a Project Paleontologist to prepare and implement a Paleontological Resources Mitigation Monitoring Plan (PRMMP) for the Line E

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
below the surface. To avoid construction delays, the monitor shall be prepared to quickly salvage fossils, as they are unearthed. The monitor shall remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor shall have the authority to temporarily halt or divert grading equipment to allow for the removal of abundant or large specimens.		Project. The PRMMP shall include preparation and presentation of Paleontological Resources Workers Environmental Awareness Program (WEAP) to educate construction crews about the types of paleontological resources that may be encountered at the Line E Project site. The Paleontological Resources WEAP shall provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the area, the role of the paleontological monitor, outline steps to follow in the event that a fossil discovery is made and provide contact information for the Project Paleontologist. The Project Paleontologist or designee(s) shall present the Paleontological Resources WEAP to the construction contractor and each of the construction crews working on the Project during a preconstruction meeting. The Paleontological Resources WEAP shall be taped and presented to any construction crew members who were not present at the preconstruction meeting during which it was initially presented prior to such crew members working on the Project. This training may be conducted concurrent with other preconstruction training (e.g., biological resources, safety). Earth-moving activities encountering soils that are identified as Pleistocene-age or older alluvium, by the soils engineer, shall be monitored by a qualified

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
		paleontological monitor as set forth in the PRMMP. Continuous monitoring shall be restricted to undisturbed older alluvium, which might be present below the surface. To avoid construction delays, the monitor shall be prepared to quickly salvage fossils, as they are unearthed. The monitor shall remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor shall have the authority to temporarily halt or divert grading equipment to allow for the removal large specimens.
MM Cultural 4: All recovered specimens shall be prepared and stabilized for identification and permanent preservation, including the washing of sediment samples to recover small invertebrates and vertebrates.	Revised/Clarified	**CMM Cultural 4:** All recovered specimens shall be prepared and stabilized for identification and permanent preservation as set forth in the PRMMP prepared under **CMM Cultural 3**, including the washing of sediment samples to recover small invertebrates and vertebrates.
MM Cultural 5: Identification and curation of specimens into an established accredited museum repository with permanent retrievable paleontological storage shall be required. Mitigation of adverse impacts to significant paleontological resources is not complete until the curation process has been fully completed and documented.	Revised/Clarified	**CMM Cultural 5**: Identification and curation of recovered specimens into an established accredited museum repository with permanent retrievable paleontological storage shall be required as set forth in the PRMMP prepared under **CMM Cultural 3**. Mitigation of adverse impacts to significant paleontological resources is not complete until the curation process has been fully completed and documented.
MM Cultural 6: Preparation of a report of findings with an appended itemized inventory of specimens	Revised/Clarified	**CMM Cultural 6:** Preparation of a report of findings with an appended itemized inventory of specimens

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
shall be required. The submittal of the report to the Lead Agency and the curation of recovered specimens into an established, accredited museum repository would signify the completion of the mitigation program.		shall be required as set forth in the PRMMP prepared under **CMM Cultural 3**. The submittal of the report to the Lead Agency and the curation of recovered specimens into an established, accredited museum repository would signify the completion of the mitigation program.
MM Haz 1: As part of the final design of each SJV-MDP facility, the design engineer or designee shall check proposed sites for listing on the most recent Hazardous Waste and Substances List provided by the Riverside County Department of Environmental Health pursuant to Section 65962.5 of the Government Code. If the location of said facility is on the Hazardous Waste and Substances List, avoidance of that property or properties will be the first consideration; if avoidance is infeasible, **MM Haz 2** shall be implemented.	Satisfied	As required by SJV-MDP EIR **MM Haz 1**, the list compiled by Government Code Section 65962.5, known as the Cortese List, was reviewed to determine if any portion of the Line E Project site is on this list. None of the sites listed on the Cortese List are within or near the Line E Project disturbance area. This mitigation measure has been satisfied.
MM Haz 2: If the selected facility traverses a site listed on the Hazardous Waste and Substances List, and avoidance is not feasible or if there are other indications that a site could be contaminated, a Phase 1 Environmental Site Assessment (ESA) for such facility will be prepared. If the Phase 1 ESA identifies possible contamination along the facility alignment, then all recommended subsurface investigation measures listed in the Phase I ESA will be implemented. Based on subsurface investigations characterizing subsurface contamination, remediation	Not Applicable	This mitigation measure is not applicable, as the Line E Project is not on or in proximity to any known hazardous materials sites..

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
measures (such as excavation of contaminated soil, bioremediation, or soil-vapor extraction), shall be implemented for the applicable facility or an alternative facility alignment will be chosen.		
MM Haz 3: All environmental investigation and/or remediation shall be conducted under a Workplan approved by jurisdictional regulatory agencies overseeing hazardous waste cleanups until the applicable regulatory standard is met.	Not Applicable	This mitigation measure is not applicable because a Phase I Environmental Site Assessment (ESA) and Phase II ESA were prepared for the Line E Project (Appendices H.1 and H.2). Based on the findings of the Phase I ESA and Phase II ESA it was determined that no further environmental investigation or remediation is required.
MM Haz 4: Prior to any excavation or soil removal on known contaminated sites, or if contaminated soil (i.e., soil with a visible sheen or detectable odor) is encountered, a complete characterization of the soil will be conducted. Appropriate sampling shall be conducted prior to disposal of the excavated soil. If the soil is contaminated, it shall be properly disposed of according to California's Land Disposal restrictions (California Code of Regulations, Chapter 18, Title 22). If site remediation involves the removal of contamination, then contaminated material shall be transported off site by a licensed handler/hauler to a licensed hazardous waste disposal facility.	Not Applicable	This mitigation measure is not applicable as there are no known contaminated sites within the Line E Project site according to a recent Phase I ESA. Furthermore, a Phase II ESA was prepared for the Project which determined that no further environmental investigation is required.
MM Haz 5: If soil import is required for construction of a specific facility, proper sampling shall be conducted prior to the use of such imported soil	Not Applicable	This mitigation measure is not applicable because soil import is not required to construct the Line E.

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
to make sure that the imported soil is free of contamination.		
MM Haz 6: If during construction of a specific facility, soil and/or groundwater contamination is suspected, construction in the area of the suspected contamination shall cease and appropriate health and safety measures shall be implemented. The construction contractor shall contact the respective jurisdictional enforcement agency (i.e., San Jacinto, Hemet, Riverside County, RCFCWCD) to obtain the necessary information on appropriate measures and their implementation. The measures recommended by the applicable enforcement agency will be implemented.	Not Applicable	This mitigation measure is not applicable because the Phase I ESA did not identify ground water contamination and Phase II ESA did not identify soil contamination within the Project footprint.
Since the SJV-MDP EIR was prepared and certified, one new species has been listed as Candidate Species per the California Department of Fish and Wildlife; the Crotch's bumble bee (CBB) is now a species that under CEQA has to be considered and impacts evaluated and mitigated for as appropriate. Therefore, in order to be compliant, the Line E Project does need to do additional mitigation related to CBB.	Added	**MM Bio E1: Crotch's Bumble Bee Pre-Construction Survey and Construction Monitoring.** In order to avoid direct and indirect impacts to Crotch's bumble bee (CBB) which could establish themselves on the Project site before construction starts, prior to the start of any Project-related ground-disturbing activities a qualified CBB biologist (i.e., 1-2 years of experience performing CBB surveys, or, has a Memorandum of Understanding [MOU] with CDFW), shall perform the records searches and site surveys according to the methods set forth in the California Department of Fish and Wildlife *Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species*, June 6, 2023 (the "2023 CDFW Survey Considerations"). The literature

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
		review and records search shall identify occurrences at the Project site and within a 5-mile buffer. The literature review and records search shall include: a report from the CDFW California Natural Diversity Data Base for a 10-mile radius of the project site; aerial photographs; and iNaturalist for bee sightings and nectar sources. Then, the qualified CBB biologist shall conduct on-site surveys for foraging and nesting bees. The surveys shall begin with a habitat assessment to evaluate the likelihood of bumble bees occurring within and adjacent to the project area. Then, foraging bumble bee and nesting surveys shall be conducted during the peak nectar blooming period (April through June 30). Habitat assessment and survey results shall be submitted to CDFW prior to the start of ground-disturbing project activities. Vegetation removal is allowable from November to January (note seasonal limitations for nesting birds in **MM Bio E4**). No monitoring is required if removal of vegetation occurs during this time period. However, vegetation removal/ground disturbances during the CBB flight season, which is February to October, will require preemptive focused CBB surveys and full-time biological monitoring for CBB to take place within the project limits. If Crotch's bumble bees are present, mitigation measure **MM Bio E2**, which required an avoidance plan shall be implemented. Construction monitoring for CBB may cease based on the professional

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
		judgement of the qualified CBB biologist that construction activities have already impacted the extent of the planned impact footprint. If an active CBB nest is detected during focused surveys conducted between April and June, or during the construction monitoring, then the qualified biologist shall establish a no-disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) around the CBB nest. The qualified biologist and City shall notify CDFW and if needed, process an Incidental Take Permit (ITP) with CDFW (**MM Bio E3**). If a single CBB is observed during construction, CDFW shall be notified, and work shall be halted in that area until the qualified biologist deems the CBB has left the site. It is expected that if an ITP is needed, that the offsite mitigation which has similar habitat types would be required. If offsite mitigation for CBB is needed, then a CBB permitted land manager shall be hired by the City to ensure CBB habitat is intact on the offsite mitigation property.
	Added	**MM Bio E2: Crotch's Bumble Bee Avoidance Plan.** If Crotch's bumble bee is detected during pre-construction surveys outlined above in **MM Bio E1**, the City in consultation with the qualified CBB biologist shall develop a plan to fully avoid impacts to Crotch's bumble bee. The plan shall include effective, specific, enforceable, and feasible measures. An avoidance plan shall be submitted to the City

Table C – Mitigation Measures

SJV MDP EIR Mitigation Measure	Applicability to Line E Project	Line E Project Mitigation Measure
		prior to implementing Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's bumble bee.
	Added	**MM Bio E3: Incidental Take Permit for Crotch's Bumble Bee.** If Crotch's bumble bee is detected during the focused surveys and Crotch's bumble bee becomes formally listed under CESA or is still a Candidate species and if impacts to Crotch's bumble bee cannot be feasibly avoided during Project construction and activities, the City/qualified biologist shall coordinate with CDFW to obtain appropriate permits for incidental take of Crotch's bumble bee and provide appropriate mitigation for impacts to Crotch's bumble bee habitat. CDFW recommends the City mitigate for impacts to Crotch's bumble bee habitat at a ratio comparable to the Project's level of impacts.

All potentially significant impacts, except for agricultural resources] and indirect growth inducing impacts to population/housing, identified in the SJV-MDP EIR were determined to be less than significant with incorporation of mitigation measures. The Line E Project incorporates feasible mitigation to reduce potential impacts to less than significant.

(D) *Mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.*

See **Table C – Mitigation Measures**. All potentially significant impacts, except agricultural resources, air quality, and population/housing identified in the SJV-MDP EIR were determined to be less than significant with incorporation of mitigation measures. As shown in **Table C – Mitigation Measures,** certain mitigation measure have been satisfied by the preparation of Line E Project specific technical studies for air quality, biological resources, cultural resources, and searching hazardous materials databases. Other mitigation measures from the SJV-MDP EIR have been clarified to be specific to the Line E Project; however, these clarifications do not reduce

the effectiveness of the mitigation measures or change the significance determinations of the SJV-MDP EIR. New mitigation measures for potential impacts to biological resources would be implemented by the Line E Project; however, these measures are not mitigating new significant effects on the environment; rather, they identify specific actions to implement the more general SJV-MDP EIR mitigation measures. (*Mani Brothers Real Estate Group v. City of Los Angeles* (2007) 153 Cal.App.4th 1385, 1403 [Mitigation measures adopted when a project is approved may be changed or deleted in an addendum if the agency states a legitimate reason for making the changes and the reason is supported by substantial evidence]; see also *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 359.) No new or more severe impacts are caused by the deletions or changes to the SJV-MDP EIR mitigation measures. Hence, no subsequent EIR is required.

Based on the above, the City has reviewed the Line E Project in light of the requirements defined under the State *CEQA Guidelines Section 15164* using the Supplemental Environmental Checklist Form in Section 4 of this Addendum. The City, as the CEQA lead agency, has determined that none of the above conditions requiring preparation of a subsequent or supplemental MND or EIR apply. Therefore, an addendum to the San Jacinto Master Drainage Plan (MDP) EIR is the appropriate environmental documentation for the Line E Project.

4. Supplemental Environmental Checklist Form

A. Project Title
San Jacinto Valley Master Drainage Plan Line E Project

B. Lead Agency Name, Address, Contact Person, and Phone Number
City of San Jacinto
595 S. San Jacinto Ave.,
San Jacinto, CA 92583
Kevin White, Planning Manager, (951) 487-7330 Ext. 306

C. Responsible Agency Name, Address, Contact Person. and Phone Number
Riverside County Flood Control and Water Conservation District
1995 Market St.
Riverside, CA 92501
Margaret Bornyasz, Senior Flood Control Planner, (951) 955-1200

D. Project Location
The proposed Project is generally located south of Ramona Expressway, north of Cottonwood Road, parallel to and east of Sanderson Avenue, in the City of San Jacinto, Riverside County, California as described in detail in Section 2 Project Description and shown on **Figure 3 – Regional Map** and **Figure 4 - Project Map**.

E. Project Sponsor's Name and Address
City of San Jacinto
595 S. San Jacinto Ave.
San Jacinto, CA

F. Total Project Area
Approximately 137.5 acres in total

G. Assessor's Parcel Number(s)
The Project encompasses all or portions of APNs 430-100-002, 430-100-009, 430-100-012, 430-100-013, 430-100-018, 432-030-006, 432-030-010, 432-030-012, 432-030-013, 436-010-003, 436-010-005, 436-030-004, 436-080-002, 436-080-003, 436-170-001, and 436-170-016.

H. Section, Township & Range
Sections 18,19, 20, and 29, Township 4 South and Range 1 West of the San Bernardino Baseline and Meridian, identified on the Lakeview, California USGS 7.5 Quadrangle Map as identified on **Figure 13 – USGS Topographic Map**.

I. Elevation
The Project site ranges in elevation from approximately 1,452 to 1,490 feet above mean sea level (AMSL).

J. General Plan Land Use Designation(s)

Table D – General Plan Land Use Designations

APN	GP Land Use Designation
430-100-002 430-100-013	Commercial
430-100-012	Water
430-100-009 430-100-018	Business Park
432-030-013 436-080-002	Low Density Residential
432-030-006 432-030-010	Villages Specific Plan
432-030-012	Medium Density Residential
436-030-004 436-170-001 436-170-016	Commercial; Medium Residential

Refer to **Figure 14 – General Plan Land Use Designations.**

K. Existing Zoning Designation(s)

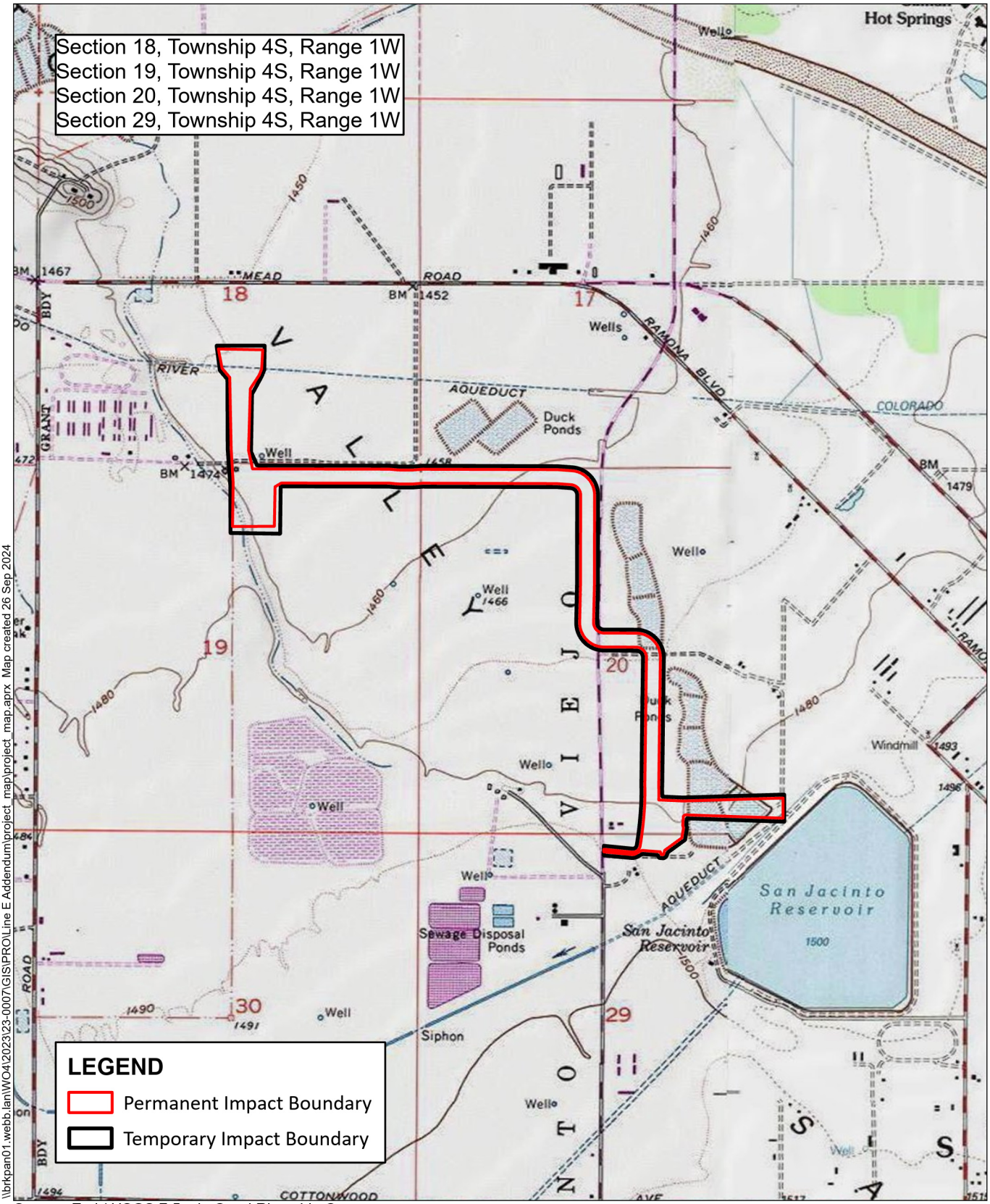
Table E – Zoning Designations

APN	Zoning Designation
430-100-002 430-100-013	CG – Commercial General
430-100-012	W – Water Source
430-100-009 430-100-018	OP – Office Park
432-030-013 436-080-002	RL – Residential, Low Density
432-030-006 432-030-010	SP – Specific Plan
432-030-012	RM – Residential, Medium Density
436-030-004 436-170-001 436-170-016	CG - Commercial; RM - Medium Residential

Refer to **Figure 15 – Zoning Designations**.

L. Project Description

The proposed Project is the construction, operation, and maintenance of the SJV MDP Line E Channel and Line E-Y-Z Confluence Basin as in detail in Section 2.0 Project Description and shown on **Figure 4 – Project Map** and **Figure 5 – Project Components**



\\brkpan01.webb.lan\WO4\2023\23-0007\GIS\PRO\Line E Addendum\project_map\project_map.aprx Map created 26 Sep 2024

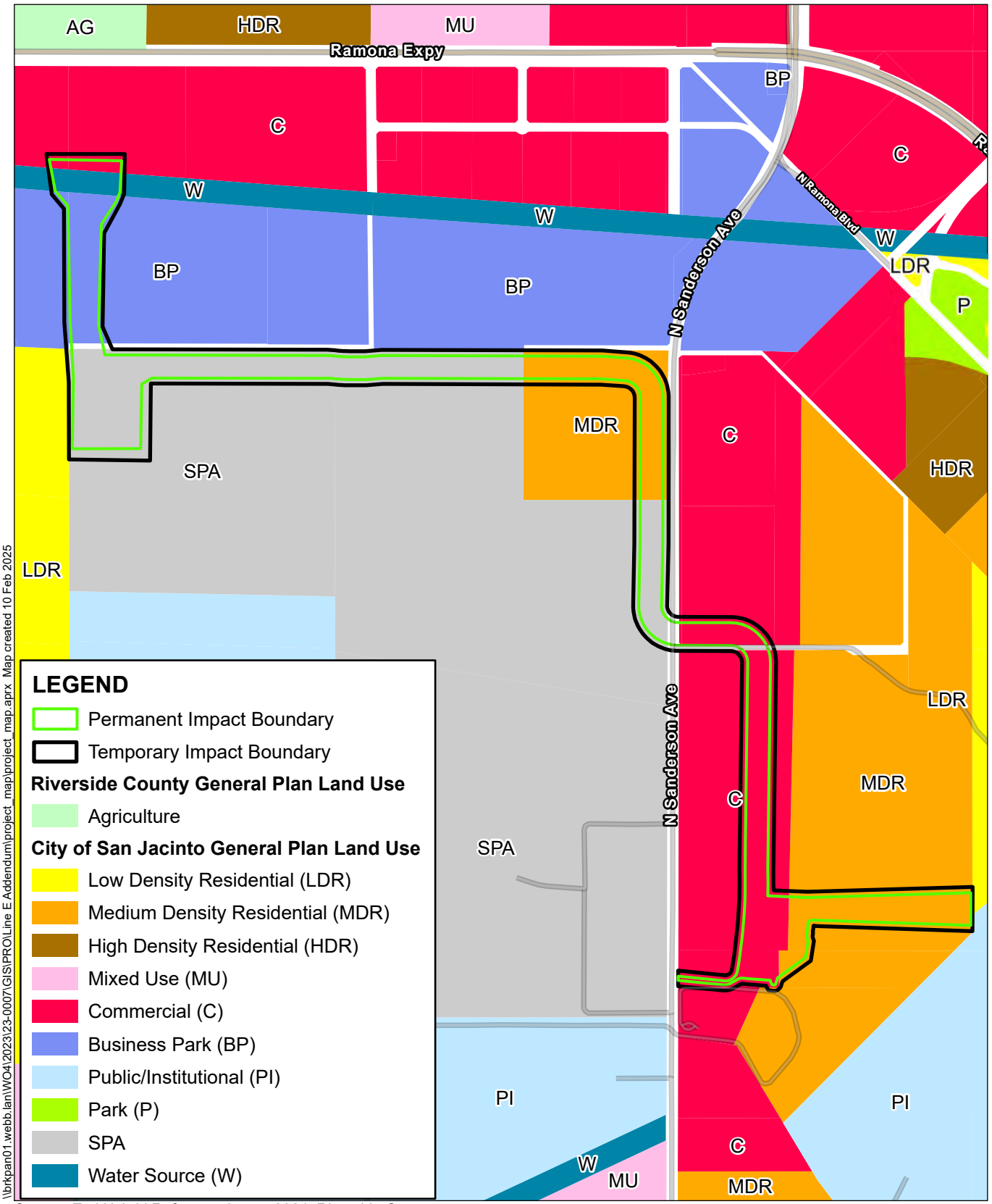
Source: Esri / USGS 7.5 min Quad Riverside Co.
LAKEVIEW, SAN JACINTO

0 1,000 2,000 3,000 Feet

Figure 13- USGS Topographic Map

Line E Addendum

ALBERT A. WEBB ASSOCIATES

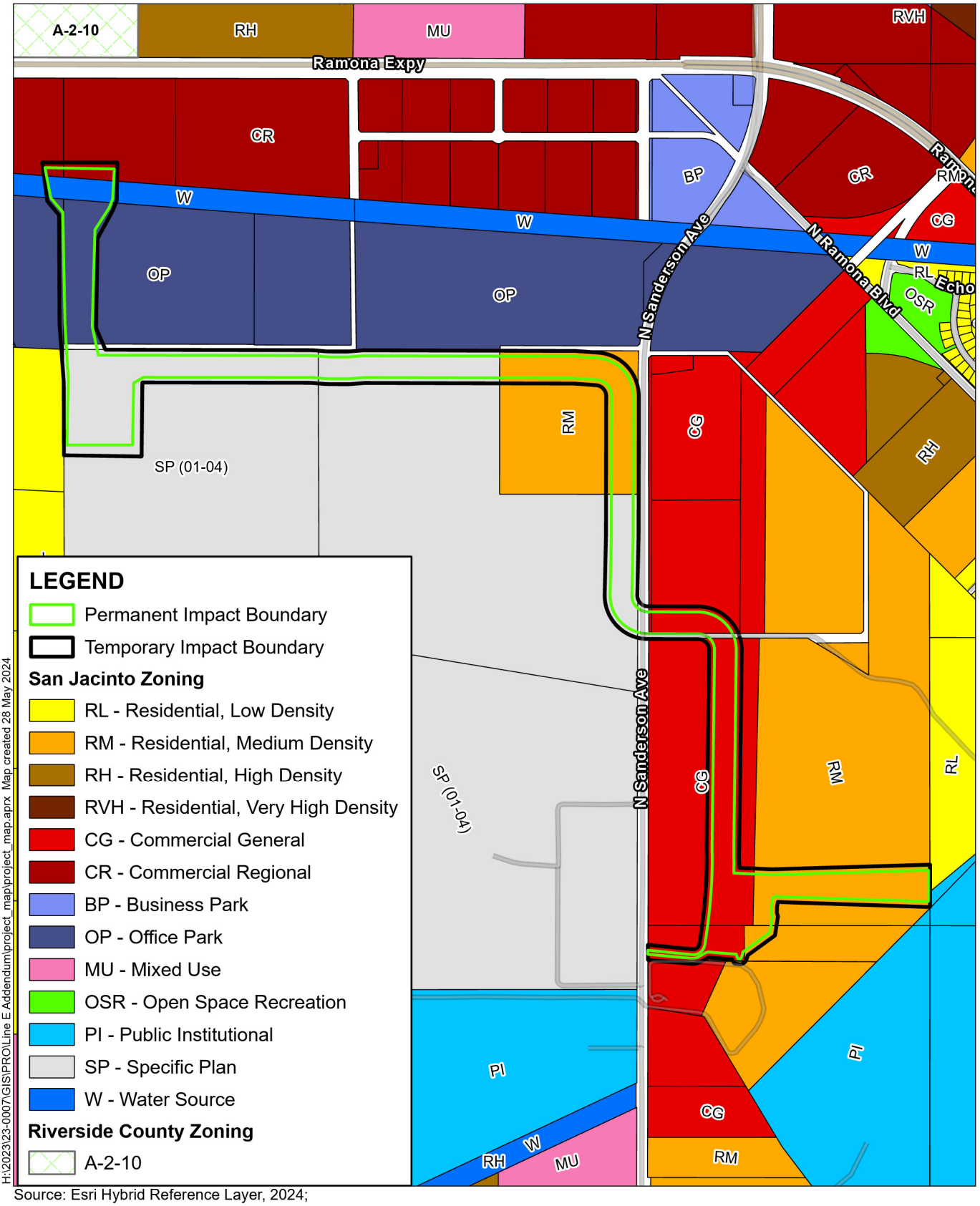


Source: Esri Hybrid Reference Layer, 2024; Riverside County General Plan Land Use 2019;
City of San Jacinto General Plan Land Use 2022.

Figure 14 - General Plan Land Use Designations

Line E Addendum

ALBERT A. WEBB ASSOCIATES



Source: Esri Hybrid Reference Layer, 2024;
Riverside County General Plan Land Use, 2017;
City of San Jacinto General Plan Land Use, 2022.

0 500 1,000 1,500 Feet

Figure 15 - Zoning Designations

Line E Addendum

ALBERT A. WEBB ASSOCIATES

New Significant Environmental Effects or Substantially More Severe Significant Environmental Effects Compared to those Identified in the Previous CEQA Document

The subject areas checked below (X) were determined to be new significant environmental effects or to be previously identified effects that have a substantial increase in severity either due to a change in project, change in circumstances, or new information of substantial importance, as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gases	☐ Hazards & Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

Determination:

(To be completed by the Lead Agency)
On the basis of this initial evaluation:

☐ No substantial changes are proposed in the project and there are no substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous approved ND or MND or certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Also, there is no “new information of substantial importance” as that term is used in CEQA Guidelines Section 15162(a)(3). Therefore, the previously adopted ND or MND or previously certified EIR adequately discusses the potential impacts of the project without modification.

☒ No substantial changes are proposed in the project and there are no substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous approved ND or MND or certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Also, there is no “new information of substantial importance” as that term is used in CEQA Guidelines Section 15162(a)(3). Therefore, the previously adopted ND, MND or previously certified EIR adequately discusses the potential impacts of the project; however, minor changes require the preparation of an ADDENDUM.

☐ Substantial changes are proposed in the project or there are substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous ND, MND or EIR due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Or, there is “new information of substantial importance,” as that term is used in CEQA Guidelines Section 15162(a)(3). However, all new potentially significant environmental effects or substantial

increases in the severity of previously identified significant effects are clearly reduced to below a level of significance through the incorporation of mitigation measures agreed to by the project applicant. Therefore, a SUBSEQUENT MND is required.

☐ Substantial changes are proposed in the project or there are substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous environmental document due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Or, there is "new information of substantial importance," as that term is used in CEQA Guidelines Section 15162(a)(3). However, only minor changes or additions or changes would be necessary to make the previous EIR adequate for the project in the changed situation. Therefore, a SUPPLEMENTAL EIR is required.

☐ Substantial changes are proposed in the project or there are substantial changes in the circumstances under which the project will be undertaken that will require major revisions to the previous environmental document due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Or, there is "new information of substantial importance," as that term is used in CEQA Guidelines Section 15162(a)(3). Therefore, a SUBSEQUENT EIR is required.

Signature	Date
.Kevin White, Planning Manager	For City of San Jacinto

Evaluation of Environmental Impacts

1. A finding of “No New Impact/No Impact” means that the potential impact was fully analyzed and/or mitigated in the prior CEQA document and no new or different impacts will result from the proposed activity. A brief explanation is required for all answers except "No New Impact/No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No New Impact/No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No New Impact/No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. A finding of “New Mitigation is Required” means that the project may have a new potentially significant impact on the environment or a substantially more severe impact than analyzed in the previously approved or certified CEQA document and that new mitigation is required to address the impact, but that the resultant significance is not changed from the original document.

3. A finding of “New Potentially Significant Impact” means that the project may have a new potentially significant impact on the environment or a substantially more severe impact than analyzed in the previously approved or certified CEQA document that cannot be mitigated to below a level of significance or be avoided.

4. A finding of “Reduced Impact” means that the analysis herein shows, or a previously infeasible mitigation measure is now available, or a previously infeasible alternative is now available that will reduce a significant impact identified in the previously prepared environmental document.

5. All answers must take account of the whole action involved, maintenance activities, areas needed for access, cumulative as well as project-level, indirect as well as direct, and construction impacts.

6. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analyses Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis. Describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the proposed action.

    c. Infeasible Mitigation Measures. Since the previous EIR was certified or previous ND or MND was adopted, discuss any mitigation measures or alternatives previously found not to be feasible that would in fact be feasible or that are considerably different from those previously analyzed and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives.

    d. Changes in Circumstances. Since the previous EIR was certified or previous ND or MND was adopted, discuss any changes in the project, changes in circumstances under which the project is

undertaken and/or "new information of substantial importance" that cause a change in conclusion regarding one or more effects discussed in the original document.

7. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

8. Supporting Information Sources. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

9. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

10. The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question;

    b. differences between the proposed activity and the previously approved project described in the approved ND or MND or certified EIR; and

    c. the previously approved mitigation measure identified, if any, to reduce the impact to less than significance.

A. AESTHETICS	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Except as provided in Public Resource Code Section 21099, would the project?				
1) Have a substantial effect on a scenic vista?	☐	☐	☒	☐
2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway?	☐	☐	☒	☐
3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Source(s): COR ORD 655; DOF; DOT

1) Have a substantial effect on a scenic vista?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR identified immediate views in the SJV-MDP area as agricultural and rural residential uses and the nearby Lakeview, Dawson, and San Jacinto Mountains. Distant views from the SJV-MDP area are the San Bernardino Mountains to the north, the Santa Ana Mountains to the west, and Palomar Mountain to the south. The mountains constitute a scenic vista. The SJV-MDP EIR Initial Study determined that implementation of the MDP would not impact scenic vistas because, to a large extent, the proposed facilities would be located at grade or below the ground surface, including underground storm drains, open channels, and detention basins. The detention basins would be incised. Above ground MDP facilities include detention basin embankments and maintenance roads adjacent to open channels. The detention basin embankments would be approximately three feet above ground and no greater than six feet above ground. Open channel maintenance roads will be located no more than a couple of feet above ground. The proposed MDP facilities would not obstruct views from the MDP project area or substantially affect scenic vistas. Exposed surfaces, construction debris, and construction equipment may temporarily impact the aesthetic quality of the immediate area in which construction is taking place; however, these impacts would be short-term and cease upon completion of each MSP facility. Because implementation of the MDP would not have a substantial effect on a scenic vista , impacts would be less than significant. (SJV-MDP IS, p. 8.)

Line E Project: No New Impact/No Impact

The only scenic vista in proximity to the Project site is the San Jacinto Mountains. The only above grade component of the Project are berms, which would direct flows into the Line E channel. The berms would be small in scale, approximately 5-feet high, which is the less than the height of the embankments evaluated in the SJV-MDP EIR. The berms would be vegetated. Due to the size and scale of the berms there would be no substantial adverse effect on views of the San Jacinto Mountains. The Line E channel would mostly be located at grade or below the ground surface. As analyzed in the SJV-MDP EIR Initial Study, exposed surfaces, construction debris, and construction equipment may cause temporary impacts, from the construction of the proposed channel at or below

grade. The Line E Project will result in the same temporary impacts during construction as the channel, from surface exposure, construction debris, and construction equipment.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to scenic vistas. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway?

SJV-MDP EIR Conclusion: Less than Significant Impact

There are no state designated or state eligible scenic highways in in proximity to proposed boundaries of the MDP area. The closest State Designated Scenic Highway is Highway 243 (Banning/Idyllwild Panoramic Highway), which is located over seven and one-half miles northeast of the MDP's northeastern boundary. State Route 74 (Florida Avenue), as it passes east to west through Hemet, is considered a State Eligible Scenic Highway. State Route 74 traverses through the southernmost portion of the Project area; however, there are no facilities proposed within one quarter mile of this State Eligible Scenic Highway. The closest proposed facilities are storm drains, which would not be visible after construction. For these reasons impacts will be less than significant. (SJV-MDP EIR, pp. 3.1-5 – 3.1-8.)

Line E Project: No New Impact/No Impact

As shown on **Figure 4 – Project Map**, no portion of Line E would be located in or near state designated Highway 243 (Banning/Idyllwild Panoramic Highway) or state eligible scenic highway State Route 74 (Florida Avenue). No portion of the Line E project would be visible from either Highway 243 or State Route 74 due to the distance of the Line E project from these highways.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to scenic resources. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

SJV-MDP EIR Conclusion: Less than Significant Impact

The proposed SJV-MDP Facilities are located in San Jacinto and unincorporated areas of Riverside County. Temporary impacts on the area's aesthetics, due to exposed surfaces, construction debris, and equipment, would be short-term and cease upon project completion, making them less than significant. Post-construction, the underground drainages would be hidden, and the visible open storm channels and detention basins would align aesthetically with the rural residential development, thus not degrading the character or quality of the project area. For these reasons impacts would be less than significant. (SJV-MDP IS, p. 8.)

Line E Project: No New Impact/No Impact

The proposed Line E Project would be constructed entirely within the incorporated area of San Jacinto. CEQA Statute section 21071(a) defines an incorporated city as being an urbanized area if it meets either of the following criteria:

(1) Has a population of at least 100,000 persons.

(2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons.

Based on January 2024 Department of Finance E-1 Population and Housing Estimates for Cities, Counties, and the State data, San Jacinto has a population of 53,538 and Hemet has a population of 89,663. (DOF.) Because San Jacinto and Hemet, a contiguous city, have a combined population that adds up to more than 100,000 residents. Thus, per CEQA Statute section 21071(a)(1), the Project site is within an urbanized area. Therefore, this discussion addresses, would the Line E Project conflict with applicable zoning and other regulations governing scenic quality.

As shown on **Figure 14 – General Plan Land Use Designation** and **Figure 15 – Zoning Designation**, the Line E Project traverses land use and zoning designations that allow for a variety of urban uses including business park, commercial, and residential.

Regulations governing scenic quality in San Jacinto are contained in Title 17 of the San Jacinto Municipal Code, also known as the San Jacinto Development Code (SJDC). The SJDC provides specific development standards that influence the City's scenic views, visual character, and restrict lighting. The SJDC implements the San Jacinto General Plan 2040 goals and policies by classifying and regulating the specific uses of land and structures within the City. Article 2, Zones, Allowable Land Uses, and Zone-Specific Standards, of the SJDC establishes development standards. None of these standards are applicable to the Line E Project.

The Line E Channel would be at and below grade level, once construction is complete the ground surface will be returned to its previous condition. Berms would be built to direct flows into the proposed Line E channel, however they will not be of significant size to degrade the existing visual character or quality of public views. Therefore, implementation of the Line E Project would not degrade the existing visual character or quality of public views or conflict with applicable zoning and other regulations governing scenic quality.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to degrading the existing visual character or quality of public views or conflicting with applicable zoning and other regulations governing scenic quality. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

SJV-MDP EIR Conclusion: No Impact

The proposed flood control facilities would not require any lighting. The project does not generate any amount of light or glare; therefore, this will not conflict with any day or nighttime views in the area. Any lighting used during the construction phase will be temporary. The proposed flood control facilities will not create a new source of substantial light or glare. (SJV-MDP IS, pp. 8 – 9.)

Line E Project: No New Impact/No Impact

The proposed Line E Project is a flood control facility and will not require lighting. The project does not generate any amount of light or glare; therefore, this will not conflict with any day or nighttime views in the area. Any lighting used during the construction phase will be temporary and will be faced downward.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to new sources of light or glare. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

B. AGRICULTURE & FOREST RESOURCES	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
2) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Govt. Code section 51104(g))?	☐	☐	☒	☐
4) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
5) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Source(s): FMMP; GP DEIR

1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources. Agency, to nonagricultural use.

SJV- MDP EIR Conclusion: Significant and Unavoidable Impact

Construction of the proposed open channels will be primarily located within or adjacent to road ROW. However, construction of SJV-MDP facilities will result in the direct conversion of approximately 122 acres of Important Farmland, comprised of 12 acres of Prime Farmland, 80 acres of Farmland of Statewide Importance, and 30 acres of Unique Farmland, to open storm channel facilities. This permanent conversion of Farmland is a potentially significant impact. (SJV-MDP EIR, pp. 3.2-12 – 3.2-13.)

Line E Project: No New Impact/No Impact

The proposed Line E Project is within Important Farmland designated land as shown on **Figure 16 – Farmland Map.** Construction and operation of the Line E Project would permanently convert approximately 81 acres of Farmland, comprised of 4 acres of Prime Farmland, 56 acres of Farmland of Statewide Importance, and 21 acres of Unique Farmland, to drainage facilities. This permanent conversion of Farmland is a potentially significant impact.

The Line E Project would not permanently convert Farmland, beyond what was analyzed in the SJV-MDP EIR. Because the Line E Project would not result in any new or increased significant impacts related to the conversion of Farmland to a non-agricultural use, this is not considered a new significant impact. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Conflict with existing zoning for agricultural use, or a Williamson Act Contract.

SJV-MDP EIR Conclusion: Significant and Unavoidable Impact

The SJV-MDP conceptual alignment, including open channels Line 1, Line 2, Line 3, Line X, and the Line E-Y-Z Confluence Basin, is within properties under Williamson Act contracts. Construction would mainly occur within or adjacent to road rights-of-way, avoiding conflicts with Williamson Act contracts. However, converting approximately 6.3 acres of Farmland of Local Importance under a Williamson Act Contract to non-agricultural use for the Line E-Y-Z Confluence Basin would be a direct impact. Although the San Jacinto General Plan allows urban development on agricultural land, the Project's drainage infrastructure could indirectly lead to the development of agricultural lands or lands under Williamson Act contracts for urban uses, resulting in an indirect significant impact. (SJV-MDP EIR, p. 3.2-13.)

Line E Project: No New Impact/No Impact

San Jacinto General Plan does not have land use designations exclusive for agricultural uses. The San Jacinto Development Code does not have zoning districts exclusive for agricultural uses. Areas in San Jacinto, identified as Prime Farmland, Unique Farmland and Farmland of Statewide Importance, including within approved Specific Plan areas, are mostly designated for a mix of residential and non-residential development. (SJGP EIR, pp. 5.2-8 – 5.2-10.) The San Jacinto Development code does not address regional stormwater infrastructure; therefore the Line E Project does not conflict with existing zoning for agriculture use.

The San Jacinto General Plan allows urban development on agricultural land (SJ GP EIR, pp. 5.2-8 – 5.2-10), the Line E Project's drainage infrastructure could indirectly lead to the development of agricultural lands for urban uses, resulting in an indirect significant impact.

There are no Williamson Act contracted lands within San Jacinto. (SJGP EIR, p. 5.2-1.) Therefore, the Line E Project Site, including the Line E-Y-Z confluence basin, would not have a direct or indict conflict with a Williamson Act Contract.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding conflicts with existing zoning for agricultural use or a Williamson Act contract. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), and

4) Result in the loss of forest land or conversion of forest land to non-forest use?

SJV-MDP EIR Conclusion: No impact

These thresholds were not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, the *General Biological Assessment*, February 17, 2009, prepared for the SJV-MDP EIR did not identify forest land as present within the SJV-MDP Project area. Therefore, implementation of the SJV-MDP Project would not result in the loss of forest land or the conversion of forest land to non-forest uses. (SJV-MDP EIR, pp 3.4-38 – 3.4-39.)

Line E Project: No New Impact/No Impact

Forest land, as defined in Public Resources Code (PRC) Section 12220(g) is land that can support 10 percent of native tree cover of any species under natural conditions and that allows for the management of one or more forest resources. Timberland, as defined in PRC section 4526, means land, other than land owned by the federal government and land designated as experimental forest land, which is capable of growing a crop of trees for any commercial species, including Christmas trees.

According to San Jacinto General Plan EIR, there are no properties within the City limits that are zoned for forest land, timberland, or timberland production. (SJGP EIR, p. 5.2-4.) Therefore, implementation of the proposed Line E Project would not conflict with existing timberland zoning or result in the loss or conversation of forest land to non-forest use.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to forest land or timberland. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

SJV-MDP EIR Conclusion: Significant and Unavoidable Impact

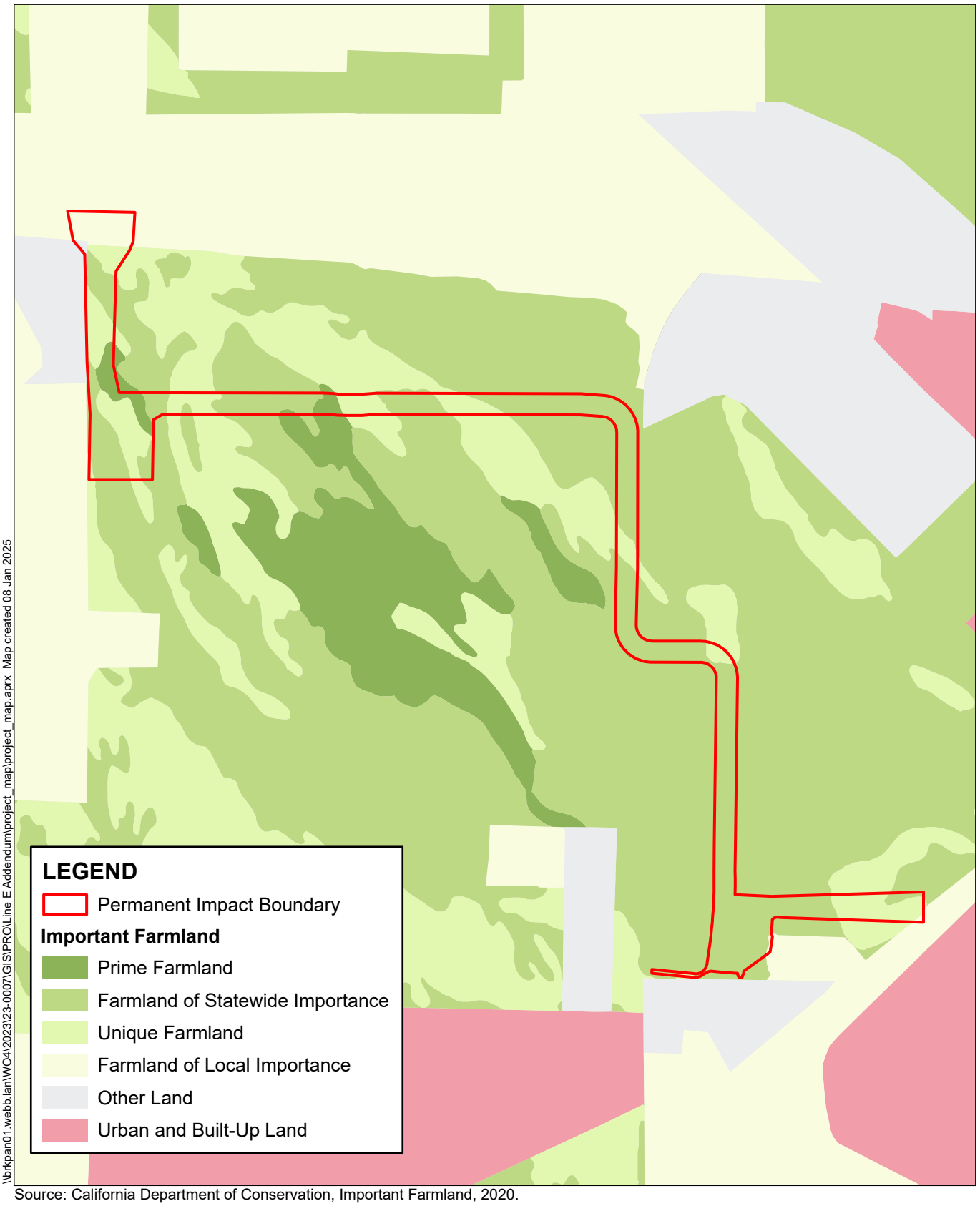
The proposed Project would provide drainage infrastructure that could support development of the Project area. Development of adjacent areas would result in the direct conversion of farmland (including Important Farmland) to non-agricultural uses. Consequently, the proposed SJV-MDP Project has the potential to indirectly convert farmland in the Project area. The direct conversion of farmland to non-agricultural uses would likely occur in the Project area with the build out of the San Jacinto, Hemet, and Riverside County General Plans. Because the proposed Project would likely support the conversion of farmland to non-agricultural uses, impacts are considered significant and unavoidable. (SJV-MDP EIR, pp 3.2-13 – 3.2-14.)

Line E Project: No New Impact/No Impact

As previously discussed in item B.1, the Line E Project would result in the direct conversion of approximately 81 acres of Farmland to storm drain facilities; which is a potentially significant impact. The drainage infrastructure proposed could support development of the Line E tributary area, which would result in the direct conversion of farmland (including Important Farmland) to non-agricultural uses. Consequently, the proposed Project has the potential to indirectly convert farmland in the within the Line E tributary area.

There is no forest land within San Jacinto; therefore, the Line E Project would not result in the conversion of forest land to a non-forest use.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to conversion of Farmland or forest land to non-agricultural or non-forest uses. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.



\\brkpan01.webb.lan\WO4\2023\23-0007\GIS\PRO\Line E Addendum\project_map\project_map.aprx Map created 08 Jan 2025

Source: California Department of Conservation, Important Farmland, 2020.

Figure 16 - Farmland Map

Line E Addendum

0 500 1,000 1,500 Feet

ALBERT A. WEBB ASSOCIATES

C. AIR QUALITY	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
3) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Source(s): SCAQMD-A; SCAQMD-B; CARB-A; CalEEMod Output (Appendix C)

1) Conflict with or obstruct implementation of the applicable air quality plan?

The City is located in the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) prepares the Air Quality Management Plan (AQMP) for the Basin. The SCAQMD sets forth a comprehensive program that will lead the Basin into compliance with all federal and state air quality standards. The AQMP's control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, if a project demonstrates compliance with local land use plans and/or population projections, then the AQMP would have taken into account such uses when it was developed.

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that the proposed infrastructure will not in and of itself result in any changes to the existing land use patterns in the project area, and the implementation of this project accommodates present and future development within the San Jacinto area, the project does not conflict with or obstruct the implementation of the AQMP, and impacts will be less than significant. (SJV-MDP IS, p. 10.)

Line E Project: No New Impact/No Impact

The proposed Line E Project is a facility approved in the SJV-MDP EIR.

Like the SJV-MDP, construction and operation of the Line E Project would not in and of itself result in any changes to the existing land use patterns in the City; thus, implementation of the Line E Project will not conflict of obstruct implementation of the AQMP.

For the reasons discussed above, implementation of the Line E Project would not result in any new or increased significant impacts related to conflicts with or obstruction of the SCAQMD Basin AQMP. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Air quality impacts can be described in short- and long-term perspectives. Short-term impacts are anticipated to occur during grading and project construction and consist of fugitive dust and other particulate matter, as well as exhaust emissions generated by construction-related vehicles. Long-term air quality impacts would occur once a project is in operation.

SJV-MDP EIR Conclusion: Significant and Unavoidable Impact

The portion of the Basin in which the Line E Project is located is designated as a non-attainment area for ozone, particulate matter less than 10 microns in diameter (PM-10), and particulate matter less than 2.5 microns in diameter (PM-2.5) under both state and federal standards. In addressing cumulative effects for air quality, the AQMP utilizes approved general plans; therefore, it is the most appropriate document to use in evaluating cumulative impacts of the proposed Project. As discussed in item C.1, above. the Line E Project would not conflict with or obstruct the implementation of the AQMP. The Project's short-term construction emissions for nitrogen oxides (NOx), PM-10, and PM-2.5 exceed the SCAQMD regional daily thresholds and were considered to be significant on a regional level. Implementation of mitigation measures **MM Air 1** through **MM Air 4** was required to reduce Project-generated emissions, however, the short-term impact after mitigation remained significant. Because it is only the Project's short-term emissions that are above thresholds for NOx, PM-10, and PM-2.5, and the impact is temporary (approximately six months in duration), the impact is not considered to have a cumulatively considerable net increase on ozone and PM-10, which are non-attainment in the region under both state and federal standards, and is considered less than significant. Potential impacts are considered less than significant with mitigation (SJV MDP EIR, pp. 3.3-29 – 3.3-35; 3.3-38 – 3.3-39; 3.3-42.)

MM Air 1: During construction, ozone precursor emissions from all vehicles and construction equipment shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications to the satisfaction of the jurisdiction in which the construction is taking place, i.e., San Jacinto Public Works Department, Hemet Public Works Department, Riverside County Department of Building and Safety, or RCFCWCD. Equipment maintenance records and equipment design specification data sheets shall be kept on site during construction. Compliance with this measure shall be subject to periodic verification by the Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD.

MM Air 2: Signs shall be posted stating that all vehicles are prohibited from idling in excess of five minutes, both on and off site.

MM Air 3: Electricity from power poles shall be used instead of temporary diesel- or gasoline-powered generators to reduce the associated emissions.

MM Air 4: To reduce construction vehicle (truck) and equipment idling while waiting to enter/exit the site, the contractor shall submit a traffic control plan that will describe in detail safe detours to prevent traffic congestion to the best of the Project's ability, and provide temporary traffic control measures. To reduce traffic congestion, and therefore NOx, the plan shall include, as necessary, appropriate, and practicable the following: dedicated turn lanes for movement of construction trucks and equipment on and off site, scheduling of construction activities that affect traffic flow on the arterial system to off-

peak hour, rerouting of construction trucks away from congested streets or sensitive receptors, and/or signal synchronization to improve traffic flow.

Line E Project: No New Impact/No Impact

As with the SJV-MDP Project, the portion of the Basin within which the Line E Project is located is designated as a non-attainment area for PM-10 under state standards, and for ozone and PM-2.5 under both state and federal standards. (CARB-A.)

Construction of the Line E Project is also required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions as established by Rule 403. Compliance with Rule 403 is achieved through application of standard best management practices (BMPs) in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 miles per hour and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 or more acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of this Project's disturbance area (approximately 88 acres) a Fugitive Dust Control Plan or a Large Operation Notification Form would be required.

Short-term emissions from construction of the Line E Project were modeled using the CalEEMod version 2022.1 program (output included as Appendix C) using both Line E Project-specific assumptions and the default parameters within CalEEMod to evaluate whether the expected criteria air pollutant emissions generated as a result of construction of the proposed project would cause exceedances of the SCAQMD's thresholds for air quality in the Project area. The total construction period estimated for the proposed Project is approximately three years, beginning no sooner than August 2027; the analysis considered the project would be constructed all at once (no phasing) over a three-year period. The default parameters within CalEEMod were used and these default values reflect a worst-case scenario, which means that Project emissions are expected to be equal to or less than the estimated emissions. In addition to the default values used, assumptions relevant to model inputs for short-term construction emission estimates used are:

- Construction is anticipated to begin no sooner than August 2027. The Project construction consists of grading and excavation, and construction of the confluence basin, channel, and earthen training berms and was modeled as a single linear, grading and excavation activity. The modeled construction is shown below:

Construction Activity	Start Date	End Date	Total Working Days
Grading/Excavation	08/03/2027	08/03/2030	784 days

- The off-road equipment to be used is shown below based on engineering estimates. The engine tier for each piece of equipment is calculated using CalEEMod defaults for the statewide fleet average emissions factors. Each piece of equipment is assumed to operate eight hours per day:

Construction Activity	Off-Road Equipment	Unit Amount
Grading/Excavation	Crawler Tractor	1
	Excavator	3
	Grader	1
	Rollers	2
	Rubber Tired Loader	1

Construction Activity	Off-Road Equipment	Unit Amount
	Scrapers	2
	Signal Boards	6
	Tractor/Loaders/Backhoes	2
	Crane[1]	1
	Bore/Drill Rig[1]	1
	Air Compressors	1
	Plate Compactor	1
	Rough Terrain Forklifts	1

Notes: [1] Equipment added for the construction at the Casa Loma Barrel No. 1 crossing where the installation of either Rammed Aggregate Piers (RAP) or CIDH piles are anticipated.

- Project construction will require the export of approximately 515,734 cubic yards (CY) of soil. Using the CalEEMod default truck capacity of 16 cubic yards, this results in an estimated 82 one-way trips per day for soil export. The soil export site is the vacant land located south of Ramona/Record Road and west of Sanderson Avenue. Therefore, a hauling trip length of approximately three miles per trip was assumed.
- Six (6) one way vendor trips per day were added to the grading activity to account for material delivery of concrete and riprap per engineering estimates, using the CalEEMod default vendor trip length of 10.20 miles per one-way trip.
- To evaluate Project compliance with SCAQMD Rule 403 for fugitive dust control, the Project utilized the option of watering the Project site three times daily which achieves a control efficiency of 74 percent for PM-10 and PM-2.5 emissions. Two (2) daily vendor trips per day were added to account for water truck trips.

The results of this analysis are presented in **Table F – Estimated Maximum Daily Construction Emissions** in addition to the maximum emissions from the Line E facility evaluated in the SJV-MDP EIR.

Table F – Estimated Maximum Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO_x	CO	SO_2	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds[1]	**75**	**100**	**550**	**150**	**150**	**55**
2027	**3.86**	**32.80**	**43.10**	**0.09**	**3.10**	**1.48**
2028	3.72	31.00	42.70	0.09	3.00	1.38
2029	3.59	29.30	42.20	0.09	2.91	1.30
2030	3.45	28.10	41.80	0.09	2.86	1.24
Maximum[1]	**3.86**	**32.80**	**43.10**	**0.09**	**3.10**	**1.48**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Line E in SJV-MDP Project EIR[2]	8.42	67.73	39.03	0.00	455.83	97.73

Note: See the detailed model output reports, included as Appendix C. Numbers are the maximum of summer or winter emissions in a given year and may not match due to rounding within the model.

[1] SCAQMD thresholds available at Air Quality Analysis Handbook (aqmd.gov)

[2] SJV-MDP EIR, Table 3.3-E

As shown in **Table F**, the construction emissions from the Line E Project are below the applicable SCAQMD thresholds and lower than the emissions reported for the Line E facility in the SJV-MDP EIR. The emissions estimates for this MDP Line Project are lower than those reported in the SJV-MDP EIR because of changes in the available modeling program that utilizes updated emission factors (newer equipment generates fewer emissions due to the implementation of newer regulatory requirements), emissions calculation methodologies, and default data. Because the Line E Project

emissions are below the SCAQMD thresholds, **MM Air 1** through **MM Air 4** do not apply to the Line E Project.

Operational emissions sources from the Line E Project are limited because the basin pumps are electric. The primary source of operational emissions is the routine visits by vehicles driven by maintenance personnel and are considered negligible. As with the SJV-MDP Project, long-term SJV-MDP operational emissions are considered negligible because the proposed SJV-MDP will not result in a change from the operation of the Existing MDPs (i.e., the San Jacinto MDP and the NW Hemet MDP) for the Project area.

For the reasons set forth above, implementation of the Line E Project would result in lower emissions than those reported in the SJV-MDP EIR and would not result in any new or increased significant impacts related to cumulatively considerable net increase of any criteria pollutant. Thus, there are no new impacts, changes, or new information associated with Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Expose sensitive receptors to substantial pollutant concentrations?

A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant including children, the elderly, and persons with pre-existing respiratory and/or cardiovascular illness. SCAQMD defines a “sensitive receptor” as a land use or facility such as residences, schools, childcare centers, athletic facilities, playgrounds, retirement homes, and convalescent homes where these persons are typically located. (SCAQMD-A)

As part of the SCAQMD’s environmental justice program, attention has been focused on localized effects of air quality. Staff at SCAQMD has developed localized significance threshold (LST) methodology that can be used by public agencies to determine whether a project may generate significant adverse localized air quality impacts (both short- and long-term). (SCAQMD-B). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The SJV-MDP boundaries are within SRA 28.

SJV-MDP EIR Conclusion: Significant and Unavoidable Impact
The short-term construction of the SJV-MDP facilities will not result in any localized air quality impacts to sensitive receptors within the Project area for NOx or CO, during construction of Project facilities; however, emissions of PM-10 and PM-2.5 during construction are above SCAQMD recommended daily localized thresholds. Therefore, exposure of sensitive receptors to substantial pollution concentrations from short-term construction emissions is considered significant. Implementation of mitigation measures **MM Air 1** through **MM Air 4** was required to reduce Project-generated emissions, however, the short-term impact after mitigation remained significant. Due to the lack of stationary source emissions; no long-term localized significance threshold analysis is needed, and exposure of sensitive receptors to substantial pollution concentrations from long-term operational impacts is considered less than significant. (SJV MDP EIR, pp. 3.3-37; 3.3-41.)

Line E Project: No New Impact/No Impact
An LST analysis was prepared in accordance with the SCAQMD LST Methodology (SCAQMD-B) using the CalEEMod output included in Appendix C and is summarized below.

According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with vendor and worker trips are mobile source emissions that occur off site and are

therefore excluded. The emissions analyzed under the LST methodology are NO_2, CO, PM-10, and PM-2.5. SCAQMD has provided LST lookup tables to allow users to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts for projects five acres or smaller. (SCAQMD-B). Although the Project disturbs approximately 88 acres in total, the Project is linear and will progress in a linear fashion and disturb a smaller area per day. To be conservative, the one-acre LST lookup tables were utilized to estimate the construction emissions.

The closest sensitive receptors are an existing residence southeast of the intersection of Sanderson Avenue and Record Road. The distance to the property line for this residence across Sanderson Avenue is approximately 88 feet (27 meters). LST Methodology states that Project's with boundaries located closer than 25 meters to the nearest receptor should use the LST distance of 25 meters for the analysis. The results are shown in the following table.

Table G – LST Results for Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)			
	NO_X	CO	PM-10	PM-2.5
LST for 1-acre at 25 meters	**162**	**750**	**4**	**3**
Grading/Excavation	30.40	38.30	2.04	1.20
Exceeds Threshold?	**No**	**No**	**No**	**No**
Line E in SJV-MDP Project EIR[1]	102.3	49.7	6.7	5.1

Note: The emissions reported are peak daily emissions from all years of Project construction. Detailed model reports included in Appendix C

[1] SJV-MDP EIR, Table 3.3-H

As shown in **Table G**, short-term emissions from the Line E Project are below the applicable SCAQMD thresholds and lower than the emissions reported for the Line E facility in the SJV-MDP EIR for the reasons cited in item C.2, above. Because the short-term construction emissions are below SCAQMD thresholds, SJV-MDP EIR mitigation measures **MM Air 1** through **MM Air 4** do not apply to the Line E Project.

The long-term sources of localized emissions from operation of the Line E Project are primarily from the electric pumps and in the form of mobile source emissions from the routine visits by vehicles driven by maintenance personnel, with no stationary sources of emissions present. The confluence basin will have four electric pumps that are used during storms and a backup diesel generator that is estimated to be no more than 250 horsepower (hp). According to SCAQMD LST methodology, LSTs would apply to the operational phase if a project includes stationary sources or on-site mobile equipment generating on-site emissions. Because the emergency generator will only be used during emergency power outages and routine testing, emissions would be negligible. The City of San Jacinto will be required to obtain an SCAQMD permit to install and operate the emergency generator. The SCAQMD permitting process would ensure that the Project meets regulatory requirements through the application review process and by placing specific operating conditions on the permit such as operating hour limits. As such, no further analysis of the emergency generator was prepared. For these reasons, the localized operational emissions will be less than significant.

Construction and operational emissions were also found to be less than significant, as indicated above. Therefore, the Line E Project will not expose sensitive receptors to substantial pollutant concentrations and impacts are considered less than significant without mitigation required.

For the reasons set forth above, implementation of the Line E Project would result in lower emissions than those reported in the SJV-MDP EIR and would not result in any new or increased significant impacts related to the exposure of sensitive receptors to substantial pollutant concentrations. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

SJV-MDP EIR Conclusion: Less than Significant Impact

The project presents the potential for generation of objectionable odors during project construction. Recognizing the relative location and distance of the surrounding residential development along the majority of the proposed MDP facilities, and the short-term duration of construction, the project will not subject a substantial number of people to objectionable odors. Potential impacts are considered less than significant. (SJV MDP IS, p. 11.)

Line E Project: No New Impact/No Impact

Implementation of the Line E Project presents the potential for generation of other emissions (such as those leading to odors) in the form of diesel exhaust during construction in the immediate vicinity of the Project site. Odors generated during construction will be short-term and will move along the alignment of the Project footprint as construction takes place and would cease to occur after construction is completed. Operation and maintenance of the Line E Project would also present the potential for odors from diesel exhaust from the maintenance vehicles and the emergency backup diesel generator; there would be no additional sources of odor related to operation of the electric pumps at the confluence basin. The routine visits by vehicles driven by maintenance personnel are not anticipated to increase in the Project vicinity; however, any potential odors resulting from routine maintenance would disperse quickly and cease after maintenance activities are completed. Similarly, operation of the backup generator will only be used during emergency power outages and routine testing, and any potential odors would disperse quickly. The long-term emissions, from the electric pumps, mobile sources, and a backup diesel generator, Thus, construction and operation of the Line E Project will not result in other emissions such as those leading to odors affecting a substantial number of people.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding the creation of objectionable odors that would affect a substantial number of people. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

D. BIOLOGICAL RESOURCES	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U. S. Wildlife Service?	☐	☒	☐	☐
2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U. S. Fish and Wildlife Service?	☐	☐	☒	☐
3) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan?	☐	☐	☒	☐

Source(s): GLA-A, NWI; RCA; SJV-MDP EIR

1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U. S. Wildlife Service?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation

Special-Status Plant Species

Twelve of the proposed linear facilities, Line Y, Lat Y-2 through Lat Y-11, and Line V are partially or entirely located within the Criteria Area Plant Species Survey Area (CAPSSA) 3. Several special-status plant species have low to high potential for occurrence along alignments within the MDP Project area. The construction of MDP Facilities is anticipated to result in direct impacts to smooth tarplant and Coulter's goldfields. Approximately 25,000 tarplant individual were counted within the conceptual alignments of the MDP Facilities, in addition to tens of thousands more in the areas adjacent to the MDP survey alignment. Specifically, the California Natural Diversity Database (CNNDB) showed records of smooth tarplant adjacent to the conceptual alignments of Lat Y-1, Lat Y-2, Lat Y-4, Line Z, Line E, and Line Y. The CNDDB showed records of Coulter's goldfields within the

vicinity of the conceptual alignment of Line Z. (SJV MDP EIR, p. 3.4-22.) Implementation of the proposed MDP Project would result in direct impacts to two special-status plant species not covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), but listed by the California Native Plant Society, Chaparral sand-verbena and South coast saltscale, However, due to the disturbed nature of conceptual alignment of the MDP Facilities and the limited area of linear construction impact, implementation of the SJV MDP is not anticipated to result in a significant loss of habitat for either of these species. (SJV MDP EIR, p. 3.4-24.) Nonetheless, to further identify the potential direct impacts to these species (number of plants and/or area impacted), focused surveys are required for these species during their flowering season and prior to construction. If these plants occur within the construction footprint, impacts to these species may be considered significant. However, with implementation of SJV MDP EIR **MM Bio 7**, impacts to special status plant species would be less than significant. (SJV MDP EIR, p. 3.4-22.)

> **MM Bio 7**: Focused surveys shall be conducted within potentially suitable habitat for Chaparral sand-verbena and South coast salt scale by a qualified biologist during the flowering season of these species and prior to construction activities. If special status plant species are found to be present in the footprint, further measures as recommended by a qualified biologist shall be taken to avoid or minimize adverse project effects to these species and their habitat. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation. (SJV MDP EIR, p. 3.441 – 3.4-42.)

Implementation of the SJV MDP is not anticipated to result in direct impacts to Munz's onion or many-stemmed dudleya. However, MDP Facility-specific surveys would be required during the appropriate time of the year to determine the presence/absence of all Narrow Endemic Plants and Criteria Area Plants within the construction footprint prior to installation of facilities. Implementation of SJV MDP EIR **MM Bio 6** is required to reduce potential impacts to sensitive plant species to less than significant levels. (SJV MDP EIR, pp. 3.4-22–3.4-25.)

> **MM Bio 6:** Within areas of suitable habitat associated with the Narrow Endemic Plant Species Survey Area (NEPSSA) and Criteria Area Plant Species Survey Area (CAPSSA), facility-specific focused plants surveys will be required. Including the smooth tarplant mapped as part of this study, the MSHCP requires at least 90 percent avoidance of areas providing long-term conservation value for the NEPSSA and CAPSSA target species. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, payment into habitat mitigation banks or in lieu fee programs, or a combination of one or more of these options. Furthermore, the smooth tarplant mapped within Cell Group V is expected to be required for conservation as part of the Cell Group V criteria. (SJV MDP EIR, p. 6.)

<u>Special-Status Wildlife Species</u>

Despite the fact that the MDP area is located in a predominately agricultural and disturbed environment, special-status native species, primarily birds, may occur in less than optimal and/or disturbed conditions, and may forage over agricultural habitats present in the Project area. Construction of proposed MDP Facilities would impact disturbed habitats potentially suitable for several species of raptors (e.g., white-tailed kite, northern harrier, Cooper's hawk, golden eagle, and burrowing owl). Because most potentially-occurring raptor species are very widespread and roam over large areas of foraging territory, these losses would amount to a relatively small, incremental reduction of seasonal foraging habitat and occasional use areas. Impacts to disturbed foraging

habitats would not constitute significant adverse impacts to any of the affected species, locally or regionally. (SJV-MDP EIR, p. 3.4-25.)

The MDP area contains trees, shrubs, ground cover, and structures that provide suitable habitat for nesting migratory birds, including raptors. If any vegetation or structures are to be removed during the nesting season (February 1 to August 31), MDP Facility-specific nesting bird surveys shall be conducted first to determine the presence/absence of active nests and if active nests are identified, appropriate avoidance buffers should be established in the nesting activity has completed, and fledglings have left the nest and are no longer dependent on the parents as required by SJV MDP EIR **MM Bio 1**. With implementation of this mitigation measure, potential impacts to sensitive and protected bird species would be less than significant. (SJV-MDP EIR, p. 3.4-25.)

> **MM Bio 1:** In order to avoid violation of the MBTA and California Fish and Game Code, site-preparation activities (removal of trees and vegetation) shall be avoided, to the greatest extent possible, during the nesting season (generally February 1 to August 31) of potentially occurring native and migratory bird species. If site-preparation activities are proposed during the nesting/breeding season (February 1 to August 31), a pre-activity field survey shall be to the issuance of grading permits, for private development projects, or prior to construction for public agency contracts, to determine if active nests of species protected by the MBTA or the California Fish and Game Code are present in the construction zone. If active nests are not located within the Project area and appropriate buffer, 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected bird nests (non-listed), or within 100 feet of sensitive or protected songbird nests, construction may be conducted during the nesting/breeding season. However, if active nests are located during the pre-activity field survey, no grading or heavy equipment activity shall take place within at least 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected (under MBTA or California Fish and Game Code) bird nests (non-listed), or within 100 feet of sensitive or protected songbird nests until the nest is no longer active.

Portions of the MDP area may provide suitable nesting habitat for burrowing owls. Although no burrowing owls were detected within the conceptual MDP Facility alignments or basin locations during the focused surveys conducted in 2008, much of the MDP area has a moderate to high probability to support owls, whether breeding pairs, resident individuals, or transient individuals. Construction noise and activity may disrupt normal breeding and nesting patterns or other activities and adversely impact burrowing owls if active nests are located near the proposed MDP Facilities at the time of construction. Therefore, mitigation measure SVJ-MDP EIR **MM Bio 2** would be implemented to reduce potential impacts from the construction of MDP Facilities to less than significant. (SJV-MDP EIR, p. 3.4-26.)

> **MM Bio 2**: Facility-specific habitat assessments and focused surveys for burrowing owls will be conducted within burrowing owl survey areas. A pre-construction survey for resident burrowing owls will also be conducted by a qualified biologist within 30 days prior to commencement of grading and construction activities within those portions of the Project site containing suitable burrowing owl habitat. If ground-disturbing activities in these areas are delayed or suspended for more than 30 days after the pre-construction survey, the area shall be resurveyed for owls. Take of active nests shall be avoided. The pre-construction survey and any relocation activity will be conducted in accordance with MSHCP instructions and/or guidelines. (SJV-MDP EIR, p. 3.4-40.)

San Bernardino kangaroo rat (SBKR) (*Dipodomys merriami parvus*) was determined to have a low potential to occur within the MDP area. Los Angeles pocket mouse (LAPM) (*Perognathus longimembris brevinasus*) was also determined to have a low potential to occur within the Project area. The extreme northern end of the conceptual alignment of Line K terminates at the end of the mammal survey area for SBKR and LAPM, however the conceptual alignments of all of the other MDP Facilities are located outside the mammal survey areas. (SJV-MDP EIR, p. 3.4-26.)

Line E Project: New Mitigation is Required

This discussion is based on the *Biological Technical Report for San Jacinto Valley Master Drainage Plan Line E, Located in the City of San Jacinto, Riverside County, California*, January 28, 2025 prepared by Glenn Lukos Associates, Inc. This document is hereinafter referred to as the BTR and is included as Appendix D.1 to this Addendum. Preparation of the BTR and focused surveys satisfies SJV-MDP EIR mitigation measures **MM Bio 2, MM Bio 3, MM Bio 4, MM Bio 5**, and **MM Bio 6**.

Special-Status Plant Species

The Line E Project is mostly within the NEPSSA survey area outlined in Section 6.1.3 of the MSHCP (GLA-A, p. 4.) The BTR evaluated a total of 49 special status plant species through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors: (i) species identified by the CNDDB and CNPS as occurring (either currently or historically) on or in the vicinity of the Project site, (iii) applicable MSHCP survey areas, and (iii) any other special status plants that are known to occur within the vicinity of the Line E Project site, or for which potentially suitable habitat occurs within the site. Of the 49 special status species evaluated, 32 species do not occur[5] on the Line E Project site, 15 species were confirmed absent,[6] and one species was present, smooth tarplant (*Centromadia pungens* ssp. *Laevis)*. Refer to Table 4-2 of the BTR for a complete listing of the species evaluated. (GLA-A, pp. 31 – 36.)

The proposed Line E Project would impact one special-status plant species, smooth tarplant (*Centromadia pungens* ssp. *laevis*). A population of approximately 2,500 individuals were detected within the Project site during the 2024 focused plant surveys conducted for the BTR. The smooth tarplant found during focused plant surveys were located within disturbed areas adjacent to agricultural fields and/or roadways as shown on **Figure 17 – Smooth Tarplant**.[7] (GLA-A, pp. 36, 57.)

The MSHCP provides coverage for impacts to smooth tarplant, provided that a project is consistent with requirements pertaining to the species. Because the Line E Project site is not located within an MSHCP survey area for smooth tarplant, MSHCP avoidance/conservation requirements pursuant to MSHCP Section 6.3.2 do not apply to this Project. The Project site is not in the CAPSSA, so impacts to smooth tarplant are covered without project-specific avoidance or mitigation requirements pursuant to Section 6.3.2 of the MSHCP. However, approximately 1,670 smooth tarplant individuals were documented as occurring within portions of the Project site associated with riverine resources pursuant to MSHCP Section 6.1.2. (GLA-B, pp. 4, 15.) Therefore, impacts to the smooth tarplant resulting from construction and operation of the Line E Project would be less than significant through implementation of **MM Bio E8**.

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[5] Does not occur means the site does not contain habitat for the species and/or the site does not occur within the geographic range for the species.

[6] Confirmed absent means the site contains suitable habitat for the species, but the species has been confirmed absent through focused surveys

[7] Figures commence on page 101, following the Biological Resources discussion.

Special-Status Wildlife Species

The BTR evaluated a total of 45 special status animal species through general biological surveys, habitat assessments, and focused surveys, four invertebrates, 12 amphibians, 18 birds, and 11 mammals. Species were evaluated based on the following factors: (i) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the Line E Project site, (ii) applicable MSHCP survey areas, and (iii) any other special status animals that are known to occur within the vicinity of the Project site, or for which potentially suitable habitat occurs within the site. (GLA-A, pp. 36 – 37.) Of the four special status invertebrate species evaluated, one species does not occur on the Line E Project site, two species were confirmed absent, and one species has the potential to occur, Crotch's bumble bee (*Bombus crotchii*). (GLA-A, p. 37.)

Of the 12 special status amphibian species evaluated, five species do not occur on the Line E Project site and 7 species are not expected to occur.[8] (GLA-A, pp. 37 – 38.) Of the 18 special status bird species evaluated, five species do not occur on the Line E Project site, one species was confirmed absent, and 12 species are either not on the Project site due to lack of habitat but were detected immediately offsite, or do not nest on the Project site but have the potential to forage. (GLA-A, pp. 38 – 40.) Of the 11 special status mammalian species evaluated, 7 species do not occur on the Line E Project site, two species are not expected to occur due to high levels of soil disturbance associated with past and current agricultural operations, and two bat species do not roost on the Project site but were detected offsite acoustically during focused surveys. (GLA-A, pp. 40 – 41.) Refer to Table 4-3 of the BTR for a complete listing of the species evaluated. (GLA-A, pp. 37 – 71.)

Special Status Invertebrate Species

Four special status invertebrate species were evaluated for the Project site: Crotch's bumble bee (*Bom bus crotchii*) Quino checkerspot butterfly (*Euphydryas editha quino*), Riverside fairy shrimp (*Streptocephalus woottoni),* and Vernal pool fairy shrimp (*Branchinecta lynchi*). The Quino checkerspot butterfly does not occur on the Project Site. (GLA-A, p. 37.) The other three species are discussed below.

Crotch's Bumble Bee: Crotch's bumble bee (CBB), is designated as a State Candidate species under the California Endangered Species Act (CESA) and is not a covered species under the MSHCP. Focused surveys were conducted during peak bloom periods that encompass the queen flight season (February through March) as well as the Colony Active Period (April through August) for the Project site. A total of 6 surveys were conducted through the months of March to June to take advantage of the different blooming periods of floral resources. The CBB surveys were conducted in accordance with CDFW's 2023 *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. (GLA-D, pp. 2-3.) Most of the Line E Project's disturbance limits are not suitable for this species due to historic and current agricultural uses, which results in regular disturbances. However, smaller portions of the Project site, which largely consist of disturbed/ruderal areas adjacent to the agricultural fields, contain annual floral resources that could be used by CBB individuals, if present. (GLA-A, p. 42.) The CBB was not detected during the focused surveys for the Project site.

Lesser portions of the Project site support annual floral resources that could be visited by CBB individuals, and the Project site contains small mammal burrows that could be used for nesting by

[8] Not expected to occur means the species is not expected to occur on the site due to low habitat quality; however, absence cannot be ruled out.

active CBB colonies or used for overwintering. Additionally, CBB was incidentally detected outside of the Line E Project impact area, but adjacent to the Project site during focused riparian bird surveys conducted by GLA biologists on June 27, 2024. A single CBB was observed utilizing branching phacelia (*Phacelia ramosissima*) adjacent to the willow riparian habitat. (GLA-A, p. 42.) This incidental detection, is not evidence that CBB occupies the Project site; however, the confirmed presence of CBB near the Project site reinforces the potential use of limited portions of the Project site by CBB. During the 2025 focused survey period, one bumble bee species, the California bumble bee (*Bombus fervidus californicus*) was observed during the June 12, 2025 survey using the branching phacelia which is located immediately offsite No bumble bee species, including the CBB were detected on the Project site. (GLA-D, p. 4). However, implementation of the Line E Project has the potential to impact CBB. As a State Candidate Species, if implementation of the Line E Project results in a direct take of CBB, and Incidental Take Permit (ITP) could be required under CESA through coordination with the California Department of Fish and Wildlife (CDFW). If present, mitigation for the loss of CBB habitat would consist of the preservation of habitat known to support CBB at a biological value equal or greater to any habitat impacted by the Project. The preserved habitat might be enhanced and/or restored, as applicable, and the habitat would be managed in perpetuity with a long-term endowment. (GLA-A, pp. 58-59.) Thus, to reduce impacts to CBB to less than significant, the Line E Project would implement mitigation measures **MM Bio E1, MM Bio E2**, and **MM Bio E3**.

MM Bio E1: Crotch's Bumble Bee Pre-Construction Survey and Construction Monitoring. In order to avoid direct and indirect impacts to Crotch's bumble bee (CBB) which could establish themselves on the Project site before construction starts, prior to the start of any Project-related ground-disturbing activities a qualified CBB biologist (i.e., 1-2 years of experience performing CBB surveys, or, has a Memorandum of Understanding [MOU] with CDFW), shall perform the records searches and site surveys according to the methods set forth in the California Department of Fish and Wildlife *Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species*, June 6, 2023 (the "2023 CDFW Survey Considerations"). The literature review and records search shall identify occurrences at the Project site and within a 5-mile buffer. The literature review and records search shall include: a report from the CDFW California Natural Diversity Data Base for a 10-mile radius of the project site; aerial photographs; and iNaturalist for bee sightings and nectar sources. Then, the qualified CBB biologist shall conduct on-site surveys for foraging and nesting bees. The surveys shall begin with a habitat assessment to evaluate the likelihood of bumble bees occurring within and adjacent to the project area. Then, foraging bumble bee and nesting surveys shall be conducted during the peak nectar blooming period (April through June 30). Habitat assessment and survey results shall be submitted to CDFW prior to the start of ground-disturbing project activities. Vegetation removal is allowable from November to January (note seasonal limitations for nesting birds in MM Bio E4). No monitoring is required if removal of vegetation occurs during this time period. However, vegetation removal/ground disturbances during the CBB flight season, which is February to October, will require preemptive focused CBB surveys and full-time biological monitoring for CBB to take place within the project limits. If Crotch's bumble bees are present, mitigation measure **MM Bio E2**, which required an avoidance plan shall be implemented. Construction monitoring for CBB may cease based on the professional judgement of the qualified CBB biologist that construction activities have already impacted the extent of the planned impact footprint. If an active CBB nest is detected during focused surveys conducted between April and June, or during the construction monitoring, then the

qualified biologist shall establish a no-disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) around the CBB nest. The qualified biologist and City shall notify CDFW and if needed, process an Incidental Take Permit (ITP) with CDFW (**MM Bio E3**). If a single CBB is observed during construction, CDFW shall be notified, and work shall be halted in that area until the qualified biologist deems the CBB has left the site. It is expected that if an ITP is needed, that the offsite mitigation which has similar habitat types would be required. If offsite mitigation for CBB is needed, then a CBB permitted land manager shall be hired by the City to ensure CBB habitat is intact on the offsite mitigation property.

MM Bio E2: Crotch's Bumble Bee Avoidance Plan. If Crotch's bumble bee is detected during pre-construction surveys outlined above in **MM Bio E1**, the City in consultation with the qualified CBB biologist shall develop a plan to fully avoid impacts to Crotch's bumble bee. The plan shall include effective, specific, enforceable, and feasible measures. An avoidance plan shall be submitted to the City prior to implementing Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's bumble bee.

MM Bio E3: Incidental Take Permit for Crotch's Bumble Bee. If Crotch's bumble bee is detected during the focused surveys and Crotch's bumble bee becomes formally listed under CESA or is still a Candidate species and if impacts to Crotch's bumble bee cannot be feasibly avoided during Project construction and activities, the City/qualified biologist shall coordinate with CDFW to obtain appropriate permits for incidental take of Crotch's bumble bee and provide appropriate mitigation for impacts to Crotch's bumble bee habitat. CDFW recommends the City mitigate for impacts to Crotch's bumble bee habitat at a ratio comparable to the Project's level of impacts.

Fairy Shrimp: The Line E Project site contains five features that pond seasonally and were surveyed by GLA to determine the presence/absence of federally-listed fairy shrimp, federally-listed Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and vernal pool fairy shrimp (*Branchinecta lynchi*). The surveyed features are identified on **Figures 18a through 18e – Fairy Shrimp Results Map** as E-1, 46, 5, 4, and E-2, respectively. The fairy shrimp surveys were conducted in accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines) dated November 13, 2017.

The non-listed versatile fairy shrimp (*Branchinecta lindahli*) was detected in just one of the five features during the wet season survey, feature 5, which consists of vehicle ruts within a dirt road. The dry season survey of Feature 5 detected *Branchinecta* cysts, which were successfully hatched and reared to identify individuals as the versatile fairy shrimp, thus corroborating the results of the wet season survey. (GLA-A, p. 46.)

No fairy shrimp were detected in the other five features (features E-1, 46, 4, and E-2) during the wet season surveys. Features 4, 46 and E-2 also consist of vehicle ruts in dirt roads. Feature E-1 corresponds with the large inundation area associated with Drainage Area A.[9] No *Branchinecta* cysts were detected within features 4 and 46 during the 2023 dry season surveys. The results of dry season surveys are pending for features E-1 and E-2; however, based on the negative results of the

[9] Drainage area A is shown on **Figure 22 – CDFW Jurisdictional Area** and discussed in the response to item D.3.

wet season surveys fairy shrimp cysts are not expected to be present. (GLA-A, p. 46.) Thus, implementation of the Line E project would not impact listed fairy shrimp. (GLA-A, p. 74.)

Special Status Amphibian Species
The Line E Project is not located within an amphibian species survey area pursuant to Section 6.3.2 of the MSHCP. No special status amphibian species occur or are expected to occur within the disturbance limits of the Line E Project site, due to lack of suitable habitat. (GLA-A, p. 74.)

Special Status Bird Species
No special status bird species were detected within the Line E Project disturbance area, however four species were detected adjacent to the southern portion of the Project site: Least Bell's Vireo (*Vireo bellii pusillus*), Burrowing Owl (*Athene cunicularia)*, Northern Harrier (*Circus cyaneus*), Yellow-breasted chat (*Icteria virens*), and Yellow warbler (*Setophagia petechia*). (GLA-A, pp. 42 – 45.)

Least Bell's Vireo: The least Bell's vireo (LBV) is state and federally listed as endangered, and is covered under the MSHCP. The Line E Project footprint does not contain riparian habitat to support the LBV. As shown on **Figure 19 – Least Bell's Vireo Survey Results**, the southern (upstream) end of the proposed Project however, is adjacent to habitat occupied by LBV where overflows from the San Jacinto Reservoir would enter Line E. Construction of the Line E Project would not remove any riparian habitat associated with the area of LBV habitat; therefore, there would be no direct impacts to LBV. However, because of the proximity of the LBV territory to the Project site, there is a potential for temporary noise impacts during construction adjacent to the riparian habitat if work were to occur while LBV are present.

Objective 3 of the MSHCP Species Conservation Objectives for LBV states that avoidance of occupied LBV habitat must include a 100-meter (approximately 300 feet) buffer, which is meant to address the potential for edge effects from development. The proposed Line E Project limits are within 100 feet of the nearest occupied habitat for LBV, temporary indirect effects are possible if construction activities occur within 300 feet. No indirect impacts to LBV would occur once construction within 300 feet of occupied habitat ceases. (GLA-A, p. 59.) To reduce potential temporary noise impacts resulting from Project construction to less than significant, mitigation measures **MM Bio E4, MM Bio E5,** and/or **MM Bio E6** shall be implemented.

> **MM Bio E4: Establishment of Least Bell's Vireo Construction Buffer:** To avoid indirect impacts to least Bell's vireo (LBV), Project construction and site preparation activities including, but not limited to vegetation clearing and grubbing within 300 feet of LBV habitat, shall be conducted outside of the LBV breeding season (March 15 to September 30), if feasible. Prior to construction outside of the breeding season, a qualified biologist shall oversee the establishment of a highly visible and maintained 300-foot buffer. Inspection and maintenance of the buffer shall be performed at a minimum of once a weekly, but more often if needed.
>
> **MM Bio E5: Least Bell's Vireo Pre-Construction Surveys and Monitoring:** If construction activities must occur during the LBV breeding season (March 15 to September 30) and have not yet already begun within the 300-foot buffer by March 15 of any given year, pre-construction surveys shall commence after March 15 and shall occur once a week for three consecutive weeks prior to commencement of construction activities to confirm the presence of LBV. The last visit shall occur no more than three (3) days prior to commencement of construction activities. The preconstruction survey visits

shall be conducted by a qualified biologist familiar with songs, whisper songs, calls, scolds, and plumage characteristics of adult and juvenile vireos. Surveys shall be conducted between dawn and 11:00 am. Surveys shall not be conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather that individually or collectively may reduce the likelihood of detection. Prior to performing the preconstruction surveys, a map shall be created illustrating the LBV habitat and all detections of LBV shall be mapped and tracked.

If LBV are not detected during the initial three preconstruction surveys, then weekly clearance surveys shall continue following the same methodology as the preconstruction surveys. All detections of LBV shall be mapped with behavior tracked across detections/sightings. The qualified biologist must have experience with nesting ecology and behavior of LBV to determine pre-nesting/nesting behavior. If at any time it is determined by the qualified biologist that construction activities are negatively affecting LBV, including modification of behavior, work shall be halted and CDFW and USFWS shall be contacted on next steps. If LBV are not detected after a minimum of eight survey visits (three preconstruction surveys and five additional clearance surveys), the weekly visits shall cease and work within the 300-foot buffer shall be allowed to continue without additional restrictions.

If construction activities within the 300-foot buffer have already begun before March 15, the qualified biologist shall simply initiate weekly clearance surveys after March 15 while the construction activities continue. If LBV are detected, then mitigation measure **MM Bio E6** shall be implemented. However, if LBV are not detected after a minimum of nine clearance surveys, then weekly visits shall cease and work within the 300-foot buffer shall be allowed to continue without additional restrictions.

MM Bio E6: Least Bell's Vireo Construction Mitigation: Prior to the start of construction, a qualified biologist shall flag and fence the boundary of the LBV habitat areas, assumed to be occupied by LBV. A second fence, 300 feet from the boundary fence shall be constructed. If construction occurs during the breeding season (March 15 through September 30) and if activities need to occur between the boundary fence and the 300 foot buffer fence, then the contractor shall employ the following measures:

1. Install a 12-foot tall temporary noise barrier at the perimeter of the limits of disturbance between the construction activities and the adjacent LBV habitat, as determined by a qualified biologist. The barrier shall be continuous without openings, holes or cracks, and shall reach the ground. The barrier may be constructed with 1-inch plywood and provide a reduction of at least 10 dBA to ensure noise levels do not exceed 65 dBA to the adjacent LBV habitat. Other materials providing the same reduction shall also be permitted.
2. Within 300 feet of the LBV habitat areas, heavy grade rubber mats/pad shall be used within the bed of the trucks. These mats will help attenuate initial impact noise generated when an excavator drops rock and debris into the bed of the truck. These mats shall be maintained and/or replaced as necessary.
3. During Project site excavation and grading within 300 feet of the LBV habitat area, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.

4. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the LBV habitat area.
5. Equipment shall be shut off and not left to idle when not in use.
6. The contractor shall not locate equipment staging within 1,000 feet of the LBV habitat area.
7. The use of heavy equipment or vibratory rollers and soil compressors shall be limited within 300 feet of the LBV habitat area, to the greatest degree possible.

Burrowing Owl: The Line E Project site is within the MSHCP Burrowing Owl Survey Area; therefore a habitat assessment is required to determine if focused burrowing owl surveys are warranted for the Line E Project. As shown on **Figure 20 – Burrowing Owl Survey Map**, Glenn Lukos Associates biologists conducted focused burrowing owl surveys because suitable habitat was identified within the Line E footprint, in 2022 and 2024. (GLA-A, pp. 10 – 11.) The completion of the focused burrowing owl surveys satisfied the portion of SJV-MDP EIR **MM Bio 2** requiring MDP Facility-specific habitat assessments and focused surveys.

No burrowing owls were detected within the Project footprint. Based on the survey results, the Project would not impact burrowing owl habitat with long-term conservation value; therefore, MSHCP avoidance/mitigation requirements are not applicable to the Project. However, because the Project contains suitable habitat, including burrows, a pre-construction burrowing owl survey is required per MSHCP Section 6.3.2. (GLA-A, p. 69.) Because a portion of SJV-MDP EIR **MM Bio 2** has already been completed, mitigation measure **MM Bio E7**, which amplifies the requirements of the preconstruction survey clarifies and replaces SJV-MDP EIR **MM Bio 2** for the Line E Project.

> **MM Bio E7 (replaces MM Bio 2): Burrowing Owl Preconstruction Survey:** To avoid direct impacts to burrowing owls and comply with MSHCP Objective 6 for burrowing owls, A 30-day pre-construction survey for burrowing owls shall be conducted prior to any future Project-related ground-disturbing activities (e.g., vegetation clearing, clearing and grubbing, tree removal, site watering, equipment staging, etc.) to ensure that no owls have colonized the Project site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the Project site prior to the initiation of ground-disturbing activities, the Project proponent shall immediately inform the Regional Conservation Authority (RCA) and the Wildlife Agencies and shall coordinate with the RCA and the Wildlife Agencies (CDFW and United States Fish and Wildlife Service), including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground disturbing activities take place, but the Project site is left undisturbed for more than 30 days, another preconstruction survey shall be conducted to ensure that burrowing owl have not colonized the Project site since it was last disturbed. If burrowing owls are found, the Project proponent shall immediately inform the RCA and the Wildlife Agencies and shall coordinate with the RCA and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan before construction resumes.

Northern Harrier: One northern harrier was detected flying offsite within agricultural and riparian areas during the biological surveys. As a result of the historical and current land practices, the Project site does not support nesting habitat for northern harriers; however, this species is expected to forage opportunistically over the Project site. The northern harrier is an MSHCP covered species. (GLA-A, p. 43.)

Yellow-breasted Chat: The Project site does not contain suitable habitat for the yellow-breasted chat; however, at least one chat was detected in the riparian habitat adjacent to the southern end of the Line E Project footprint in the same area occupied by LBV that was surveyed to evaluate the potential for indirect impacts during Project construction. The yellow-breasted chat is an MSHCP covered species. (GLA-A, p. 44.)

Yellow Warbler: The Project site does not contain suitable habitat for the yellow warbler; however, warbler was detected in the riparian habitat adjacent to the southern end of the Line E Project footprint in the same area occupied by LBV that was surveyed to evaluate the potential for indirect impacts during Project construction. The yellow warbler is an MSHCP covered species. (GLA-A, p. 44.)

The following special status bird species were not observed on or adjacent to the Project site, but have a potential to occur at the Project site: Golden eagle (*Aquila chrysaetos*), Loggerhead shrike (*Lanius ludovicianus*), *Purple martin (Progne subis), Swainson's hawk (Buteo swainsoni), Tricolored blackbird (Agelaius tricolor), White-tailed kite (Elanus leucurus), and Yellow-headed blackbird (Xanthocephalus xanthocephalus).* The Project site does not support suitable nesting habitat for these species; however, it does provide various qualities of foraging habitat. All of the aforementioned special status birds are MSHCP covered species. Therefore, no avoidance/mitigation measures apply to this Project for these species. (GLA-A, pp. 44 – 45, 59 – 61.)

Special Status Mammalian Species

Eleven special status mammalian species were evaluated for the Project site: American badger (*Taxidea taxus),* Los Angeles pocket mouse (*Perognathus longimembris brevinasus),* Pallid bat (*Antrozous pallidus),* Palm Springs roundtailed ground squirrel (*Xerospermophilus tereticaudus chlorus*), San Bernardino kangaroo rat (*Dipodomys merriami parvus),* San Diego desert woodrat (*Neotoma lepida intermedia),* Southern grasshopper mouse (*Onychomys torridus ramona),* Stephens' kangaroo rat (*Dipodomys stephensi),* Townsend's bigeared bat (*Corynorhinus townsendii),* Western mastiff bat *(Eumops perotis californicus),* and Western yellow bat (*Lasiurus xanthinus).* American badger, pallid bat, Palm Springs roundtailed ground squirrel, San Bernardino kangaroo rat, San Diego desert woodrat, and Townsend's big-eared bat do not occur on the Project site. Los Angeles pocket mouse, Southern grasshopper mouse, and Stephens' kangaroo rat are not expected to occur on the Project site due to the high levels of soil disturbance associated with past and current agricultural operations. (GLA-A, pp. 40 – 41.) As discussed in the following paragraphs, western mastiff bat and western yellow bat do not roost on the Project site but were detected offsite acoustically during focused surveys.

Western Mastiff Bat and Western Yellow Bat: The western mastiff bat and western yellow bat are designated as a CDFW species of special concern and a Western Bat Working Group (WBWG) high priority species. (These species are not covered under the MSHCP.) Both species occur year-round in southern California. The western mastiff bat is typically associated with open, semi-arid to arid habitats including dry desert washes, flood plains, chaparral, oak woodland, montane meadows, grassland and agricultural areas. This species roosts in cliff faces and occasionally in buildings that provide unobstructed entry and exit access. The western yellow bat is typically associated with valley foothill, riparian, desert wash, desert riparian and palm oasis habitats, where they often roost in trees taller than three meters in height. Native and non-native palm trees are also known to provide suitable roosting habitat for the species. (GLA-A, p. 43.)

GLA biologists conducted a focused bat survey on April 29, 2024 within the offsite adjacent riparian habitat at the southern end of the Line E disturbance area. The bat survey consisted of a combination of acoustic and emergence surveys and focused on detecting potential roosting areas (day and night) that included, but were not limited to, rocky outcroppings, palm trees, eucalyptus trees, and riparian vegetation. Potential roosting areas were inspected visually for evidence of roosting that included urine staining, guano concentrations, and/or audible bats. In addition to the visual surveys, four ultrasonic acoustic recording devices were deployed throughout the bat study area. All acoustic data was recorded in full spectrum and was processed and analyzed with Sonobat 4.2.2 bat call analysis software using the California Southwest classifier. All acoustic calls were manually reviewed and vetted using multiple Sonobat acoustic reference libraries and other reference materials. (GLA-A, p. 14.)

Both the western mastiff bat and western yellow bat were detected faintly acoustically during the focused bat survey. The faint acoustical signatures detected outside the Project site were indicative of individuals flying high over or near the Project site as part of their foraging foray. The Project site is generally devoid of trees and does not support suitable roosting habitat (including maternity roosts for either of these species. The offsite bat survey area contains suitable roosting habitat, including habitat for maternity roosting. Although the Project site does not contain any roosting habitat, the site provides opportunistic foraging habitat as part of these bats' large foraging range. (GLA-A, pp. 43, 47.)

Although the western mastiff bat and western yellow bat were not confirmed roosting offsite, potential roosting habitat including palm trees are located more than 200 feet from the Project's limits of disturbance. As such, the Project is not expected to indirectly affect roosting bats. The Project does have the potential to impact bat foraging habitat; however, the loss of foraging habitat would not be considered as a substantial adverse effect because of the presence of foraging habitat on surrounding lands. Therefore, potential impacts to sensitive bat species resulting from the implementation of the Line E Project would be less than significant and no mitigation is required.

For the reasons set forth in the above paragraphs, there would be no significant impacts to sensitive species, because all potential impacts would be less than significant with mitigation.

The clarifications to the SJV MDP EIR mitigation measures do not reduce the effectiveness of the mitigation measures or change the significance determinations of the SJV-MDP EIR. New mitigation measures for potential impacts to biological resources would be implemented by the Line E Project; however, these measures are not mitigating new significant effects on the environment; rather, they identify specific actions to implement the more general SJV-MDP EIR mitigation measures. As such, the clarification of SJV-MDP EIR mitigation measures and the Line E Project-specific mitigation measures do not mitigate for new impacts, and do not constitute substantial new information that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U. S. Fish and Wildlife Service?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation

Approximately 6.38 acres of riparian habitat were mapped within the Project alignments and contained native riparian vegetation including willow (*Salix spp*.), mule fat (*Baccharis salicifolia*), and Freemont's cottonwood (*Populus fremontii*). Much of the riparian vegetation occurs in scattered isolated patches, though at least one of the surveyed alignments terminates at the edge of extensive

riparian habitat associated with the San Jacinto River. The remaining majority of the SJV-MDP alignments extend through disturbed areas supporting a predominance of non-native and native ruderal vegetation, including non-native grasses, though these areas are often interspersed with remnants of alkali playa vegetation. Some of the remnant alkali playa areas exhibited evidence of seasonal ponding, though at the time of surveys there was not enough vegetation to adequately evaluate the features as vernal pools. (SJV-MDP EIR, p. 3.4-26.)

The studied riparian areas varied from roadside/agricultural ditches to ponds and basins, including extensive riparian habitat along the San Jacinto River. Some areas qualify as MSHCP Riparian Areas, though others would likely be excluded due to their artificial nature. As required by SJV-MDP mitigation measures **MM Bio 4** and **MM Bio 5**, MDP Facility-specific mapping would be required to determine which areas are subject to MSHCP requirements. (SJV-MDP EIR, p. 3.4-27.)

> **MM Bio 4:** The project-specific mapping of riparian and unvegetated riverine features will be required pursuant to Section 6.1.2 of the MSHCP. For areas not excluded as artificially created, the MSHCP requires 100 percent avoidance of riparian/riverine areas. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation to offset the loss of functions and values as they pertain to the MSHCP-covered species. Riparian vegetation will also need to be evaluated for the least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. If suitable habitat is present, focused surveys for the species will be required. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, payment into habitat mitigation banks or in lieu fee programs, or a combination of one or more of these options
>
> **MM Bio 5:** The project-specific mapping of vernal pools will be required pursuant to Section 6.1.2 of the MSHCP. As noted above, vernal pools (or similar seasonal ponding alkali playa areas) are expected to occur at least in the area comprising Cell Group V, but have the potential to occur elsewhere within the Project area. For areas not excluded as artificially created, the MSHCP requires 100 percent avoidance of vernal pools areas. If avoidance is not feasible, then individual projects will require the approval of a DBESP including appropriate mitigation to offset the loss of functions and values as they pertain to the MSHCP covered species. Vernal pools and other seasonal ponding depressions will also need to be evaluated for Riverside and Vernal pool fairy shrimp.

Vernal pools in the MDP area rely on rainfall for maintenance and would continue to receive local runoff. If suitable habitat for species listed in Section 6.1.2 of the MSHCP (least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Riverside fairy shrimp, Santa Rosa Plateau fairy shrimp, and vernal pool fairy shrimp) is found within the MDP Project area, and avoidance is not possible, mitigation measures shall be implemented according to MSHCP species-specific objectives. (SJV-MDP EIR, p. 3.4-27.)

Implementation of the MDP would not de-water any potential vernal or riparian areas, as it would not alter velocity, volume, or seasonal flow of the San Jacinto River 100-year floodplain. Although development within the SJV-MDP Project area would result in changes to the existing local hydrology, local hydrology would not be significantly impacted by construction of the MDP facilities alone. Areas that currently pond or receive sheet flow would continue to do so during small storm events at the

local level. Stormwater from larger storm events would be collected and conveyed through the MDP Facilities. (SJV-MDP EIR, p. 3.4-27.)

Riparian habitat in the MDP Project area is mostly associated with the San Jacinto River, occurring along MDP Line 3, Line 4, Line 5, Line 6, Line E, Line H, Line J, and Line Z. The San Jacinto River Levee Stage 4 Project, once completed, would alter the 100-year floodplain along the MDP area's northern boundary, but its impacts are not part of the MDP Project and would be addressed separately. Compliance with mitigation measures **MM Bio 4, MM Bio 5,** and Section 6.1.2 of the MSHCP would reduce potential impacts to riparian habitats/vernal pools and associated species to less than significant levels. (SJV MDP EIR, pp. 3.4-26-3.4-27). Riparian habitats associated with potentially jurisdictional drainage features are discussed in the response to item D.3.

Line E Project: No New Impacts/Less than Significant Impacts

The proposed Line E Project would not impact the sensitive vegetation communities identified in the SJV MDP impact area because no sensitive communities are present within the Line E disturbance area. Implementation of the Line E Project would permanently impact approximately 87.11 acres of lands through grading, including areas of remedial grading that will not be restored to pre-project conditions. Permanent impacts include approximately 69.34 acres of agricultural fields, 8.49 acres of annual brome grasslands, 6.17 acres of disturbed and developed areas, and 3.10 acres of perennial pepper weed-prickly lettuce patches. The proposed Project would also temporarily impact approximately 33.22 acres of lands through project implementation. (Refer to **Figure 21 – Vegetation Map**.)

The temporary impacts from the proposed Line E project consist of disturbance within narrow construction easements along either side of the proposed Line E boundary required to construct the facilities. No permanent impacts will occur within the temporary construction easement area because these areas would be restored to pre-construction contours and will be hydroseeded with a native plant mix. The temporary impacts include approximately 25.07 acres of agricultural fields, 3.43 acres of annual brome grasslands, 4.25 acres of disturbed and developed areas, 0.03 acre of eucalyptus groves, and 0.44 acre of perennial pepper weed-prickly lettuce patches. (GLA-B, p. 8.)

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to substantial adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U. S. Fish and Wildlife Service. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation

The MDP Project area contains roadside ditches and other ditches, which if later are shown to be historic diversions of natural waters, would be potential jurisdictional waters. However, the majority (if not all) of these ditches would be considered as non-relatively permanent waters and as such these features would need to be evaluated in facility-specific jurisdictional delineations to determine if they exhibit a significant nexus to traditionally navigable waters, and therefore jurisdictional. Ditches that are shown to have been wholly excavated in uplands would not be subject to the jurisdiction of the U. S. Army Corps of Engineers (ACOE). (SJV-MDP EIR, p. 3.4-28.)

Areas supporting hydrophytic vegetation would need to be evaluated at an MDP Facility-specific level to determine whether they satisfy wetland criteria. Any "isolated" wetlands will need to be evaluated by the ACOE and the Environmental Protection Agency (EPA) following their joint regulatory guidance, in order to confirm whether any of the "isolated" wetlands would be jurisdictional. With implementation of **MM Bio 3**, potential impacts to federally-protected wetlands would be reduced to less than significant levels. (SJV MDP EIR, p. 3.4-28.)

> **MM Bio 3:** Project-specific delineations will be required to determine the limits of the U.S. Army Corp of Engineers (ACOE), RWQCB, and CDFG jurisdiction. Impacts to jurisdictional waters will require authorization by the corresponding regulatory agency. If impacts are indicated, then jurisdictional water will either a) be avoided or b) be minimized by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring, the impacted environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; compensating for the impact by replacing or providing substitute resources or environments in addition to obtaining the necessary permits from requisite jurisdictions.

Line E Project: No New Impacts/Less than Significant Impacts with Mitigation
This discussion is based on the *Jurisdictional Delineation of the Master Drainage Plan (MDP) Line E Project, an Approximately 14,000 Linear-Foot Drainage Alignment in the City of San Jacinto, Riverside County, California*, October 30, 2024, prepared by Glenn Lukos Associates, Inc. This document is hereinafter referred to as the JD Report. The JD Report is Appendix H to the BTR, which is Appendix D.1 to this Addendum. Preparation of the JD Report satisfies SJV-MDP EIR mitigation measure **MM Bio 3**.

The Line E Project site does not contain any state or federally protected wetlands as discussed in the following paragraphs. (GLA-C, pp. 10-13.)

The Line E Project site contains three drainage features, shown as Drainages A through C that function as agricultural ditches in addition to an area, shown as Drainage Area A on **Figure 22 – CDFW Jurisdictional Area**. Drainage Area A was inundated as a result of agricultural irrigation and two heavier than normal wet seasons. (GLA-C, p. 15.)

U.S. Army Corps of Engineers (Corps) Jurisdiction
No Corps jurisdiction is present within the Line E Project site. Ditches A through C and Drainage Area A, flow and/or collect water only in direct response to precipitation and were completely dry during the GLA's most recent field investigation. Therefore, they are not relatively permanent, standing or continuously flowing bodies of water and are not considered waters of the U.S. as defined in 33 CFR Part 328.3(a). Additionally, ditches that are excavated wholly in and draining only dry land and do not carry a relatively permanent flow of water, and artificial ponds used as stock watering, irrigation, and/or settling basins, are excluded from being waters of the waters of the U.S. pursuant to 33 CFR Part 328.3(b). (GLA-C, p. 10.)

Regional Water Quality Board (Regional Board) Jurisdiction
Regional Board jurisdiction associated with the Line E Project site encompasses 3.68 acres, none of which consist of wetland waters of the State. Regional Board jurisdiction is shown on **Figure 23 – Regional Board Jurisdictional Area** and summarized in **Table H** below.

Table H – Summary of Regional Board Jurisdiction

Feature Name	Regional Board Non-Wetland Waters (acres)	Regional Board Jurisdictional Waters (acres)	Total Regional Board Jurisdiction (acres)	Length (linear feet)
Drainage A	0.17	0.00	0.17	980
Drainage Area A	3.30	0.00	3.30	---
Drainage B	0.03	0.00	0.03	302
Drainage C	0.18	0.00	0.18	419
Total	**3.68**	**0.00**	**3.68**	**1,701**

Source, GLA-C, Table 1
Note: Sum of individual parts may not equal sum total due to rounding error.

Drainage A: Regional Board jurisdiction associated with Drainage A is located in the northwestern portion of the Line E Project site and A consists of several man-made earthen ditches that together convey agricultural runoff in a northwestward direction for approximately 980 linear feet before continuing offsite and eventually terminating in a basin adjacent to Ramona Expressway. Drainage A exhibits an ordinary high water mark (OHWM) ranging from one to 15 feet in width. (GLA-C, pp. 11-12.)

Vegetation associated with Drainage A consists of non-native upland grasses and forbs including ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), black mustard (*Brassica nigra*), fiddleneck (*Amsinckia menziesii*), cheeseweed (*Malva parviflora*), Russian thistle (*Salsola tragus*), stinknet (*Oncosiphon pilulifer*). A single Gooding's willow (*Salix gooddingii*) is located in the southeastern portion of Drainage A. (GLA-C, pp. 11-12.)

Drainage Area A: Regional Board jurisdiction associated with Drainage Area A totals 3.30 acres, none of which consists of State wetlands. Drainage Area A is located in the northwestern portion of the Line E Project site and consists of relatively flat undeveloped land that appears to have been disced as recently as December 2020, according to historic aerial imagery. It does not appear that this area has been planted or otherwise maintained since December 2020. Drainage Area A conveys flows in a generally northwestern direction towards Drainage A during periods following heavy rain when adjacent agricultural ditches have flooded. Furthermore, corrugated metal culverts that convey flows within Drainage A under a dirt access road appear to have been clogged by debris, which likely contributes to backup of flood waters in Drainage Area A. (GLA-C, p. 12.)

Drainage Area A was assessed for wetland indicators. Drainage Area A contained two dominant plant species, salt heliotrope (*Heliotropium curassavicum*) and alkali mallow (*Malvella leprosa*), which do not meet the parameters for hydrophytic vegetation. A 12-inch deep soil pit was dug within Drainage Area A which contained silty loam 2. No redox features or other indicators of hydric soils were observed; however, soils within this area are strongly alkali. Primary indicators of hydrology, i.e., surface area cracks, were observed within Drainage Area A. Although Drainage Area A met the indicators for hydrology, due to the lack of lacked hydrophytic vegetation and hydric soils Drainage Area A was determined not to be a wetland. (GLA-C, pp. 12-13.) Refer to the JD Report for details regarding the wetland assessment.

Drainage B: Regional Board jurisdiction associated with Drainage B totals 0.03 acres, none of which consists of State wetlands. Drainage B is a manmade earthen ditch located in the center of the Line E Project Site that crosses the alignment of Line E and conveys agricultural runoff in a northward direction for approximately 302 linear feet before leaving the Line E Project site. Drainage B exhibits an OHWM that averages four feet in width. The offsite portion of Drainage B, which is north of the Line E alignment, appears to convey flows to Drainage Area A during periods of heavy rain. Drainage B is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle, Canada horseweed, and black mustard were observed immediately adjacent to the drainage along the top of the bank. (GLA-C, p. 13.)

Drainage C: Regional Board jurisdiction associated with Drainage C totals 0.18 acre, none of which consists of State wetlands. Drainage C is a man-made earthen ditch, located in the southeastern portion of the Line E Project site, that conveys flows northward away from the San Jacinto Reservoir Overflow for approximately 419 linear feet before continuing offsite and terminating as sheet flow in an adjacent agricultural field. Drainage C exhibits an OHWM ranging from 10 to 30 feet in width. A rip-rap headwall and culvert previously existed separating the offsite riparian area to the south from the remainder of Drainage C to the north. Currently, the rip-rap headwall and culvert appear to have been destroyed and flows now bypass the culvert and continue around the riprap through a highly eroded area to the east of the culvert. According to historic aerial imagery, Drainage C is typically characterized by an ephemeral flow regime. However, at the time of the initial site visit, Drainage C contained surface water in its southernmost reach, immediately adjacent to the San Jacinto Reservoir Overflow area. Drainage C was completely dry during the most recent site visit. (GLA-C, p. 13.)

Vegetation associated with Drainage C includes a mix of native and non-native species such as common toad rush (*Juncus bufonius*), Bermuda grass, annual beard grass (*Polypogon monspeliensis*), stinknet (*Oncosiphon piluliferum*), annual yellow sweetclover (*Melilotus indicus*), Canada horseweed, alkali mallow, cocklebur (*Xanthium sp.*), and various other nonnative grasses. A single Gooding's willow is located atop the eastern bank just outside of the Line E Project boundary to the north. (GLA-C, p. 13.)

California Department of Fish and Wildlife (CDFW) Jurisdiction
CDFW jurisdiction associated with the Line E Project site encompasses 3.88 acres, none of which consist of riparian stream. A total of 1,701 linear feet of CDFW non-riparian stream is present on the Line E Project site. CDFW jurisdiction is shown on **Figure 22 – CDFW Jurisdictional Area** and summarized in **Table I** below.

Table I – Summary of CDFW Jurisdiction

Feature Name	CDFW Non-Riparian Stream (acres)	CDFW Riparian Stream (acres)	Total CDFW Jurisdiction (acres)	Length (linear feet)
Drainage A	0.26	0.00	0.26	980
Drainage Area A	3.30	0.00	3.30	---
Drainage B	0.03	0.00	0.03	302
Drainage C	0.29	0.00	0.29	419

Table I – Summary of CDFW Jurisdiction

Feature Name	CDFW Non-Riparian Stream (acres)	CDFW Riparian Stream (acres)	Total CDFW Jurisdiction (acres)	Length (linear feet)
Total	**3.88**	**0.00**	**3.88**	**1,701**

Source, GLA-C, Table 2
Note: Sum of individual parts may not equal sum total due to rounding error.

Drainage A: Regional Board jurisdiction associated with Drainage A totals 0.26, none of which consists of riparian habitat. Drainage A exhibits a stream course that ranges from one to 25 feet in width. (GLA-C, p. 15.) The location, function and vegetation associated with Drainage A are discussed above under the *Regional Board Jurisdiction* subheading.

Drainage Area A: CDFW jurisdiction associated with Drainage Area A totals 3.30 acres, none of which consists of riparian habitat. (GLA-C, p. 15.) The location, function and vegetation associated with Drainage Area A are discussed above under the *Regional Board Jurisdiction* subheading.

Drainage B: CDFW jurisdiction associated with Drainage B totals 0.03 acres, none of which consists of State wetlands. (GLA-C, pp. 15-16.) The location, function and vegetation associated with Drainage Area B are discussed above under the *Regional Board Jurisdiction* subheading.

Drainage C: CDFW jurisdiction associated with Drainage C totals 0.29 acres, none of which consists of riparian habitat. (GLA-C, p. 16.) The location, function and vegetation associated with Drainage Area B are discussed above under the *Regional Board Jurisdiction* subheading.

Implementation of the Line E Project would impact 3.68 acres of non-wetland waters regulated by the Regional Board and 3.88 acres of non-riparian streambed regulated by CDFW; therefore, a Waste Discharge Permit (WDR) is required from the Regional Board and a Section 1600 Streambed Alteration Agreement is required from CDFW per SJV-MDP EIR **MM Bio 3**.

The proposed Line E channel includes at least 10.02 acres of soft-bottom channel. Although the Line E project would direct flood flows within the Line E tributary area, these flows would be directed in the same direction as per the existing condition. Although the Line E channel would be subject to flood control maintenance (vegetation management, clean out of debris, slope and bottom repairs, and access road maintenance and repair), none of these activities precludes or negatively affects the conveyance of water to downstream resources in the same direction and relatively same amounts as the existing condition. The flows will still reach the same area to the northwest, just following a different route. The existing MDP hydrology Q_{100} flow is 5,825 cfs at the northerly side of the MWD right-of-way. In the proposed Line E condition, the total Q_{100} flow decreases to 5,440 cfs at this same location. (PDR, pp. 15, 19)

Additionally, as outlined above in **Table H – Summary of Regional Board Jurisdiction and Table I – Summary of CDFW Jurisdiction**, the construction of Line E would result in impacts to 3.68 acres of non-wetlands waters under the jurisdiction of the Regional Board, necessitating the need for a WDR permit, as well as 3.88 acres of non-riparian stream under the jurisdiction of the CDFW, necessitating the need for a CDFW Section 1600 permit.

The Line E Project proposes to mitigate these impacts by enhancing and restoring at a minimum 2:1 ratio to the CDFW impacts (at least 7.76 acres). The 7.76 acres would be proposed to be located on a future restoration site to be located within the existing San Jacinto River 100 -year floodplain, contain alkali soils and have historically or currently support alkali meadow/vernal pool habitat and hydrology. The restoration site will be acquired and conveyed to a conservation land entity such as the Rivers and Lands Conservancy and managed in perpetuity for conservation.

A Habitat Mitigation and Monitoring Plan (HMMP) would be prepared to detail the methods to implement the proposed enhancement/restoration. The HMMP would identify the proposed plant palettes, maintenance, and monitoring efforts, and propose success criteria. (GLA-B, p. 19.) Within the restoration area, the non-native vegetation shall be removed and re-planted with native riparian species (container stock and seed). The restoration area shall be monitored and maintained for at least five years to achieve success criteria. The restoration area shall be protected via a conservation easement and a long-term endowment shall be established to manage the restoration area in perpetuity. (GLA-B, p. 19) This restoration proposal is outlined in mitigation measure **MM Bio E8**.

> **MM Bio-E8: Habitat Mitigation and Monitoring Plan**. In order to mitigate the 4.03 acres of riverine resources, including impacts associated with smooth tarplant found in these riverine areas, the Project proponent shall prepare a Habitat and Mitigation and Monitoring Plan (HMMP) and secure conservation property to be restored for alkali playa/meadow resources, including smooth tarplant. The HMMP shall be prepared on a property that is to be secured for conservation in perpetuity which will support at least 8.06 acres (2:1) of restored riverine alkali playa/meadow. The HMMP shall be submitted to the City of San Jacinto, CDFW and USFWS for review an approval. The HMMP will be used to support the mitigation necessary for impacts to the Waters of the State which require permits through the CDFW and Regional Board. The property shall be conveyed to a conservation entity such as Rivers and Lands Conservancy or other such entity as approved by CDFW and USFWS. The Project proponent will provide a non-wasting endowment to fund the management of the conservation/mitigation property in perpetuity.

Vernal Pools

The Line E Project site does not contain MSHCP vernal pools. Five areas were noted as inundated within the Project site, corresponding to the five features (4, 5, 46, E-1 and E2) that are described below as having been evaluated through focused surveys for listed fairy shrimp. Features 4, 5, 46 and E-2 are all unvegetated vehicle ruts in dirt roads. Feature E-1 consists of a large, inundated area that is described above as Drainage Area A. Drainage Area A was determined not to exhibit all three parameters of a wetland, specifically the inundated area did not exhibit a predominance of hydrophytic vegetation, and therefore the feature is not considered as a vernal pool. (GLA-A, p. 55.)

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to adverse effects on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation

Portions of the MDP Project area coincide with MSHCP Proposed Core 5 which is comprised of the portion of the upper San Jacinto River extending from the San Jacinto Mountains to just west of State Street. The portion of the San Jacinto River is crucial for maintaining floodplain processes, water quality, and habitat quality, benefiting species like mountain lions and bobcats. There are no other waterways in the MDP Project area that could serve as movement corridors. Flood control activities and adjacent planned land uses could adversely affect species such as the arroyo toad, San Bernardino kangaroo rat, least Bell's vireo, southwestern willow flycatcher, and Los Angeles pocket mouse. However, with the implementation of mitigation measures from the SJV MDP EIR, **MM Bio 2, MM Bio 4, MM Bio 5, MM Bio 6,** and **MM Bio 8**, set forth in the response to item D.1, impacts regarding interfering with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeding the use of native wildlife nursery sites are considered less than significant. (SJV MDP EIR, p. 3.4-38.)

Line E Project: No New Impact/Less than Significant with Mitigation

The Line E Project site is not located within a regionally significant wildlife linkage or corridor, including any Core Areas or MSHCP existing or proposed Linkages. (GLA-A, p. 63.) The Line E Project would not result in the construction of physical barriers to wildlife movement and construction impacts will be temporary in nature. The Line E Project site does not contain any wildlife nurseries.

The Line E Project has the potential to impact active bird nests if vegetation is removed during the nesting season (February 1 to September 15). Impacts to nesting birds are prohibited by the MBTA and California Fish and Game Code. Although impacts to native birds are prohibited by MBTA and similar provisions of California Fish and Game Code, Although impacts to native birds are prohibited by MBTA and similar provisions of California Fish and Game Code, impacts to native birds resulting from implementation of the Line E Project would not be a significant impact under CEQA. The native birds with potential to nest on the Project site would be those that are extremely common to the region and highly adapted to human landscapes (e.g., house finch, killdeer). The number of individuals potentially affected by the Line E Project would not significantly affect regional, let alone local populations of such species. (GLA-A, p. 63.) Nonetheless, the Line E Project would implement SJV MDP **MM Bio 1**, as clarified below and renumbered **CMM Bio 1 (**CMM = Clarified Mitigation Measure**)**. to be specific to this Project. (clarifying language is shown in underline (example text) and deletions are shown in strike-through (~~example text~~).

> ~~**MM Bio 1**~~ **CMM Bio 1:** In order to avoid violation of the MBTA and California Fish and Game Code, site-preparation activities (removal of trees and vegetation) shall be avoided, to the greatest extent possible, during the nesting season (generally February 1 to September 15 ~~August 31~~) of potentially occurring native and migratory bird species. If site-preparation activities are proposed during the nesting/breeding season (February 1 to September 15 ~~August 31~~), a pre-activity field survey shall be conducted by a qualified biologist ~~be to the issuance of grading permits, for private development projects, or~~ prior to ~~construction for public agency contracts~~, within three days prior to any disturbance of the Line E Project site, including disking, demolition activities, and grading, to determine if active nests of species protected by the MBTA or the California Fish and Game Code are present in the construction zone. ~~If active nests are not located within the Project area and appropriate buffer, 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected bird nests (non-listed), or within 100 feet of sensitive or protected songbird nests, construction may be conducted during the nesting/breeding season. However, i~~ If active nests are located during the pre-activity field survey, ~~no~~

~~grading or heavy equipment activity shall take place within at least 500 feet of an active listed species or raptor nest, 300 feet of other sensitive or protected (under MBTA or California Fish and Game Code) bird nests (non-listed), or within 100 feet of sensitive or protected songbird nest~~s the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nest is no longer occupied and juvenile birds can survive independently from the nests. ~~active.~~

For the reasons set forth above, implementation of the Line E Project would not interfere with the movement of any native or migratory fish or wildlife species or impact wildlife corridors. Clarification of **SJV-MDP EIR MM Bio 1** to meet the specifics of the Line E Project and renumbering this mitigation measure to **CMM Bio 1** does not constitute a change to the SVJ MDP Project or new information of substantial importance per CEQA Guidelines section 15162. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

SJV-MDP EIR Conclusion: Less than Significant

The San Jacinto General Plan contains several policies relating to the conservation and protection of natural resources, including conservation and protection of important plant communities and wildlife habitats, and the conservation of important natural resources such as mature trees, rock outcroppings, hills, etc. Implementation of the proposed MDP Project may adversely affect important plant communities and wildlife habitats. (SJV-MDP EIR, p. 3.4-39.)

The Project does not propose any above-ground structures that would require the removal of important natural resources and, through compliance with the MSHCP, would conserve important resources such as mature trees, rock outcroppings, hills, ridges, and other prominent land forms, as open space. The location of specific SJV-MDP facilities is dictated by engineering and hydraulic concerns. The Project shall meet the goal of the City of Hemet and comply with the policies of the SJVAP through compliance with the MSHCP, therefore impacts are less than significant. (SJV MDP EIR, p. 3.4-39.)

Line E Project: No New Impacts/No Impacts

On November 15, 2022 San Jacinto adopted *Envision San Jacinto – General Plan 2040* (General Plan 2040). The Resource Management Element of General Plan 2040 contains policies related to the conservation and protection of natural resources. The Line E Project would not conflict with any local policies or ordinances protecting biological resources. (GLA-A, p. 63.)

The City's adoption of General Plan 2040 does not constitute new information of substantial importance per CEQA Guidelines section 15162. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation

The MDP Project area is located within the Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP) and the MSHCP.

The SKR HCP establishes a mechanism for the long-term conservation of the Stephens' kangaroo rat. (SKR). Potential impacts to the SKR are mitigated on a regional basis through compliance with the MSHCP and the SKR HCP. As the MDP Project area is not in a core reserve, implementation of the SJV-MDP would conflict with the SKR HCP and impacts are less than significant. (SJV-MDP EIR, p. 3.4-37.)

The MSHCP serves as a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP), pursuant to Section (a)(1)(B) of the ESA, as well as a Natural Communities Conservation Plan (NCCP) under the State NCCP Act of 2001. (SJV-MDP, p. 3.4-21.) The MSHCP establishes Criteria Area boundaries in order to facilitate the process by which properties are evaluated for inclusion in the MSHCP Conservation Area. Because some of the MDP Facilities are located within MSHCP Criteria Areas, the JPR process would be conducted by the Western Riverside County Regional Conservation Authority (RCA) for those MDP Facilities located within an MSHCP Criteria Cell prior to construction. Criteria Cells that would be considered in the JPR process include Cells 2666, 2774, 2775, 2878, 2363, 2364, 2461, 2462, 2568, 2569, 2674, 2893, 2981, and 3291. (SJV-MDP EIR, p. 3.4-29.) The conceptual alignment for Line E, as shown in the SJV-MDP EIR, is not within an MSHCP Criteria Cell.

In accordance with the MSHCP, the SJV-MDP was reviewed for consistency with MSHCP Section 3.2.1 (Public Quasi/Public [PQP] Lands), Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pool), Section 6.1.3 (Protection of Narrow Endemic Plant Species), Section 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface), and Section 6.3.2 (Additional Survey Needs and Procedures). The SJV MDP EIR concluded that with implementation of mitigation measures **MM Bio 2, MM Bio 4, MM Bio 5, MM Bio 6, and MM Bio 8,** the MDP Project would be is consistent with the MSHCP and potential impacts regarding conflicting with an approved local, regional, or state conservation plan would be less than significant. (SJV-MDP EIR, p. 3.4-37.)

The MDP Project is not located within any other adopted HCP or NCCP. The proposed Project will not conflict with an approved local, regional, or state conservation plan and potential impacts are less than significant. (SJV MDP EIR, pp. 3.4-29 - 3.4-37.)

Line E Project: No New Impacts/No Impacts

The Line E Project is located within the MSHCP; however, the Line E Project site is not located within an MSHCP Criteria Cell, and JPR is not required.

The BTR provides an analysis of the Line E Project with regard to compliance with the biological aspects of the MSHCP. Specifically the BTR analyzed consistency with MSHCP Reserve assembly requirements, compliance and consistency with Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), Section 6.1.3 (Protection of Narrow Endemic Plant Species; NEPSSA), Section 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface), and Section 6.3.2 (Additional Survey Needs and Procedures). As such, the Project will not conflict with the provisions of the MSHCP as discussed below.

MSHCP Reserve Assembly Requirements

The Project site is not in the MSHCP Criteria Area and therefore the Project is not subject to MSHCP Reserve Assembly requirements. (GLA-A, p. 73.)

Section 6.1.2 – Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools
The Line E Project will impact 0.15 acres of MSHCP non-riparian riverine areas, as shown on **Figure 24 – MSHCP Riverine Areas**, which are identical to the areas of CDFW jurisdiction shown on ***Table* I**, and **Figure 22**. The purpose of the Line E Project is to re-route existing storm water flows into the proposed Line E channel. The existing direction of flows are from the southeast starting at the San Jacinto Reservoir to the northwest across Ramona Expressway (refer to **Figure 4 – Project Map**). The general direction and relatively same amount of storm water flows at the 100-year storm level would be maintained after implementation of Line E. Although the proposed Line E channel would be subject to flood control maintenance (vegetation management and structural repairs, as needed), the Line E channel would have at least 10.02 acres with a soft (unpaved) bottom and would function in the same or similar manner as the existing, human-altered drainage features (i.e. agricultural ditches). In order to address consistency with ***Section 6.1.2*** of the MSHCP and to evaluate the effects to riparian and/or riverine resources, a Determination of Biologically Equivalent or Superior Preservation (DBESP) process. (GLA-A, p. 73.) The *Determination of Biologically Equivalent or Superior Preservation (DBESP) Analysis for Impacts to MSHCP Riparian/Riverine Area, San Jacinto Valley Master Drain Plan Line E,* January 20, 2026 was prepared by GLA and is included and is included as Appendix D.2 to this Addendum. The DBESP was submitted to the Wildlife Agencies by the City of San Jacinto on February 25, 2025. The Wildlife Agencies requested additional information on April 23, 2025 and a response to that request was provided on June 6, 2025. On July 25, 2025 the Wildlife Agencies responded to the City. On August 28, 2025 the City (including consultants) and Wildlife Agency staff attended a site walk of the Line E area. The City submitted a revised DBESP to the Wildlife Agencies' comments on January 21, 2026.

The DBESP evaluated potential impacts to riverine areas and narrow endemic plant species, criteria area species, and burrowing owl which are discussed below. The proposed Project, through grading and reconfiguration, will impact 3.88 acres of riverine areas. The general direction of riverine flows will be maintained after implementation of Line E. The impacts to the existing riverine areas are considered permanent given that the segments of the exact drainage features will not be restored in the same configuration. Through preparation and implementation of an HMMP as set forth in mitigation measure **MM Bio E8**, impacts to riverine areas would be less than significant.

Construction of the Line E Project has the potential to result in indirect impacts to LBV within the riparian habitat adjacent to the southern (upstream) end of the Line E Project Site. (Refer to **Figure 19 – Least Bell's Vireo Survey Results**.) However, with implementation of mitigation measures **MM Bio E4, MM Bio E5, and/or MM Bio E6**, which establishes construction buffers, provides for pre-construction surveys, biological monitoring, and installation of a noise barrier, indirect impacts to LBV would be less than significant. (GLA-A, pp. 70 – 72, 74.)

Five seasonal ponding features (refer to **Figures 18a through 18e – Fairy Shrimp Results Map**) were surveyed by GLA to determine the presence/absence of federally-listed fairy shrimp and for determinations as to whether any of these features met the definition of a vernal pool. The results of these surveys indicate implementation of the Line E Project would not impact listed fairy shrimp, nor are any of these features considered vernal pools. (GLA-A, pp. 46, 55, 74.)

As part of the fairy shrimp survey, five areas noted as inundated within the Line E Project Site, identified **Figures 18a through 18e** as features E-1, 46, 5, 4, and E-2, were evaluated to determine of any of them are vernal pools.

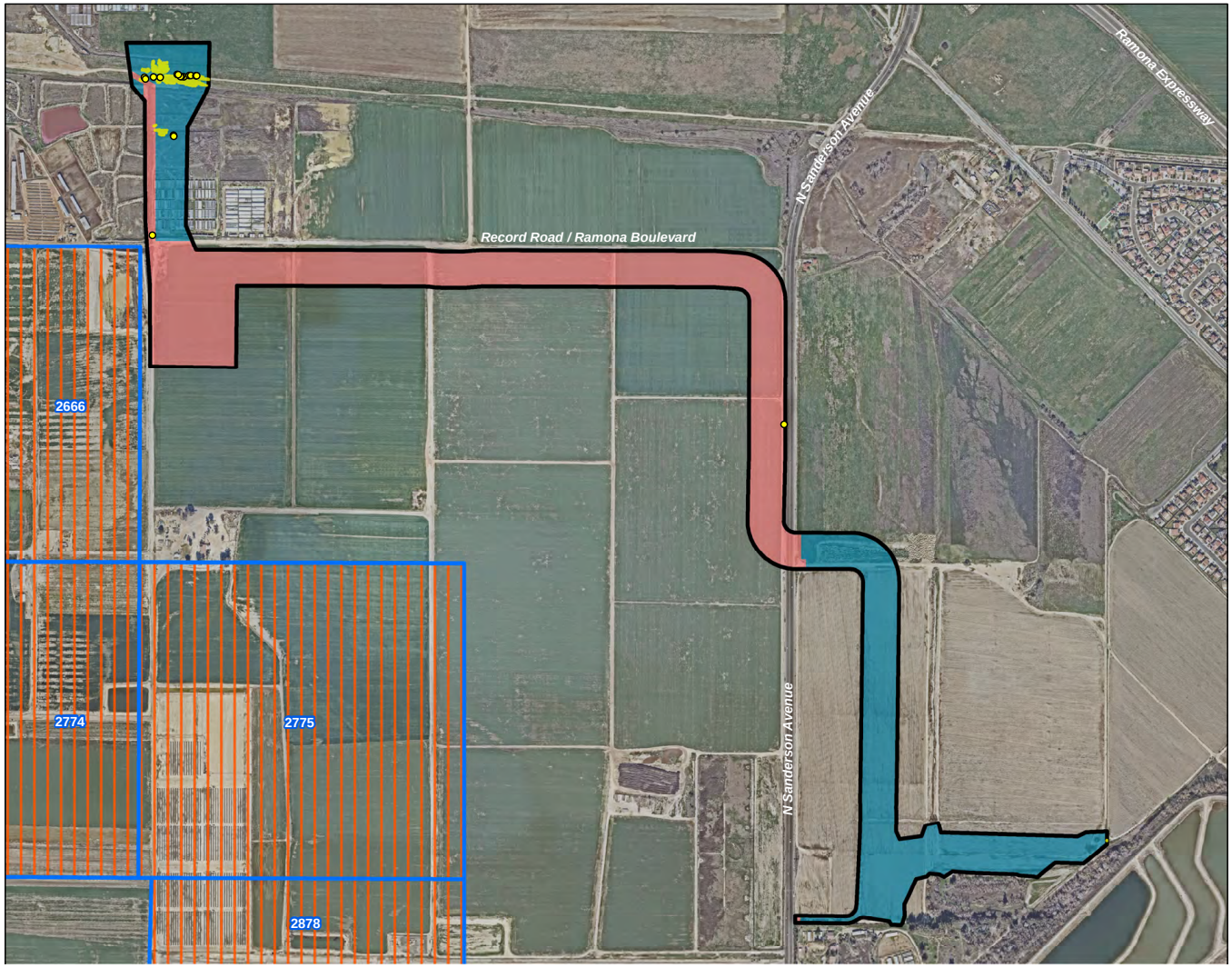
Features 4, 5,46 and E-2 are all unvegetated vehicle ruts in dirt roads. Feature E-1 consists of a large, inundated area that is described in this Addendum and the BTR as Drainage Area A. Drainage Area A was determined not to exhibit all three parameters of a wetland, specifically the inundated area did not exhibit a predominance of hydrophytic vegetation. Therefore, Drainage Area A is not considered as a vernal pool. Because there are no vernal pools present on the Project site, implementation of the Line E project would not impact any vernal pools. (GLA-A, pp. 55, 74.)

Section 6.1.3 – Protection of Narrow Endemic Plant Species
Most of the Project site is located within the MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA), except for approximately 3,000 linear feet of the Project alignment corresponding with the northeastern corner of APNs 432-030-012 and 432-030-010. No NEPSSA plant species were detected during the focused surveys, and therefore the Line E Project would not impact Narrow Endemic Plant Species. (GLA-A, p. 74.)

Section 6.1.4 – Guidelines Pertaining to the Urban/Wildlands Interface
The Line E Project would not be located adjacent to the MSHCP Conservation Area; however as mentioned above in the *Section 6.1.2* discussion, a portion of Line E would be located adjacent to existing riparian habitat that supports sensitive species and that would be enhanced/restored per mitigation measure **MM Bio E8**. (GLA-A, p. 74.)

Section 6.3.2 Additional Survey Needs and Procedures
As discussed in the response to item D.1, the Line E Project occurs within the burrowing owl survey area. Focused burrowing owl surveys were conducted for the proposed Project site, and no burrowing owls were detected; however, potential suitable habitat exists within the Line E Project site. In compliance with MSHCP requirements and mitigation measure **MM Bio E7** (which clarifies and replaces SJV-MDP EIR **MM Bio 2**), preconstruction burrowing owl surveys shall be conducted within 30 days of site disturbance. The Line E project does not occur within the amphibian or mammal survey areas, or within the CAPSSA; therefore, focused surveys were not required for these species. One Criteria Area Plant Species, smooth tarplant, was detected within the Project site (see **Figure 17**). Ditch A, Ditch D, and Drainage Area A support smooth tarplant, and as noted above, these locations are identified as riverine areas within agricultural areas. Given that a proportion of the smooth tarplant individuals are associated with riparian/riverine resources, mitigation measure **MM Bio E8** would address impacts to riparian/riverine areas pursuant to MSHCP Section 6.1.2 and reduce impacts to less than significant. The Project site does not occur within the CAPSSA and vernal pools are not present on the Project site, therefore the MSHCP requirements pertaining to CAPSSA species and vernal pools do not apply. (GLA-B, pp. 3-5.)

For the reasons set forth above, implementation of the Line E Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.



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Source: GLA

Figure 17 - Smooth Tarplant

Line E Addendum

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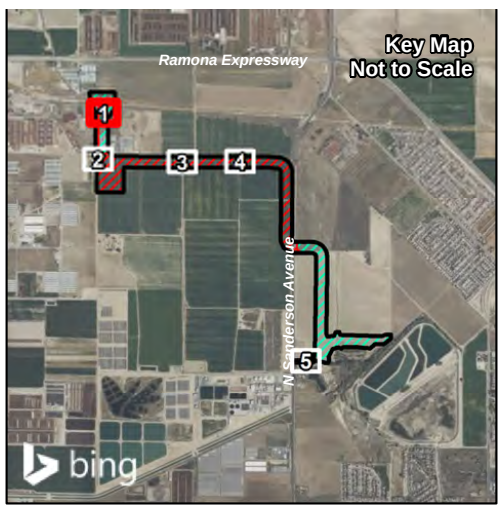


Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

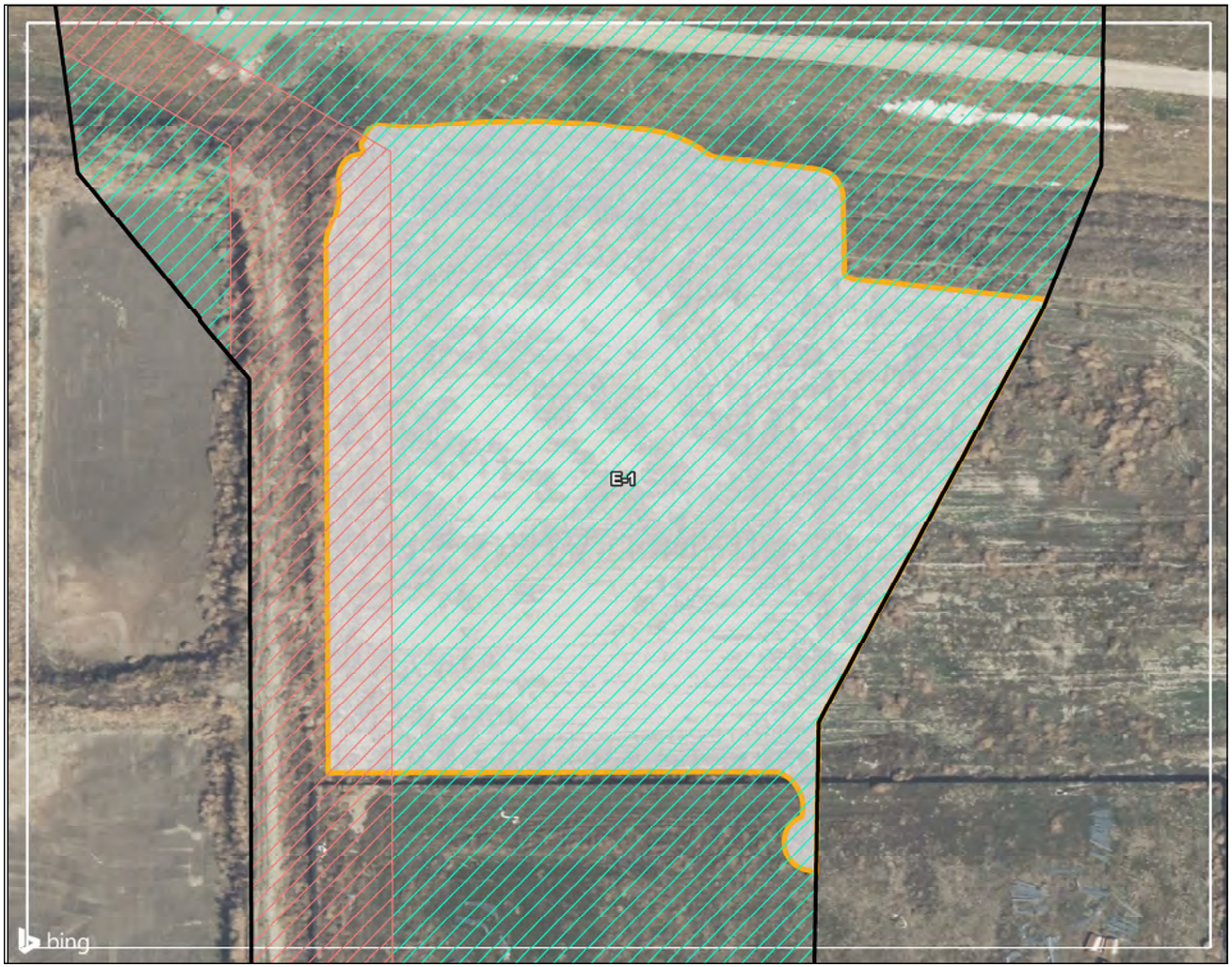
Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected



Source: GLA

Figure 18a - Fairy Shrimp Survey Results Map

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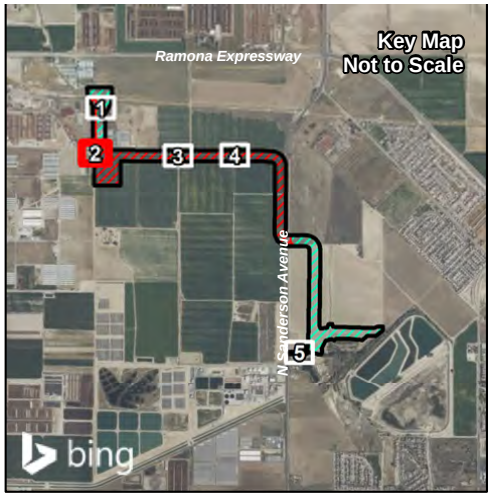



Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

Source: GLA

Figure 18b - Fairy Shrimp Survey Results Map

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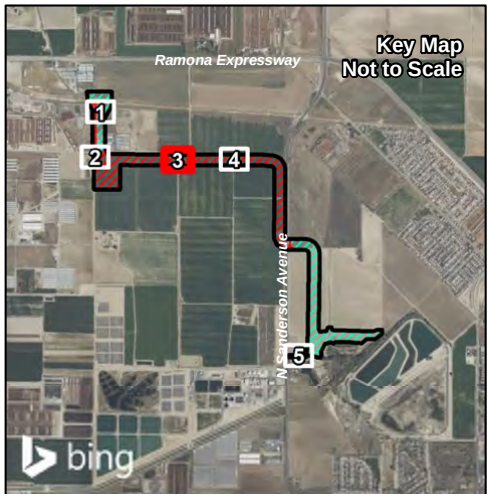



Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

Source: GLA

Figure 18c - Fairy Shrimp Survey Results Map

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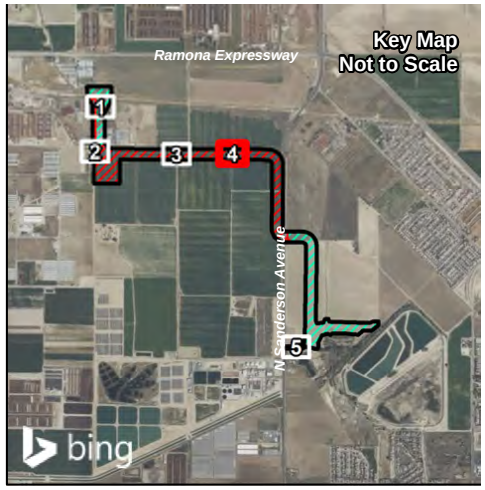



Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

Source: GLA

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Figure 18d - Fairy Shrimp Survey Results Map

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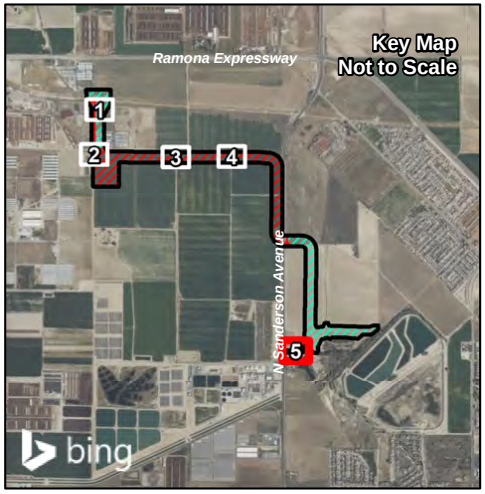

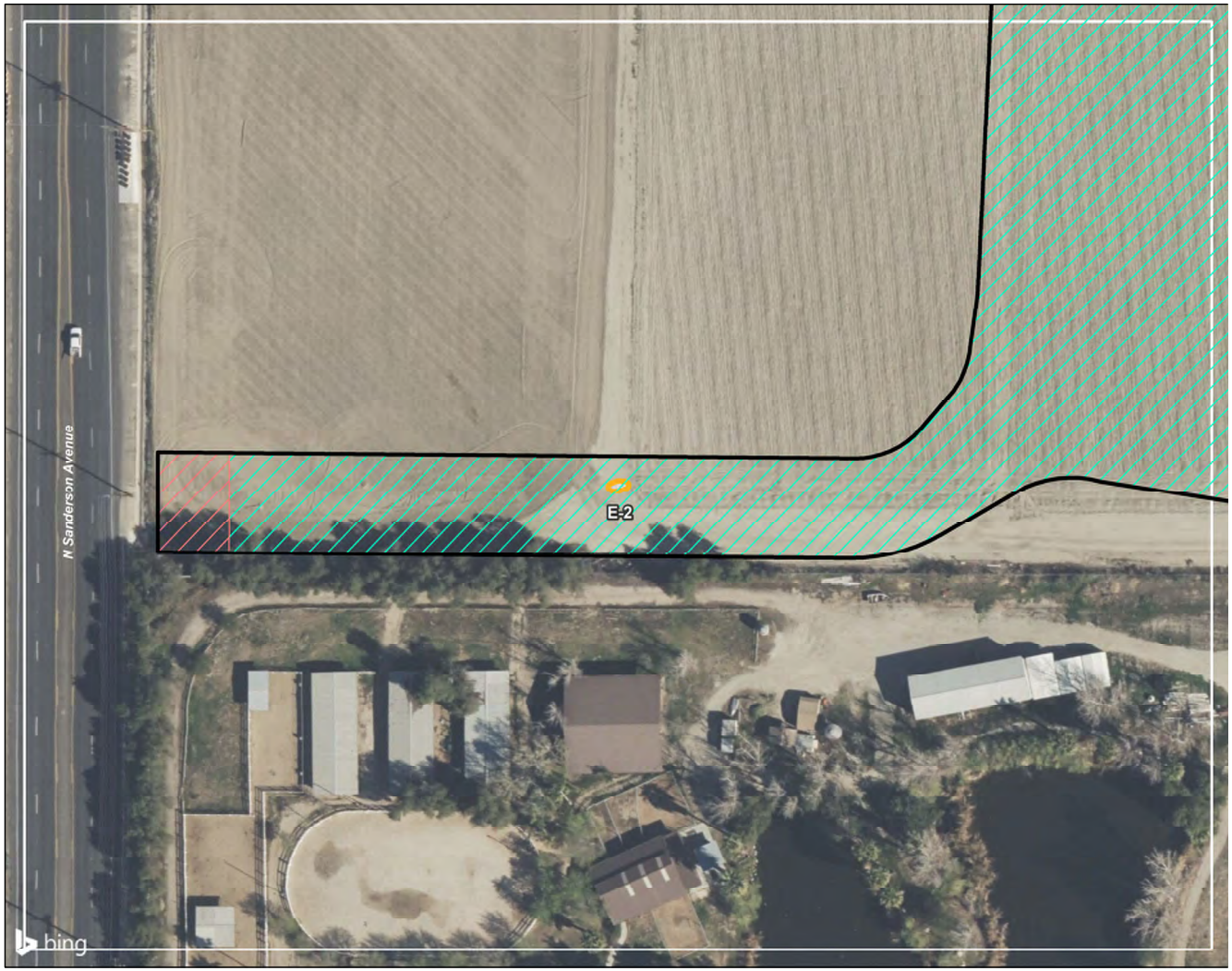

Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

Source: GLA

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Figure 18e - Fairy Shrimp Survey Results Map

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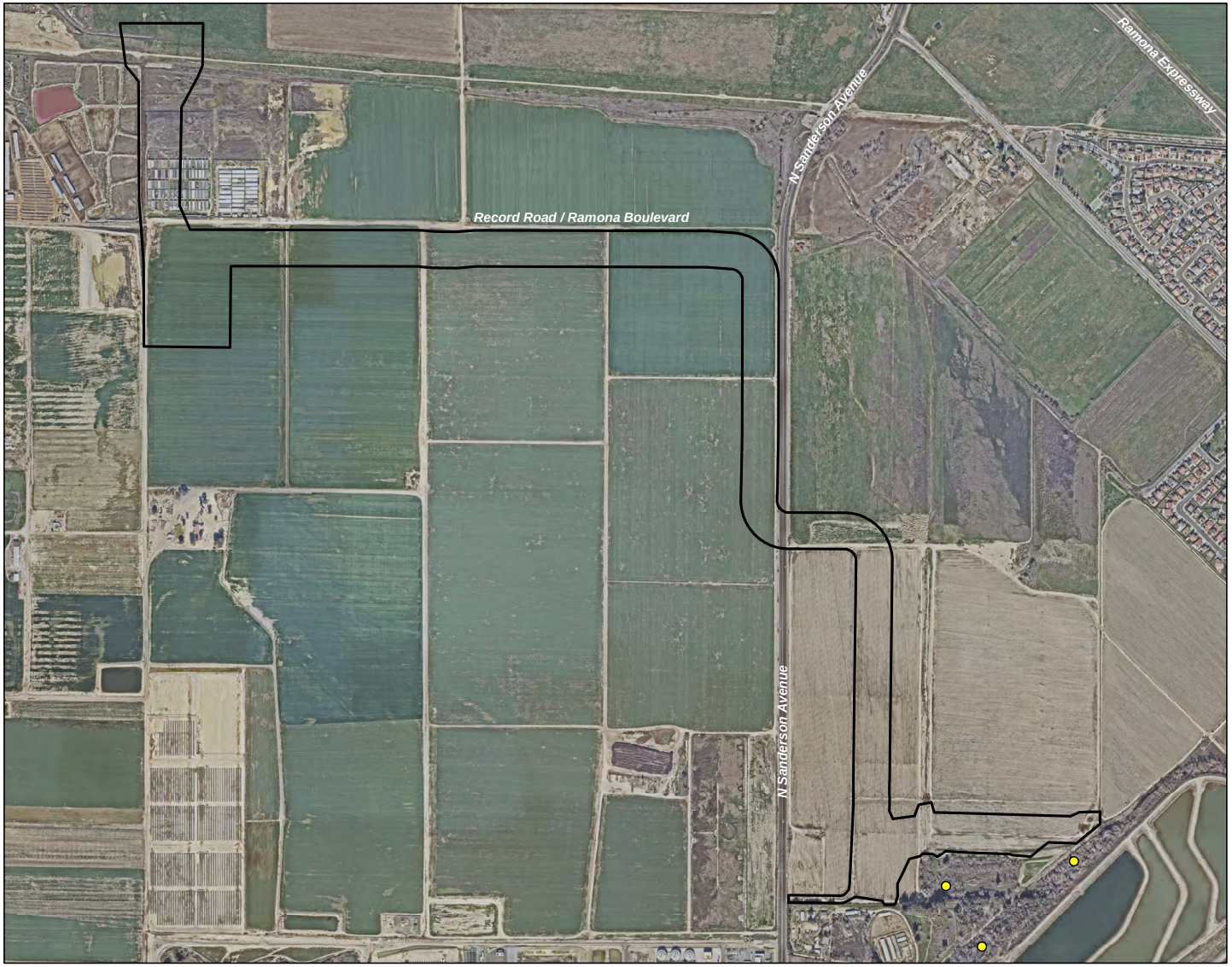

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Source: GLA

Figure 19 - Least Bell's Vireo Survey Map

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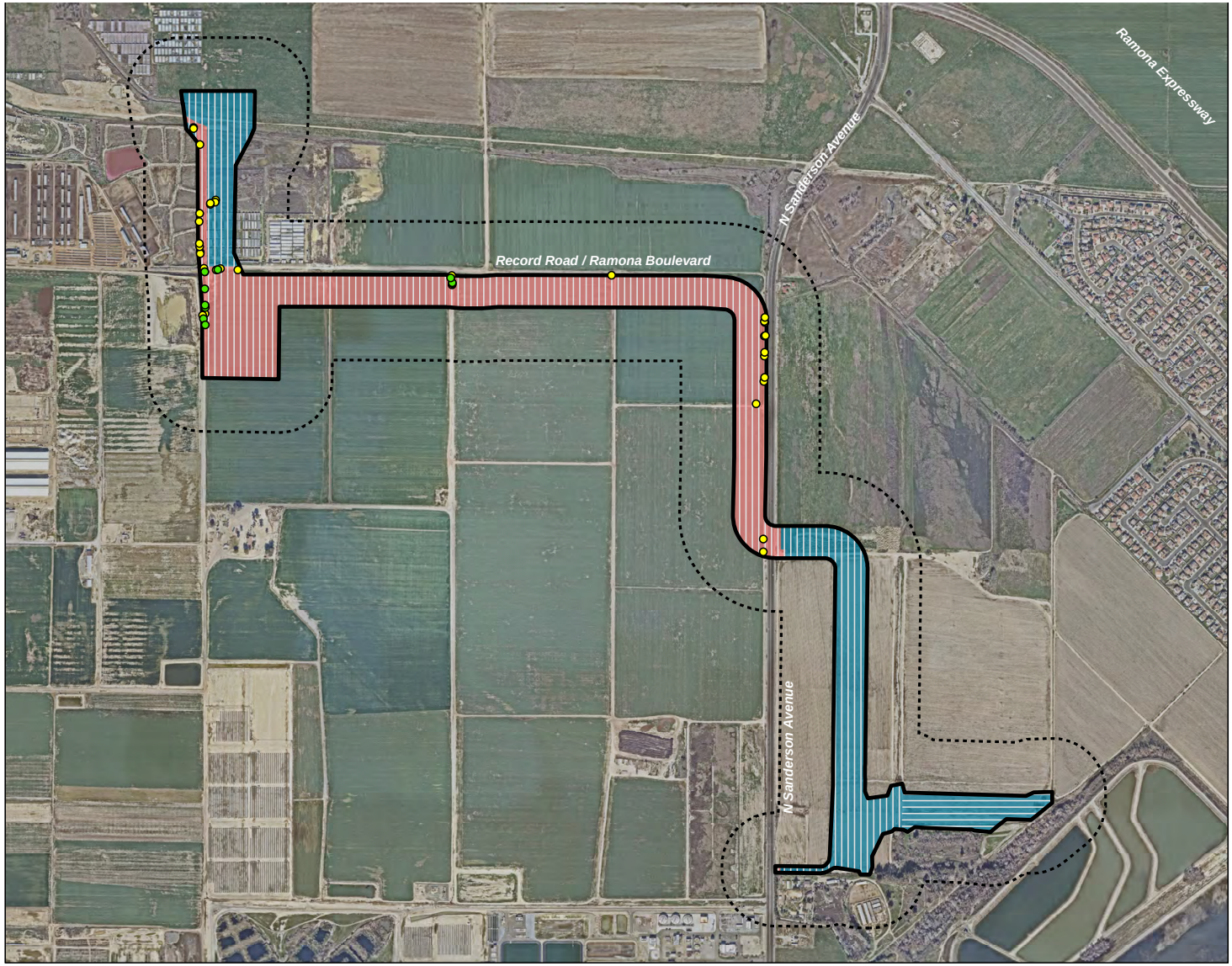

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Source: GLA

Figure 20 - Burrowing Owl Survey Map

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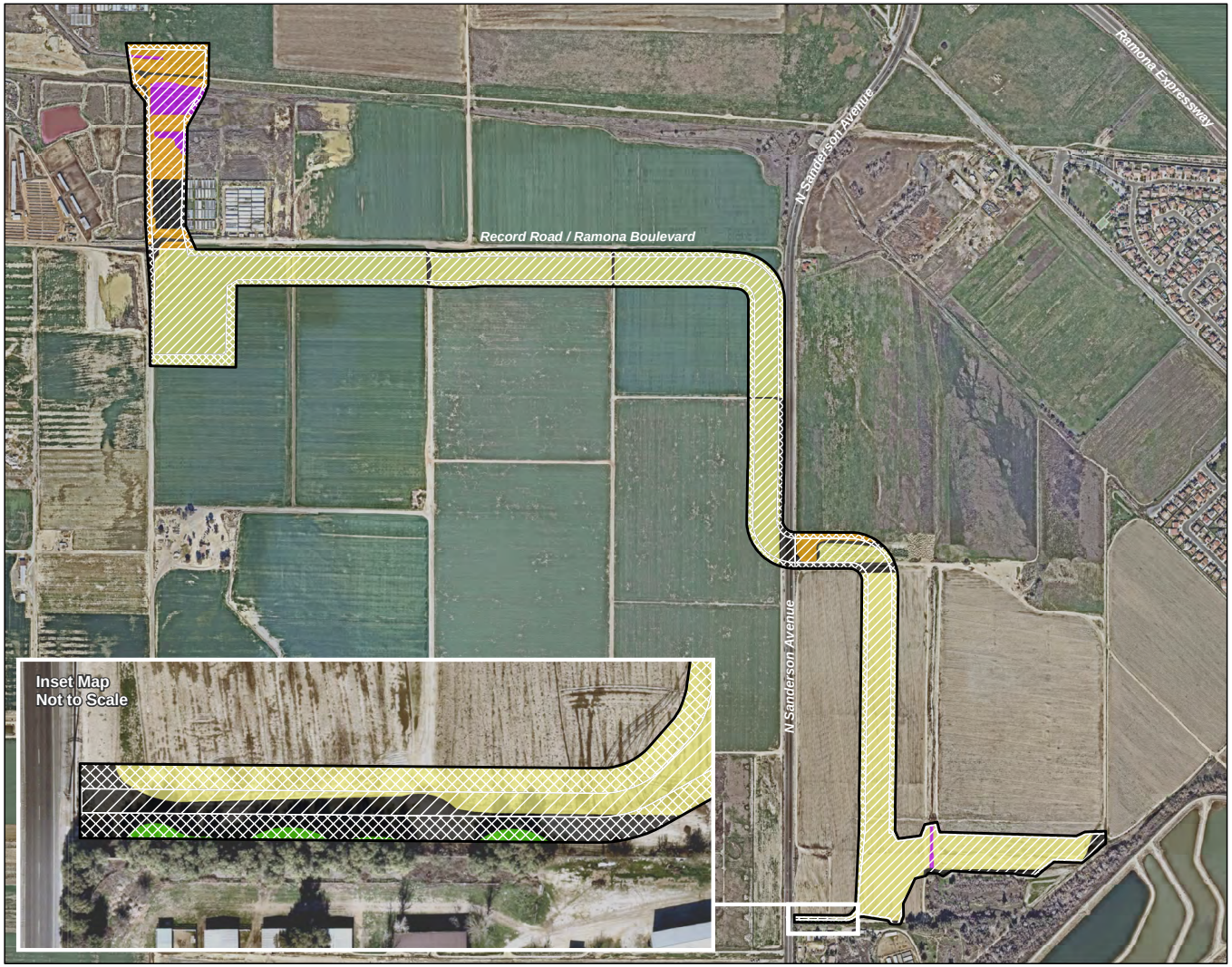

Project Site

Permanent Impact

Temporary Impact

Disturbed Agricultural Areas (Agricultural Fields)

Bromus hordeaceus Herbaceous Semi-Natural Alliance (Annual Brome Grasslands)

Disturbed/Developed Areas (Disturbed and Developed Areas)

Lepidium latifolium – Lactuca serriola Herbaceous Semi-Natural Alliance (Perennial Pepper Weed – Prickly Lettuce Patches)

Eucalyptus globulus Woodland Semi-Natural Alliance (Eucalyptus Groves)

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Source: GLA

Figure 21 - Vegetation Map

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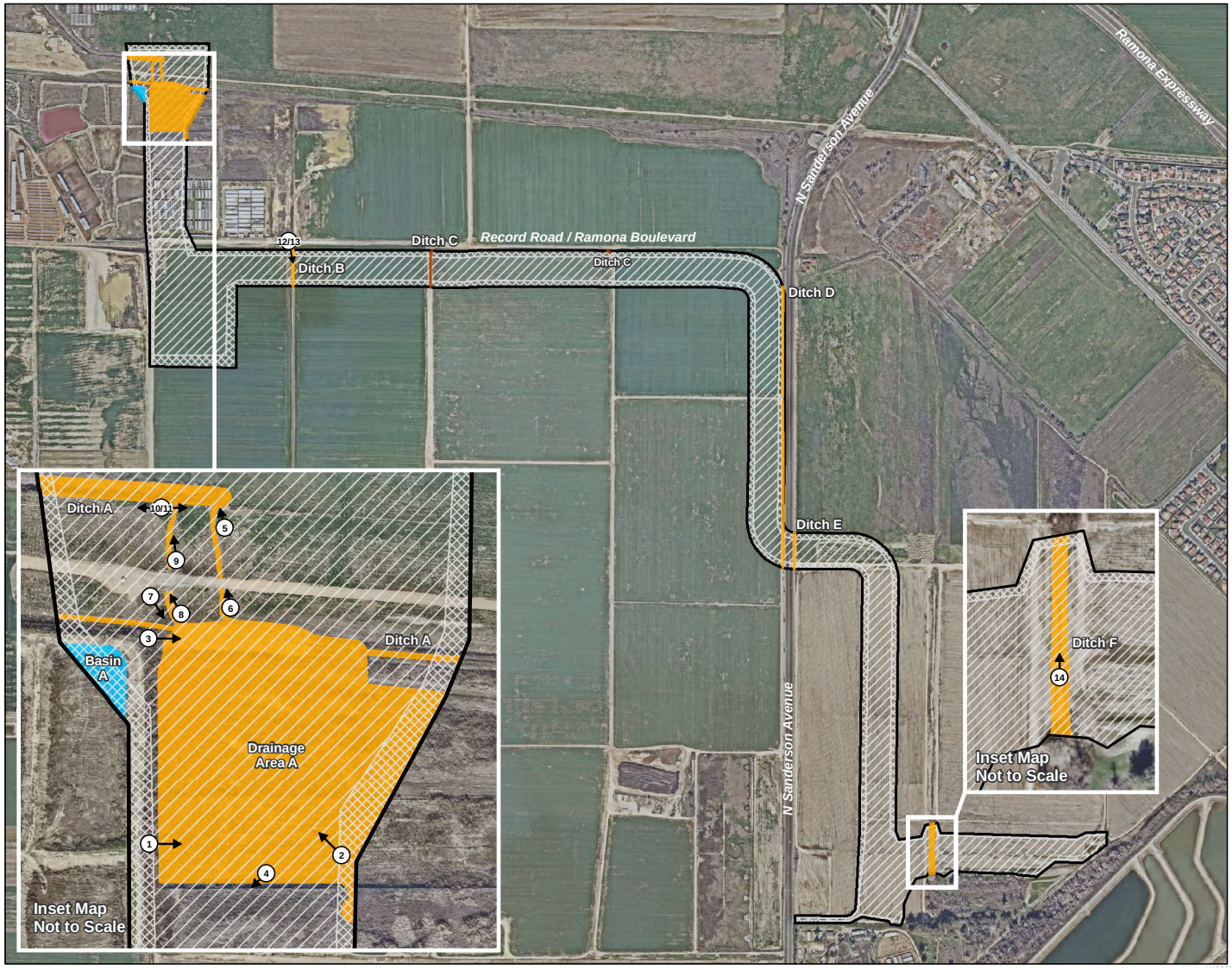

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Source: GLA

Figure 22 - CDFW Jurisdictional Area

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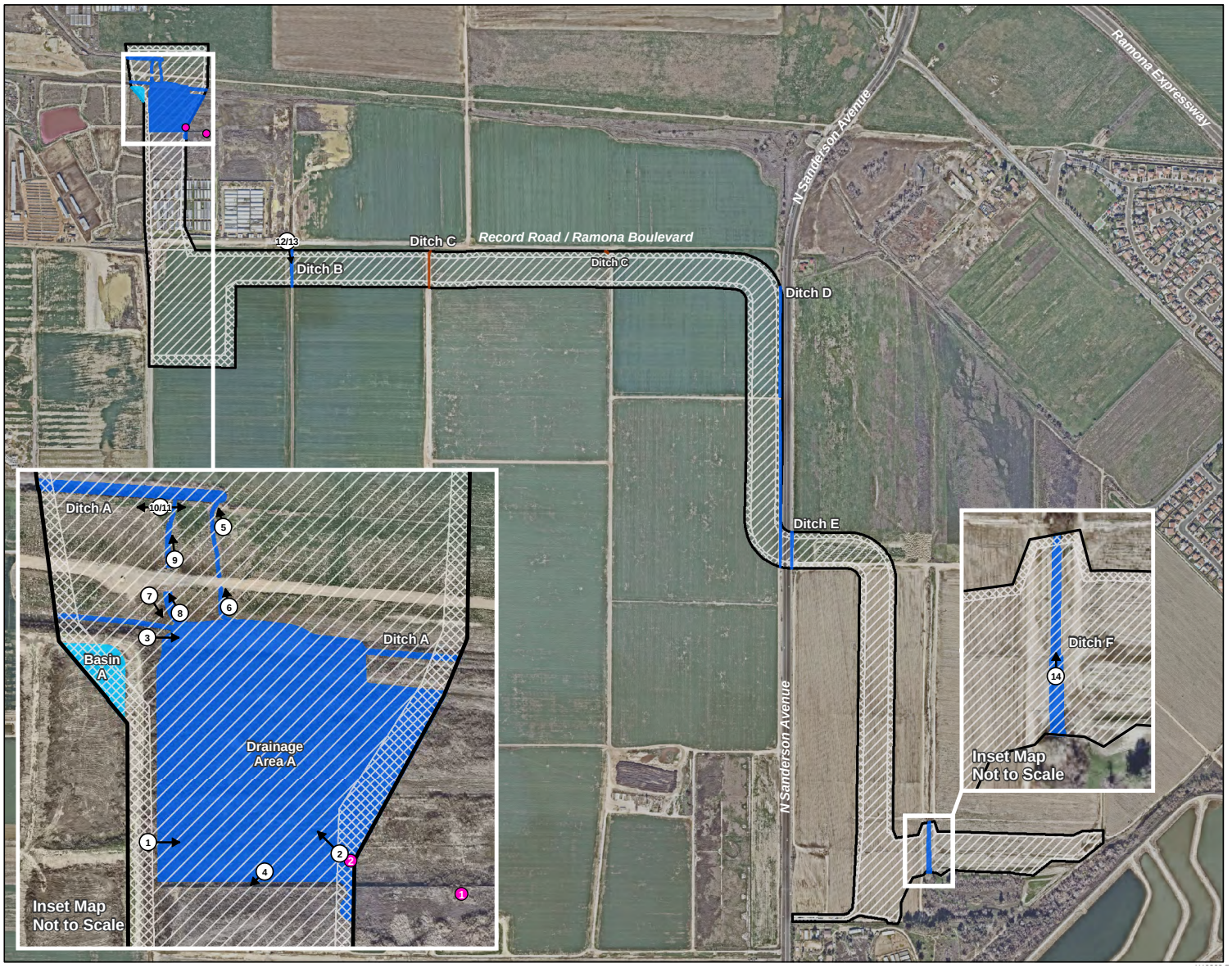

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Source: GLA

Figure 23 - Regional Board Jurisdictional Area

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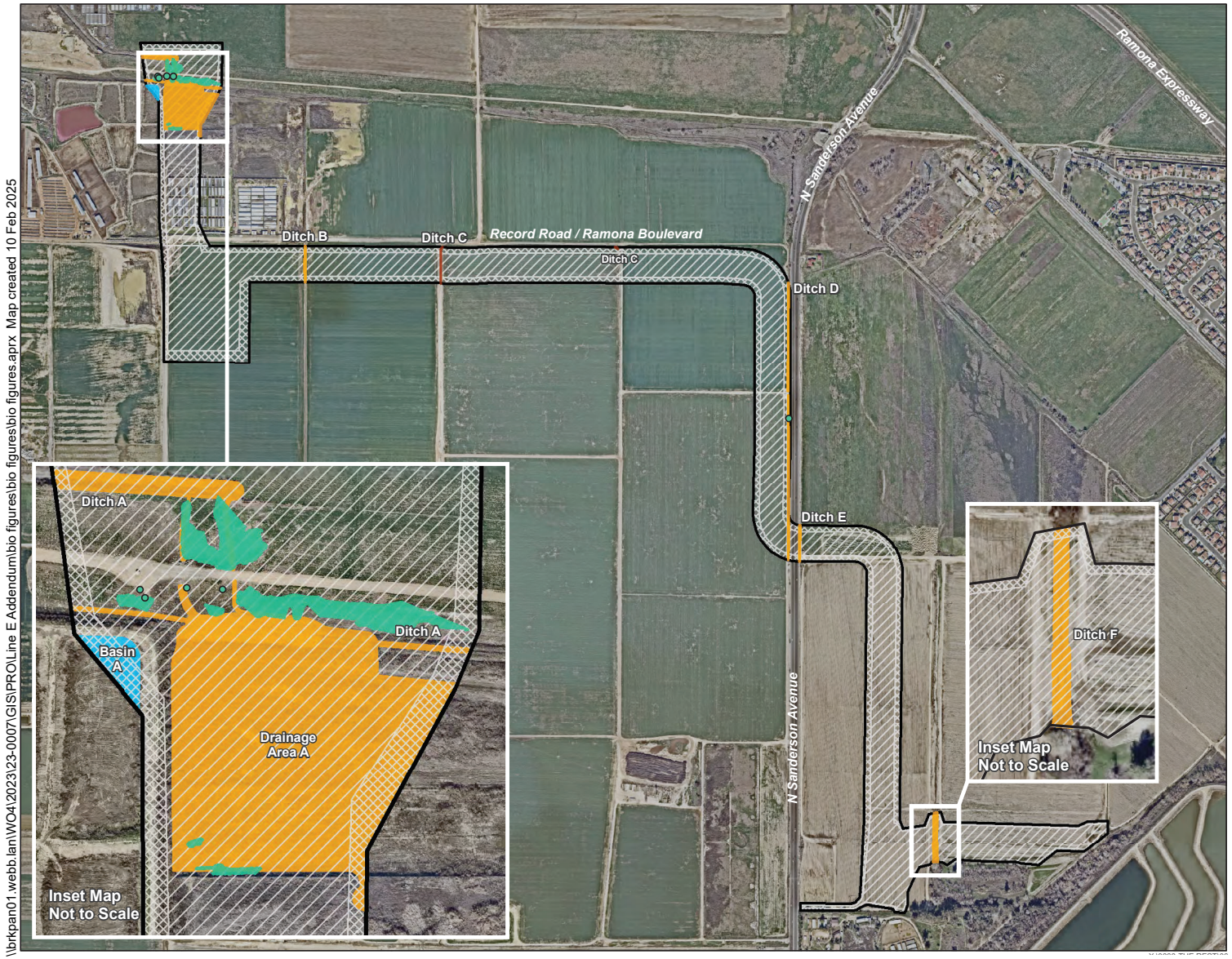

Project Site

Permanent Impact

Temporary Impact

MSHCP Riverine

Agricultural Ditch (Non-Riparian/Riverine)

Basin (Non-Riparian/Riverine)

Smooth Tarplant

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Source: GLA

Figure 24 - MSHCP Riverine Areas

Line E Addendum

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E. CULTURAL RESOURCES	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Cause a substantial adverse change in the significance of a historical resource, pursuant to California Code of Regulations, Section 15064.5?	☐	☐	☒	☐
2) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to California Code of Regulations, Section 15064.5?	☐	☐	☒	☐
3) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Source(s): AE-A; SJV-MDP EIR

1) Cause a substantial adverse change in the significance of a historical resource, pursuant to California Code of Regulations, Section 15064.5?

SJV-MDP EIR Conclusion: Less than Significant Impact

Significant effects upon historic structures or features are evaluated by determining the presence or absence of historic status with respect to the feature in question, and then determining the potential for project implementation to affect the structure or feature if it possesses historic status.

One historic resource was identified within the MDP Project area of potential effect (APE), known as Site 33-015743, which is south of Seventh Street. This resource is located within the boundaries of a segment of the former San Jacinto Valley Railway that dates to 1888. The resource was previously recorded and evaluated for historical significance, and it appears to qualify as a "historical resource" as defined by CEQA. (SJV-MDP EIR, p. 3.5-11.)

According to the conceptual alignments and facilities identified in the SJV-MDP, MDP Project-related activities at railway location would be limited to trenching for the installation of an underground storm drain within the railway ROW. If construction within the railway ROW is limited to underground facilities, and does not include the intersection of any MDP Facilities with the rail line or associated railway structures, implementation of the MPD Project would not result in the destruction or relocation of the railway nor would it alter the basic characteristics of the site. Therefore, the proposed SJV-MDP would not cause a substantial adverse change in the significance of Site 33-015743, the only historical resource encountered in the portions of the MDP Project footprint studied (SJV-MDP EIR, p. 3.5-14.)

A vernacular commercial building at 301 N. State Street, known as "Rocios Party Rentals," is located within the proposed SJV-MDP footprint. However, because this structure was constructed after 1967, was not considered a potential historical resource at the time the SJV-MDP EIR was certified. No other potential historical resources were encountered within or adjacent to the SJV-MDP Project footprint. (SJV-MDP EIR, p. 3.5-11.)

The facility locations and alignments shown in the SJV-MDP are conceptual. If at final design any SJV-MDP Facilities are in the vicinity of the former San Jacinto Railway, the conceptual plans change to include construction of above-ground structures or the removal of existing tracks or other railroad-related structures within the ROW, this would be considered a modification of the SJV-MDP Project

for which subsequent CEQA analysis (i.e., initial study, negative declaration, addendum to the EIR, subsequent EIR, or supplemental EIR) would be required. (SJV-MDP EIR, p. 3.5-15.)

Portions of the SJV-MDP Project footprint were inaccessible to field survey personnel and could not be surveyed; thus, it is possible that historical resources could be present on the portions of the SJV-MDP Project's footprint that could not be surveyed and a field survey would be required for these facilities per mitigation measure **MM Cultural 2a**. Therefore, the implementation of mitigation measures **MM Cultural 2a through, MM Cultural 2c** are required to reduce potential impacts to historical and archaeological resources to less than significant. (SJV-MDP, EIR. P. 3.5-15.)

> **MM Cultural 2a:** Prior to the earlier of issuance of a grading permit or construction of any SJV-MDP facility subject to further CEQA analysis, the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD shall require the Project applicant to commission an assessment of the potential for archeological and cultural resources to be performed by a qualified archaeologist in conjunction with recognized Native American tribes, including the Soboba Band of Luiseno Indians (Soboba), in order to determine the presence and extent of any such resources within the Project area and evaluate the significance of such resources. The assessment shall include a NAHC and CHRIS records search, a Phase I walkover survey, and preparation of an archaeological report containing the results of this assessment. Phase II archaeological evaluations will be completed prior to project approval if recommended in the assessment.
>
> **MM Cultural 2b:** The San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD shall enter into a Treatment and Disposition Agreement (TDA) with Soboba to address treatment and disposition of archaeological and cultural resources and human remains associated with Soboba that may be uncovered or otherwise discovered during construction within the jurisdiction of the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD. The TDA may establish provisions for tribal monitors. Following execution of the TDA by the San Jacinto Public Works Department or Hemet Public Works Department and Soboba, the TDA will be incorporated by reference into individual grading permits for portions of the Project that are within the jurisdiction of San Jacinto Public Works Department or Hemet Public Works Department; TDAs executed between RCFCWCD and Soboba will be incorporated into the construction specifications.
>
> **MM Cultural 2c:** If the archaeological/cultural resources assessment described in **MM Cultural 2a** demonstrates the potential for archaeological/cultural resources to occur on the Project site, tribal monitors, including those from Soboba, may be allowed to monitor, at such tribe's sole cost and expense, all grading, excavation, and ground-disturbing activities, including further surveys. Following the agreement of the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD, the designated archaeologist, the tribal monitor, and any applicable responsible or trustee agencies, grading, excavation, ground-disturbing activities shall be halted temporarily, and redirected in the event that any archaeological/cultural resources are discovered, in order to evaluate the significance of said archaeological/cultural resources. Any artifacts collected or recovered shall be cleaned, identified, catalogued, analyzed, and prepared for curation at an appropriate repository with permanent retrievable storage to allow for e future. Site records or site record updates (as appropriate) shall be prepared and

submitted to the Eastern Information Center as a permanent record of the discovery. (SJV MDP EIR, pp. 3.5-14 - 3.5-15, 3.5-17 - 3.5-18.)

Line E Project: No New Impact/No Impact

This discussion is based on the *Cultural Resource Study for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California,* January 2024, prepared by Applied Earthworks for the Line E Project. This report is hereinafter referred to as the CRS and is included as Appendix E to this Addendum. Preparation of the CRS satisfies SJV-MDP mitigation measure **MM Cultural 2a.**

According to the CRS, the Line E Project area is heavily disturbed on the surface by agricultural activity, road development, in addition to modern structures. Portions of the Line E Project site were inaccessible to field survey personnel and could not be surveyed. The records search resulted in identification of a total of eight previously recorded cultural resources within a 0.5-mile search radius of the Line E Project site. Of the eight previously recorded cultural resources, five were identified as historical built-environment resources, and of these resources, the Colorado River Aqueduct and it various segments (CA-RIV-6726H/33-011265) is the only resource documented within the Line E Project site. (AE-A, p. 15.) The Colorado River Aqueduct was constructed in the early 1930s and extends approximately 232 miles from the Whitsett Intake Pumping Plant in Lake Havasu to its terminus at Lake Mathews. This resource has been recommended as eligible for listing in the National Register of Historic Places (NRHP) under Criteria A, C, and D and a portion of the aqueduct was determined to be eligible for the NRHP with concurrence from the State Historic Preservation Officer. (CRHR). (AE, pp. 15 – 16.)

The Colorado River Aqueduct crosses underground through the Line E Project at Casa Loma Barrel No. 1 as shown on **Figure 5 – Project Components**. As discussed in the Project Description, the Line E Channel has been designed to cross over Casa Loma Barrel No. 1 and would be constructed in such a manner as to not impact this pipeline. Therefore, the segment of the Colorado River Aqueduct within the Line E Disturbance area is outside of the Line E Project's vertical limits and would not be directly impacted by construction or operation of the Line E Project. (AE-A, p. 21.) The existence of Line E above the Casa Loma Barrel No. 1 does not affect the historical significance of this feature.

For the reasons set forth above, implementation of the Line E Project would not cause a substantial adverse change in the significance of a historical resource, pursuant to California Code of Regulations, Section 15064.5. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to California Code of Regulations, Section 15064.5?

SJV-MDP EIR Conclusion: Less than Significant Impact

Numerous prehistoric—i.e., Native American—archaeological sites have been found in the area consisting of various amounts of habitation debris such as: ceramic shards, chipped stone and groundstone tools, debitage, midden soils, fire-affected rock, and sometimes human remains. Bedrock milling features and, less frequently, petroglyphs, have been found in the San Jacinto Valley in areas where bedrock outcrops are present. However, no evidence of any prehistoric archaeological cultural resource was found within or adjacent to that portion of the Project footprint that could be surveyed. Based on the results of the records searches, Native American consultations, and field

surveys, no archaeological resources were identified for those SJV-MDP Facilities that were surveyed. However, because portions of the MDP Project footprint were unable to be surveyed due to restricted access and Native American monitoring has been requested, the SJV MPD Project would implement mitigation measures **MM Cultural 2a through MM Cultural 2c** (set forth in the response to item E.1, to reduce potential impacts to archaeological resources to less than significant. (SJV MDP EIR, pp. 3.5-15 - 3.5-16.)

Line E Project: No New Impact/No Impact

The records search conducted as part of the CRS resulted in identification of a total of eight previously recorded cultural resources within a 0.5-mile search radius of the Project site. Six of these were identified as archaeological resources consisting of three pre-historic isolated artifacts, one historic refuse scatters, two irrigation wells, and two built-environment resources were identified. During the intensive pedestrian survey completed as part of the CRS, no previously unrecorded cultural resources were encountered within the Line E Project area. (AE, pp. 15, 23.)

As part of the CRS, a Sacred Lands File (SLF) search from the Native American Heritage Commission (NAHC) was conducted. The results of the SLF search were negative and indicated that there are no known Native American cultural resources within the immediate area of the Line E Project. (AE, p. 17.) At the suggestion of the NAHC, 15 Native American individuals and organizations traditionally and culturally affiliated with the geographic area of the Project area were contacted by AE. Of the 15 individuals and organizations contacted, the following seven tribes responded: Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians.

The Project falls within the traditional land use area of the Agua Caliente Band of Cahuilla Indians. The Augustine Band of Cahuilla Indians and the Cahuilla Band of Indians are unaware of any cultural resources that would be affected by the Project but request to be notified immediately if any resources are discovered during development. However, because this Project is within the Cahuilla Band's traditional land use, they requested to participate in monitoring once construction begins. The Pechanga Band of Indians requested consultation on the Project, as part of the Project area is within a Traditional Cultural Property. The Rincon Band of Luiseño Indians has no additional information to provide, but they recommend that AE directly contact Soboba of Luiseño Indians as they are closer to the Project and may have pertinent information. The San Manuel Band of Mission Indians will not participate as the Project is located outside of Serrano ancestral territory. The Soboba Band of Luiseño Indians stated that the Line E Project is within an area of high concern for Tribal Cultural Resources. (AE, p. 23.)

AE did not encounter any previously unrecorded cultural resources within the Project site. Previous prehistoric isolated finds and historic archaeological sites identified by the records search in the buffer for the current Project indicate a potential for subsurface deposits. The Project area is disturbed, and soil sensitivity appears low. The cultural resources identified adjacent to the Project area suggest some potential for subsurface archaeological deposits. Although the likelihood of the presence of intact archaeological deposits is low, in order to provide protection in the unlikely event that archeological resources are unearthed during construction the Line E Project will comply with clarified mitigation measures **CMM Cultural 2b** and **CMM Cultural 2c.**

CMM Cultural-2b: Archaeological Monitoring, Cultural Resources Worker Sensitivity Training, and Treatment and Disposition Plan. Prior to the initiation of

any Line E-Project-related surface grubbing or clearing and initial grading, the entity carrying out the project ~~the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD~~ shall retain a qualified professional archaeologist (the "Project Archaeologist") meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology as defined at 36 CFR Part 61, Appendix A. The primary task of the Project Archaeologist shall be to monitor the initial ground-disturbing activities at the Line E Project site for the identification of any previously unknown archaeological and/or cultural resources.

The Project Archeologist shall attend the pre-grading meeting with the City of San Jacinto Staff, the Line E Project construction manager, and any Line E Project contractors to conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Project Archaeologist or designated archaeological monitor shall have the authority to temporarily halt and redirect earth moving activities in the affected area if suspected archaeological resources are unearthed.

Also prior to the initiation of any Line E Project-related surface grubbing or clearing and initial grading, the entity carrying out the project ~~San Jacinto Public Works Department,~~ shall enter into a Treatment and Disposition Agreement (TDA) with the Soboba Band of Luiseño Indians to address treatment and disposition of archaeological and cultural resources and human remains associated with the Soboba Band of Luiseño Indians that may be uncovered or otherwise discovered during construction within the jurisdiction of the San Jacinto Public Works Department~~, Hemet Public Works Department, or RCFCWCD~~. The TDA may establish provisions for tribal monitors. Following execution of the TDA ~~by the San Jacinto Public Works Department and Soboba~~, the TDA ~~be incorporated by reference into individual grading permits for portions of the Project that are within the jurisdiction of San Jacinto Public Works Department or Hemet Public Works Department; TDAs executed between RCFCWCD and Soboba~~ will be incorporated into the Line E Project construction specifications.

CMM Cultural 2c: **Inadvertent Finds.** ~~If the archaeological/cultural resources assessment described in MM Cultural 2a demonstrates the potential for archaeological/cultural resources to occur on the Project site, tribal monitors, including those from Soboba, may be allowed to monitor, at such tribe's sole cost and expense, all grading, excavation, and ground-disturbing activities, including further surveys.~~ ~~Following the agreement of the San Jacinto Public Works Department, Hemet Public Works Department, or RCFCWCD, the designated archaeologist, the tribal monitor, and any applicable responsible or trustee agencies,~~ Grading, excavation, ground-disturbing activities shall be halted temporarily by the Project Archaeologist, and redirected in the event that any archaeological/cultural resources are discovered during initial ground disturbing activities, in order to evaluate the significance of said archaeological/cultural resources. Any artifacts collected or recovered shall be cleaned, identified, catalogued, analyzed, and prepared for curation at an appropriate repository with permanent retrievable storage to allow for additional research in the future. Site records or site record updates (as appropriate) shall be prepared and submitted to the ~~Eastern Information Center~~ South Coastal Information Center as a permanent record of the discovery.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts resulting in a substantial adverse change in the significance of an archaeological resource, pursuant to California Code of Regulations, Section 15064.5. Clarification of the SJV-MDP EIR mitigation measures to be Line E Project-specific does not mitigate new impacts or constitute new information of substantial importance. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Disturb any human remains, including those interred outside of formal cemeteries?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that no cemeteries are located within the MDP Project area, and due to its previously disturbed condition, discovering human remains is unlikely; thus, the MDP Project is not expected to disturb any human remains. If suspected human remains are found during construction of any MDP Facility, all activities in the vicinity of the remains shall cease and the contractor shall immediately notify the County Coroner, pursuant to California Health & Safety Code Section 7050.5 and California Resource Protection Code Section 5097.98. Therefore, potential impacts to disturbing any human remains would be less than significant. (SJV-MDP IS, p. 17.)

Line E Project: No New Impact/No Impact

In the unlikely event that unknown human remains are uncovered during construction of the Line E Project, pursuant to law, the proper authorities would be notified and standard procedures for the respectful handling of human remains would be adhered to in compliance with California Code of Regulations (CCR) Title 14, Chapter 3, Section 15064.5(e); Public Resources Code (PRC) Division 5, Chapter 1.75, Section 5097.98; State Health and Safety Code (HSC) Division 7, Part 1, Chapter 2, Section 7050.5. Through compliance with these regulations, potential impacts associated with disturbing human remains would less than significant.

For the reasons set forth above, the disturbance of human remains is unlikely and if suspected human remains are found during construction of the Line E Project, construction activities would stop and the provisions of state law would be followed. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

F. ENERGY	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
2) Conflict with or obstruct a State or Local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Source(s): CEC; Project Description, Energy Tables (Appendix G)

1) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

SJV-MDP EIR Conclusion: Less Than Significant Impact.
This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, pursuant to State CEQA Guidelines Section 15126.2(c), the Project's irreversible environmental changes were evaluated. The proposed SJV-MDP Facilities would not result in a large commitment of non-renewable resources, besides the temporary use of non-renewable resources (e.g., fossil fuels) during construction. (SJV-MDP EIR, p. 5.0-19.) Additionally, all the information necessary to evaluate the Project's energy consumption was available.

Construction of the SJV-MDP Facilities would be intermittent as individual facilities are implemented over time. Construction would require the use of heavy equipment, as well as construction workers and vendors traveling to and from the SJV-MDP Facilities construction sites. Construction equipment requires diesel as the fuel source and construction worker and vendor trips use both gasoline and diesel fuel. Fuel consumption from on-site heavy-duty construction equipment and construction vehicles would be temporary and cease once construction is complete, which would represent a negligible demand on energy resources. Furthermore, operations of the SJV-MDP Facilities do not consume energy beyond infrequent maintenance service. As such, the impact on energy consumption would be less than significant.

Line E Project: No New Impact/No Impact
As an infrastructure project, the majority of impacts associated with the Line E Project would be short-term. As analyzed above, in item C.2, the construction of the Line E Project is anticipated to take approximately three years and would require the use of equipment for grading/excavation, as well as construction workers and vendors traveling to and from the Line E Project site. Construction equipment requires diesel as the fuel source and construction worker and vendor trips use both gasoline and diesel fuel. Line E Project-related fuel consumption was estimated and is included in Appendix G – Energy Tables. Construction of the Line E Project is estimated to use approximately 329,340 gallons of diesel fuel and 30,632 gallons of gasoline. (See Appendix G.)

Fuel consumption from on-site heavy-duty construction equipment and construction would be temporary in nature and uses a limited number of equipment, which would represent a negligible demand on energy resources. There are no unusual Line E Project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the State.

Energy used during operation of the Line E Project would primarily result from electricity usage from the confluence basin pumps. These pumps are estimated to use approximately 240 kilowatts (kW) per hour. The amount of time these pumps would operate in a given year will vary depending on the volume of water being pumped during each storm and the storm frequency. For example, the estimated average runtime for the pumps to drain a 100-year storm is approximately 47.3 hours, which would result in approximately 11,352 kilowatt-hours kWh (240 kW x 47.3 hours = 11,352 kWh). This represents a negligible demand on Southern California Edison's (SCE's) energy resources, which consumed 85,670 gigawatt hours (GWh) in 2022 (CEC), and therefore would not operate in a manner that is wasteful or inefficient. Additionally, the Line E Project would also use gasoline and diesel fuel use during operation and routine maintenance of the backup generator and for maintenance fuel use, which would also be negligible.

For the reasons set forth in the preceding paragraphs, implementation of the Line E Project would not result in any new or increased significant impacts related to wasteful, inefficient, or unnecessary consumption of energy during construction or operation. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Conflict with or obstruct a State or Local plan for renewable energy or energy efficiency?

SJV-MDP EIR Conclusion: Less Than Significant Impact.
This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, all the information necessary to evaluate the MDP Project's consistency with applicable renewable energy plans was available.

The SJV-MDP Project, and any of its implementing facilities, would comply with the state and local regulations that pertain to renewable energy or energy efficiency. However, there are no specific plans for these types of facilities. Therefore, impacts regarding conflicts with or obstruction of a renewable energy plan or energy efficiency would be less than significant.

Line E Project: No New Impact/No Impact
The Line E Project would not conflict with or obstruct implementation of any state or local plans for renewable energy or energy efficiency because there are no applicable plans for these types of facilities.

As such, implementation of the Line E Project would not result in any new or increased significant impacts regarding obstruction of state or local plans renewable energy or energy efficiency. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

G. GEOLOGY AND SOILS		New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
	Would the project:				
1)	Cause potential substantial adverse effects, including the risk of loss, injury or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42	☐	☐	☒	☐
2)	Cause potential substantial adverse effects, including the risk of loss, injury or death involving: Strong seismic ground shaking?	☐	☐	☒	☐
3)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
4)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?	☐	☐	☒	☐
5)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
6)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
7)	Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2019), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
8)	Have soils incapable of adequately supporting use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐
9)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Source(s): Kleinfelder-A, Kleinfelder-B, GP DEIR; Project Description; AE-A, SJV-MDP IS

1) Cause potential substantial adverse effects, including the risk of loss, injury or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42; and

2) Cause potential substantial adverse effects, including the risk of loss, injury or death involving: Strong seismic ground shaking?

SJV-MDP EIR Conclusion: Less than Significant Impact

Portions of the proposed MDP project lie within an Alquist-Priolo Earthquake Fault Zone. While the MDP Project does not include facilities or structures that would be inhabited by humans, and as such would not expose persons directly to substantial adverse effects from ground shaking. Detention

basin failure due to ground shaking could indirectly cause flooding during high water periods. However, the likelihood of an earthquake coinciding with such events is low. Additionally, the proposed MDP Facilities would be designed and constructed to withstand expected ground shaking and potential soil instability, based on geotechnical reports that would be prepared as part of the final design for the MDP Facilities. Because recommendations from the geotechnical engineer would be incorporated into the final design and construction of the MDP Facilities, potential impacts from seismic hazards would be less than significant. (SJV-MDP IS, p. 18.)

Line E Project: No New Impact/No Impact

This discussion is based on the *Structures Report*, February 14, 2025, and the *Draft Geotechnical Investigation Report, San Jacinto Line E Storm Drain, San Jacinto California*, February 13, 2025, hereinafter referred to as the Draft Geotechnical Report. Both of these documents were prepared by Kleinfelder, Inc. and are included as Appendices B.1 and B.2 of this Addendum.

The Line E Project is within the zone of influence for several faults which are considered active or potentially active and capable of producing seismic shaking at the site that could potentially be damaging to buildings and appurtenant structures. Specifically, as shown on **Figure 25 – Fault Location Map**, the Line E Project site is east of and adjacent to the Casa Loma fault strand of the San Jacinto fault zone (SJFZ). The Casa Loma fault intersects the proposed Confluence Basin at the north end of the Line E Project site and the proposed Line E inlet at the south end of the Line E Project site. (Kleinfelder-A, p. 10.) The Alquist-Priolo Fault Zone setback associated with the mapped fault traces impinges on the proposed Line E Channel alignment at the south end of the Project limits near Bridge Street and Sanderson Avenue, and at the north end where the alignment crosses Record Road. (Kleinfelder-B, p. 12.)

It is anticipated that the Line E Project site would periodically experience ground acceleration as the result of moderate to large magnitude earthquakes on faults outside the Line E Project area. According to the Draft Geotechnical Report, the risk for surface fault rupture within the Line E Project site is high. (Kleinfelder-B, p. 13.)

The Line E Project would construct approximately 200 linear feet of concrete trapezoidal channel across the Metropolitan Water District Casa Loma Barrel No. 1 right-of-way with access roads on both sides of the channel, and side slopes varying from a 10:1 ratio to a 23:1 ratio. Metropolitan has design policies for structures built over their buried pipelines. Given that the Line E Channel would cross over Casa Loma Barrel No. 1, two designs are being analyzed in this Addendum. The purpose of these designs is to prevent additional weight on the existing Casa Loma Barrel No. 1 from the proposed Line E channel, including the weight of maintenance vehicles and channel water.

The Draft Geotechnical Report concluded that the Line E Project is geotechnically feasible, provided the recommended seismic design parameters regarding earthwork, design, and construction considerations presented in the Draft Geotechnical Report are followed during design and construction. (Kleinfelder-B, pp. 14 – 15.) These recommendations are identified in the Project Description under the subheading **Geotechnical Recommendations for Crossing the Casa Loma Barrel No. 1** and made a part of the Line E Project. Because the design and construction of the Line E Project would incorporate the recommendations of the Draft Geotechnical Report, potential adverse effects including risk of loss, injury, or death involving rupture of a known earthquake fault and strong seismic ground shaking would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to rupture of a known earthquake fault or strong seismic ground shaking. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?

SJV-MDP EIR Conclusion: Less than Significant Impact

The majority of the proposed MDP Facility alignments and detention basin locations are in areas with moderate susceptibility to liquefaction, with some small areas identified as very high, high, and low susceptibility. Because the project does not include structures inhabited by humans, it will not directly expose people to seismic-related ground failure. Detention basin failure from ground shaking could indirectly cause flooding during high water periods, but the probability of an earthquake coinciding with such events is low. The facilities will be designed and constructed to withstand expected ground shaking and potential soil instability, as per recommendations from geotechnical reports prepared during the design phase of MDP Facilities. Therefore, impacts regarding liquefaction and seismic-related ground failure are considered less than significant. (SJV-MDP EIR, p. 18.)

Line E Project: No New Impact/No Impact

The Line E Project site is within an area identified as having a moderate potential for liquefaction. Liquefaction could occur within interbedded sand layers through the upper 60 feet below ground surface. Settlement resulting from liquefaction could be a potential impact if it were to result in damage the Line E Channel or to Metropolitan's Casa Loma Barrel No. 1 Siphon where the Line E Channel crosses this pipeline. The Draft Geotechnical Report estimated liquefaction could occur within interbedded sand layers throughout the upper 60-feet below g round surface and total liquefaction-induced settlements in the vicinity of the proposed Metropolitan pipeline crossing could be approximately 2 inches, which is considered generally negligible in this area. (Kleinfelder-B, pp. 16 – 17.) Because the design and construction of the Line E Project would incorporate the recommendations of the Draft Geotechnical Report, which are made a part of the Line E Project as discussed in the Project Description, impacts regarding rupture of a known earthquake fault and strong seismic ground shaking, including liquefaction would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to strong seismic ground shaking, including liquefaction. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?

SJV-MDP EIR Conclusion: Less than Significant Impact

The Project area is relatively flat and not susceptible to seismically induced landslides. Furthermore, because the Project is not located on a hillside and does not include habitable structures, the potential impacts to people or structures due to landslides are considered less than significant. (SJV-MDP IS, p. 19.).

Line E Project: No New Impact/No Impact
The implementation of the Line E Project would not result in or cause landslides because the topography of Line E Project site is predominately flat. Therefore, no impacts from the Line E Project would occur with regard to landslides.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to landslides. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) Result in substantial soil erosion or the loss of topsoil?

SJV-MDP EIR Conclusion: Less than Significant Impact
The proposed alignments and basins are on level ground and will not significantly alter topography or create unstable soil conditions. The project includes at-grade, above-ground, and below-ground stormwater conveyance facilities and detention basins. While there is potential for short-term topsoil loss during construction due to runoff and erosion, this will be minimized by adhering to the National Pollutant Discharge Elimination System (NPDES) general construction permit. This permit requires a Storm Water Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. The SWPPP will include Best Management Practices (BMPs) to reduce soil erosion and topsoil loss. Therefore, potential impacts from soil erosion or topsoil loss during construction are considered less than significant. (SJV-MDP IS, p. 19.)

Line E Project: No New Impact/No Impact
The Proposed Line E Project site is primarily farmland on the distal margin of the San Jacinto River and the risk of erosion is considered low to moderate. (Kleinfelder-B, p. 13.) Pursuant to existing regulatory requirements, San Jacinto would obtain coverage under the NPDES general construction permit from the State Water Resources Control Board and prepare a SWPPP prior to construction activities that would implemented during construction activities. The SWPPP would incorporate applicable Best Management Practices (BMPs) to minimize the loss of topsoil and prevent substantial erosion.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to substantial soil erosion or loss of topsoil. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

6) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

SJV-MDP EIR Conclusion: Less than Significant Impact
The majority of the proposed SJV-MDP Project would be located in an area with moderate liquefaction susceptibility due to deep groundwater and susceptible sediments, with some sections spanning areas of very-high, high, and low susceptibility. The SJV-MDP Project does not include habitable structures, thus it will not directly expose people to significant effects from seismic-related ground failure. The San Jacinto Valley, where the MDP Project is situated, has documented subsidence issues but is not susceptible to landslides. The proposed MDP Facilities would be designed and constructed to withstand expected ground shaking and potential soil instability. A geotechnical report will be prepared, and all recommended measures will be incorporated into the

final design and construction. Therefore, potential impacts from soil instability are considered less than significant. (SJV-MDP IS, p. 19.)

Line E Project: No New Impact/No Impact
Construction and operation of the Line E Project would not significantly contribute to landslides, lateral spreading, subsidence, or liquefaction, and it would not be situated on unstable soil. Because the design and construction of the Line E Project would incorporate the recommendations of the Draft Geotechnical Report, which are made a part of the Line E Project as discussed in the Project Description, impacts regarding geologic stability would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to geologic stability. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

7) Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2019), creating substantial direct or indirect risks to life or property?

SJV-MDP EIR Conclusion: Less than Significant Impact
Expansive soils contain significant clay particles that can shrink or swell with changes in water content, exerting stress on structures. The project alignment spans various soil series (Chino, Cieneba, Cortina, Dello, Domino, Exeter, Friant, Gorgonio, Grangeville, Greenfield, Hanford, Metz, Pachappa, Rockland, San Emigdio, Traver, Vista, Waukena, and Willows), which have a low to moderate shrink-swell potential and minimal clay content. The Willows series, which does have some clay, comprises only 0.1% of the project area. Because the MDP Project Area is not located on known expansive soils, it would not create substantial risks to life or property due to expansive soils. (SJV-MDP IS, p. 20.)

Line E Project: No New Impact/No Impact
The Draft Geotechnical Report concluded the soils encountered were silty or granular in nature with an Expansion Index values of 34 and 44, which indicates these soils have a “low” expansion potential. Because the design and construction of the Line E Project would incorporate the recommendations of the Draft Geotechnical Report to ensure suitable soils, which are made a part of the Line E Project as discussed in the Project Description, impacts regarding a substantial direct or indirect risk to life or property resulting from expansive soils would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding a substantial direct or indirect risk to life or property resulting from expansive soils. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

8) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

SJV-MDP EIR Conclusion: No Impact
The proposed MDP Project would not generate the need for septic tanks or alternative wastewater disposal systems. (MDP EIR IS, p. 20.)

Line E Project: No New Impact/No Impact
The Line E Project does not include septic tanks or alternative wastewater disposal systems. Therefore, no impact from the Line E Project would occur regarding soil capabilities for alternative waste systems.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to soils capable of supporting septic tanks or alternative wastewater disposal systems. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

9) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation
The Paleontological Resources Assessment conducted for the SJV MDP EIR indicated that the MDP Project's surficial soils, consisting of Recent (Holocene) alluvium, have a low potential for significant fossil remains. However, these younger sediments rest on older Pleistocene-age sediments, which have a high potential to yield significant vertebrate fossils. Thus, while the surface potential for paleontological resources is low, the subsurface potential is high. Fossils in similar sediments have typically been found deeper than 10 feet, but some have been found as shallow as three feet, particularly near hills. Because not all SJV-MDP Facilities could be surveyed and MDP Project excavations would exceed three feet in depth, implementing mitigation measures **MM Cultural 1**, and **MM Cultural 3** through **MM Cultural 6** would reduce potential impacts to paleontological resources to less than significant. (SJV MDP EIR, p. 3.5-17.)

> **MM Cultural 1:** A paleontological resources field survey (or surveys) shall be completed prior to the earlier of issuance of a grading permit or construction of any SJV-MDP facility subject to further CEQA analysis. If the results of such survey (or surveys) identify the presence of potentially significant paleontological resources, avoidance or other appropriate measures (such as excavation, analysis, and interpretation of resources) potentially leading to curation in perpetuity in a facility that meets the standards of the State of California Guidelines for the Curation of Archaeological Collections (OHP 1993) and 36 CFR 79, shall be implemented.
>
> **MM Cultural 3:** Earth-moving activities encountering soils that are identified as Pleistocene-age or older alluvium, by the soils engineer, shall be monitored by a qualified paleontological monitor. Continuous monitoring shall be restricted to undisturbed older alluvium, which might be present below the surface. To avoid construction delays, the monitor shall be prepared to quickly salvage fossils, as they are unearthed. The monitor shall remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor shall have the authority to temporarily halt or divert grading equipment to allow for the removal large specimens.
>
> **MM Cultural 4:** All recovered specimens shall be prepared and stabilized for identification and permanent preservation, including the washing of sediment samples to recover small invertebrates and vertebrates.
>
> **MM Cultural 5**: Identification and curation of recovered specimens into an established accredited museum repository with permanent retrievable paleontological storage shall

be required. Mitigation of adverse impacts to significant paleontological resources is not complete until the curation process has been fully completed and documented.

MM Cultural 6: Preparation of a report of findings with an appended itemized inventory of specimens shall be required. The submittal of the report to the Lead Agency and the curation of recovered specimens into an established, accredited museum repository would signify the completion of the mitigation program.

Line E Project: No New Impact/No Impact

This discussion is based on the *Paleontological Resource Assessment for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California*, January 2024, prepared by Applied Earthworks (AE) and included as Appendix F of this Addendum. Preparation of the *Paleontological Resource Assessment* satisfies SJV-MDP mitigation measure **MM Cultural 1**.

Through desktop studies and field surveys, AE determined the paleontological resource potential of the Line E Project site. The desktop studies included a review of published and unpublished literature and maps, as well as museum records searches. The purpose of these studies was to identify the geologic units in the Line E Project site and to determine whether previously recorded paleontological localities occur either within the Line E Project site, or within the same geologic units nearby but outside the Line E Project site. (AE-B, p. 10.)

A records search was conducted through the University of California Museum of Paleontology (UCMP) online database which did not list any localities within a 10-mile radius of the Line E Project site. The Paleobiology Database (PBDB) does not list any fossil localities from Pleistocene alluvial deposits within the Line E Project site but shows numerous localities reported from Lakeview five to six miles west. The Western Science Center of Hemet (WSC) search did not yield any localities within the Line E Project site, although numerous localities are listed from Pleistocene alluvial deposits reported during construction of the Eastside Pipeline Project 1.5–2 miles southwest of the Line E Project site. The Natural History Museum of Los Angeles County (NHMLAC) records search results do not report any localities within the Line E Project site, although several nearby localities to the south-southwest are listed from geologic units similar to those mapped in or in the vicinity of the Project site. (AE-B, p. 15.)

During the field survey, low ground visibility and the absence of geologic outcrops or road cuts limited AE's close field examinations of the surficial geology of the Line E Project site. The ground surface throughout the Line E Project site was mostly obscured by vegetation, particularly in much of the northwestern and southeastern subareas and in the east-west stretch of the alignment parallel to Ramona Expressway. AE observed exposed sediments in a few locations, most of these exposed sediments appear to have been previously disturbed from cultivation or landscaping. (AE-B, p. 15.)

AE did not observe any notable changes in lithology and did not encounter any paleontological resources during the survey. AE has determined that the Project site has High B Sensitivity based on Riverside County's sensitivity rankings. No paleontological resources were encountered during the geotechnical investigation. AE did not observe any exposures of unequivocally undisturbed alluvial deposits during the survey. Based on the presence of artificial fill in all of the boring logs and the extent of previous disturbance to the Line E Project site, most of the sediments AE observed during the survey may have been the locally derived artificial fill. Therefore, the surficial sediments in the Line E Project site are unlikely to yield significant paleontological resources. However, AE's desktop studies indicate deposits of Qyva/Qya as well as Qyv1a have a high potential of preserving significant

paleontological resources particularly with increasing depth. Sediments matching the descriptions of Qyva/Qya at a depth of 0.5–2.5 feet below ground surface, just below artificial fill, were found throughout the Line E Project site. (AE-B, p. 19.) Therefore, the Line E Project would implement clarified SJV-MDP EIR mitigation measures **CMM Cultural 3 through** C**MM Cultural 6,** set forth below, to reduce impacts to paleontological resources to less than significant.

CMM Cultural 3: Paleontological Resources Mitigation Monitoring Plan. Prior to the commencement of ground-disturbing activities, the City (or designee) shall retain a Project Paleontologist to prepare and implement a Paleontological Resources Mitigation Monitoring Plan (PRMMP) for the Line E Project. The PRMMP shall include preparation and presentation of Paleontological Resources Workers Environmental Awareness Program (WEAP) to educate construction crews about the types of paleontological resources that may be encountered at the Line E Project site. The Paleontological Resources WEAP shall provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the area, the role of the paleontological monitor, outline steps to follow in the event that a fossil discovery is made and provide contact information for the Project Paleontologist. The Project Paleontologist or designee(s) shall present the Paleontological Resources WEAP to the construction contractor and each of the construction crews working on the Project during a preconstruction meeting. The Paleontological Resources WEAP shall be taped and presented to any construction crew members who were not present at the preconstruction meeting during which it was initially presented prior to such crew members working on the Project. This training may be conducted concurrent with other preconstruction training (e.g., biological resources, safety).

Earth-moving activities encountering soils that are identified as Pleistocene-age or older alluvium, by the soils engineer, shall be monitored by a qualified paleontological monitor as set forth in the PRMMP. Continuous monitoring shall be restricted to undisturbed older alluvium, which might be present below the surface. To avoid construction delays, the monitor shall be prepared to quickly salvage fossils, as they are unearthed. The monitor shall remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor shall have the authority to temporarily halt or divert grading equipment to allow for the removal large specimens.

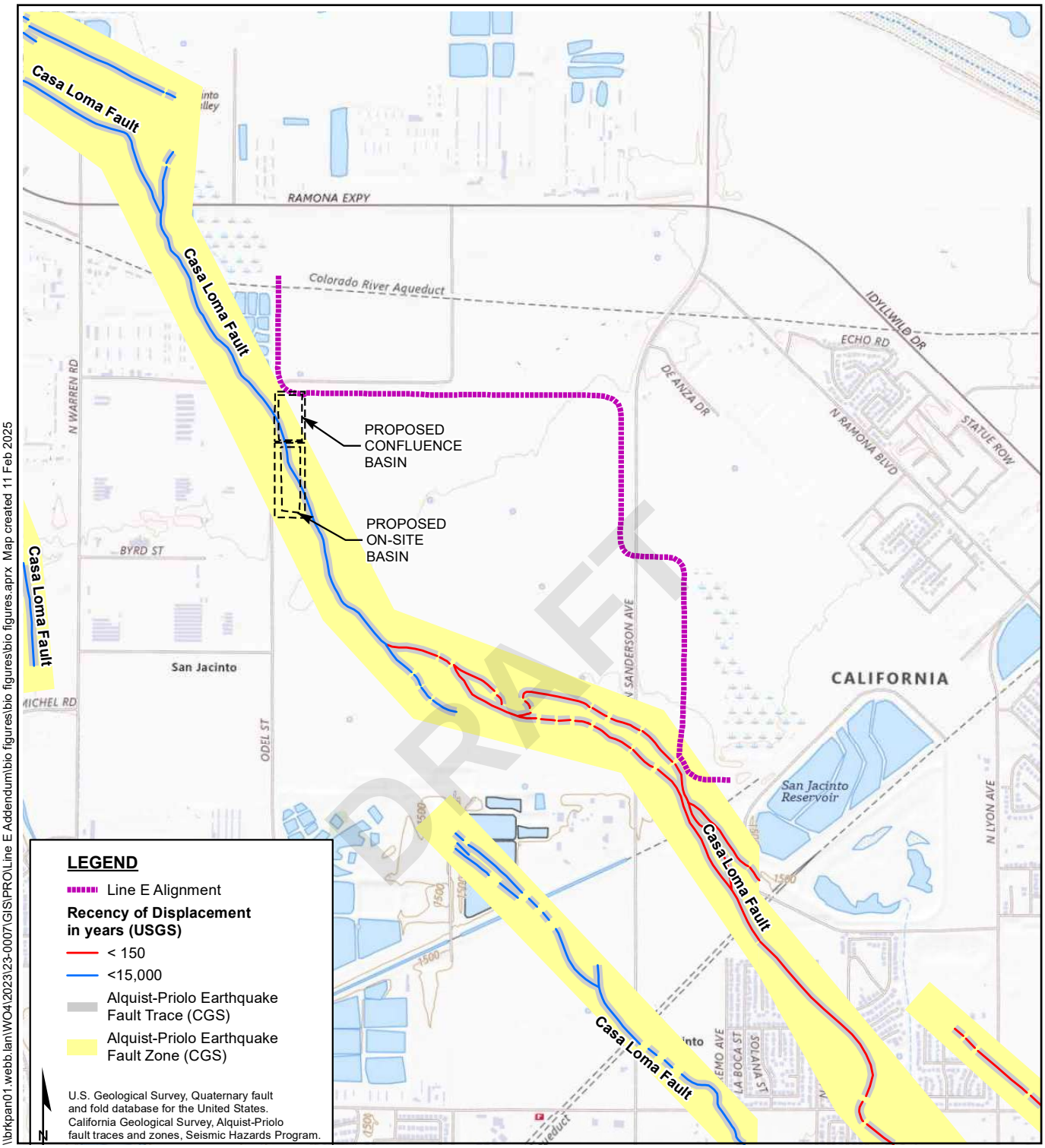
CMM Cultural 4: All recovered specimens shall be prepared and stabilized for identification and permanent preservation as set forth in the PRMMP prepared under **CMM Cultural 3**, including the washing of sediment samples to recover small invertebrates and vertebrates.

CMM Cultural 5: Identification and curation of recovered specimens into an established accredited museum repository with permanent retrievable paleontological storage shall be required as set forth in the PRMMP prepared under **CMM Cultural 3**. Mitigation of adverse impacts to significant paleontological resources is not complete until the curation process has been fully completed and documented.

CMM Cultural 6: Preparation of a report of findings with an appended itemized inventory of specimens shall be required as set forth in the PRMMP prepared under **CMM Cultural 3**. The submittal of the report to the Lead Agency and the curation of recovered

specimens into an established, accredited museum repository would signify the completion of the mitigation program.

For the reasons set forth above, the Line E Project would not result in any new or increased significant impacts related the direct or indirect destruction of a unique paleontological resource or site or unique geologic feature. Clarification of the SJV-MDP mitigation measures to be Line E Project-specific does not mitigate new impacts or constitute new information of substantial importance that would require preparation of a Supplemental or Subsequent EIR. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.



\\brkpan01.webb.lan\WO4\2023\23-0007\GIS\PRO\Line E Addendum\bio figures\bio figures.aprx Map created 11 Feb 2025

Source: Kleinfelder

Figure 25 - Fault Location Map

Line E Addendum

ALBERT A. WEBB ASSOCIATES

H. GREENHOUSE GAS EMISSIONS	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Source(s): Project Description; CalEEMod Output (Appendix C); CAPCOA; SJ GP; SCAQMD-C.

1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

SJV-MDP EIR Conclusion: Less Than Significant Impact

The SJV-MDP EIR determined that greenhouse gas (GHG) emissions would result from fuel usage by construction equipment and related activities, such as construction worker trips. Model results indicate an estimated 2,373 metric tonnes of carbon dioxide equivalents ($MTCO_2E$) will occur in the four modeled scenarios analyzed. The SJV-MDP EIR determined that the CO_2 emissions of 2,373 $MTCO_2$ from construction emissions do not exceed the SCAQMD recommended screening level of 3,000 $MTCO_2$/year for commercial projects. The commercial project screening level was used in the SJV-MDP EIR because (1) neither CARB nor SCAQMD had identified or recommended a screening level for infrastructure projects and (2) the commercial screening level provides a more conservative basis because it is substantially lower than the screening level for industrial projects of 7,000 $MTCO_2$/year from non-transportation sources. Although the draft SCAQMD GHG threshold guidance document released in October 2008 recommends that construction emissions be amortized for a project lifetime of 30 years to ensure that GHG reduction measures address construction GHG emissions as part of the operational reduction strategies, construction emissions were not amortized. (SJV-MDP EIR pp. 3.3-40 – 3.3-41.) Thus, the SJV-MDP EIR analysis, which compared total construction emissions to the identified threshold, utilized a conservative approach. Nonetheless, the amortized emissions from construction of facilities analyzed in the SJV-MDP EIR would equal approximately 79 $MTCO_2E$ per year.

The SJV-MDP EIR determined that long term emissions from the proposed SJV-MDP facilities would primarily be in the form of mobile source emissions from the infrequent visits by vehicles driven by maintenance personnel with no stationary sources of emissions present. This and any other maintenance-related activity will not result in additional sources of emissions when compared to the existing maintenance routine of the current MDPs for the area. Therefore, long-term impacts related to the San Jacinto Valley MDP facility operation are considered negligible and were not evaluated. (SJV-MDP EIR p. 3.3-41.)

Because the SJV-MDP Project will not generate GHG emissions that will exceed SCAQMD draft screening thresholds, impacts will be less than significant. (SJV-MDP EIR p. 3.3-41.)

Line E Project: No New Impact/No Impact

Greenhouse gas emissions from the Line E Project were modeled using the CalEEMod version 2022.1 program (included as Appendix C) to evaluate whether the expected criteria GHG emissions

would exceed the SCAQMD draft screening significance threshold of 3,000 $MTCO_2E/yr$.[10] The CalEEMod model calculates GHG emissions from fuel usage by construction equipment and construction-related activities, such as construction worker trips, which were previously identified in item C.2, above. **Table J – Project Construction Equipment GHG Emissions**, summarizes the CalEEMod results for the following GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), refrigerants (R), and carbon dioxide equivalent (CO_2E).

Table J – Project Construction Equipment GHG Emissions

Year	Metric Tons per year (MT/yr)				
	Total CO_2	Total CH_4	Total N_2O	Total R	Total CO_2E
2027	505	0.02	0.01	0.10	510
2028	1,220	0.05	0.03	0.21	1,231
2029	1,212	0.05	0.03	0.19	1,223
2030	711	0.03	0.02	0.10	718
Total	3,648	0.15	0.09	0.60	3,682
				Amortized	**122.73**

Note: See detailed model output reports, included as Appendix C.

As shown in **Table J**, the estimated 3,682 $MTCO_2E$ will occur from the Project construction equipment over the course of the estimated three-year construction period. The draft SCAQMD GHG threshold guidance document released in October 2008 recommends that construction emissions be amortized for a project lifetime of 30 years to ensure that GHG reduction measures address construction GHG emissions as part of the operational reduction strategies. (SCAQMD-C). As such, the amortized emissions, which equate to approximately 122.73 $MTCO_2E$ per year, were also shown.

The operation of the Line E Project will generate GHG emissions from the operation of the electric pumps for the proposed basin, backup generator usage during routine maintenance and emergency power outages and infrequent visits by vehicles driven by maintenance personnel. As indicated in item F.1, above, these pumps are estimated to use approximately 240 kilowatts (kW) per hour. The amount of time these pumps will operate in a given year will vary depending on the volume of water being pumped during each storm and the storm frequency. For example, the estimated average runtime for the pumps to drain a 100-year storm is approximately 47.3 hours, which would result in approximately 11,352 kilowatt-hours kWh (240 kW x 47.3 hours = 11,352 kWh). The GHG emissions from operation of the electric pumps during a 100-year storm event were calculated outside of CalEEMod using the estimated pump usage and the 2030 Southern California Edison (SCE) carbon intensity data from the CalEEMod User's Guide (CAPCOA) of 263 pounds of CO_2E per megawatt-hour (MWh). Based on the estimated usage of 11,352 kWh, the estimated GHG emissions from electric pumps during a 100-year storm event will be approximately 1.35 $MTCO_2E$. The proposed Project's GHG emissions from amortized construction activities combined with estimated operation activities are not anticipated to exceed the SCAQMD screening threshold of 3,000 MT CO_2E/yr. Due to the estimated amount of emissions from Project construction and average pump electricity usage

[10] http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2

during operations as well as the nominal emissions from routine maintenance, the proposed Project will not generate a substantial amount of GHG emissions.

For the reasons set forth in the preceding paragraphs, implementation of the Line E Project would not result in any new or increased significant impacts related to greenhouse gas emissions. Thus, there are no new impacts, changes, or new information with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

SJV-MDP EIR Conclusion: Less Than Significant Impact

This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, the SJV-MDP EIR evaluated GHG emissions impacts and applicable regulatory requirements. Because the MDP Project would not generate GHG emissions that will exceed SCAQMD draft screening thresholds nor were any applicable plans, policies or regulations identified that the Project would require the Project to implement, impacts will be less than significant. (SJV-MDP EIR, pp. 3.3-20 – 3.3-28; 3.3-40 – 3.3-41.)

Line E Project: No New Impact/No Impact

The City of San Jacinto does not have an adopted a Climate Action Plan nor are there any other applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions for an infrastructure project such as this. San Jacinto General Plan 2040 does set forth goals, policies, and actions to reduce GHG emissions within the Resource Management Element (SJ GP, pp. 84, 98-99.) The Line E Project would not obstruct implementation of any plan, policy, or regulation adopted for the purpose of reducing GHG emissions because the Line E Project is an infrastructure project to serve the City of San Jacinto for existing and future growth consistent with San Jacinto General Plan 2040. (SJ GP, p. 108.)

As such, implementation of the Line E Project would not result in any new or increased significant impacts related to conflicts or obstruction of any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

I. HAZARDS AND HAZARDOUS MATERIALS	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excess noise for people residing or working in the project area?	☐	☐	☒	☐
6) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
7) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Source(s): SJV MDP IS; GP DEIR; Project Description; EnviroStor; Cortese

1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that proposed MDP Project's construction would only involve the use of typical construction materials, such as petroleum products and other similar substances. These materials would be transported to the site for equipment fueling. Future maintenance may occasionally use herbicides and pesticides in compliance with federal, state, and local regulations. Standard protocols and best management practices (BMPs) will ensure proper storage and use of these materials. All activities involving hazardous substances will adhere to relevant regulations, ensuring the project does not pose a significant hazard to the public or the environment. Therefore, the impacts are considered less than significant. (SJV-MDP IS, p. 20.)

Line E Project: No New Impact/No Impact

Storm water is not considered a hazardous material. As analyzed in the SJV-MDP EIR, construction of the Line E Project construction would only involve the use of typical construction materials, such as vehicle and equipment grease, gasoline, lubricants, pipe/joint sealers, which are common on construction sites, are not considered hazardous or acutely hazardous in the amounts used on

construction sites. Therefore, no impacts from the Line E Project would occur with regard to the creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

For the reasons set forth above, the Line E Project would not result in any new or increased significant impacts related to the creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation

As part of the SJV-MDP EIR, a search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR) for documented hazardous material sites for the MDP Project area and within a one-mile radius of the Project boundary. The EDR report listed a total of 64 sites within one-mile of the proposed Project. Of the 64 recorded sites, 27 are adjacent to the conceptual alignments of the proposed facilities and 11 of those sites are potentially contaminated. The potentially contaminated sites are located near the conceptual alignments of the following SJV-MDP Facilities: North Line A-1, Line B, Line B-1, Line C-4, Line D, Line E-1, Line E-2, Line H, Line J-2 and Line J-3. (SJV-MDP EIR, pp. 3.6-20 – 3.6-22.)

The SJV-MDP EIR determined that although no significant impacts from hazards or hazardous materials are anticipated from the project or its construction and operations, unanticipated contamination from sources like leaking underground storage tanks or unauthorized chemical releases could be encountered. However, the implementation of mitigation measures **MM Haz 1** through **MM Haz 6** will reduce these potential impacts to less than significant levels. (SJV-MDP EIR, p. 3.6-22.)

> **MM Haz 1:** As part of the final design of each SJV-MDP facility, the design engineer or designee shall check proposed sites for listing on the most recent Hazardous Waste and Substances List provided by the Riverside County Department of Environmental Health pursuant to Section 65962.5 of the Government Code. If the location of said facility is on the Hazardous Waste and Substances List, avoidance of that property or properties will be the first consideration; if avoidance is infeasible, **MM Haz 2** shall be implemented.
>
> **MM Haz 2:** If the selected facility traverses a site listed on the Hazardous Waste and Substances List, and avoidance is not feasible or if there are other indications that a site could be contaminated, a Phase 1 Environmental Site Assessment (ESA) for such facility will be prepared. If the Phase 1 ESA identifies possible contamination along the facility alignment, then all recommended subsurface investigation measures listed in the Phase I ESA will be implemented. Based on subsurface investigations characterizing subsurface contamination, remediation measures (such as excavation of contaminated soil, bioremediation, or soil-vapor extraction), shall be implemented for the applicable facility or an alternative facility alignment will be chosen.
>
> **MM Haz 3:** All environmental investigation and/or remediation (such as excavation of contaminated soil, bioremediation, or soil-vapor extraction) shall be conducted under a

Workplan approved by jurisdictional regulatory agencies overseeing hazardous waste cleanups until the applicable regulatory standard is met.

MM Haz 4: Prior to any excavation or soil removal on known contaminated sites, or if contaminated soil (i.e., soil with a visible sheen or detectable odor) is encountered, a complete characterization of the soil will be conducted. Appropriate sampling shall be conducted prior to disposal of the excavated soil. If the soil is contaminated, it shall be properly disposed of according to California's Land Disposal restrictions (California Code of Regulations, Chapter 18, Title 22). If site remediation involves the removal of contamination, then contaminated material shall be transported off-site by a licensed handler/hauler to a licensed hazardous waste disposal facility.

MM Haz 5: If soil import is required for construction of a specific facility, proper sampling shall be conducted prior to the use of such imported soil to make sure that the imported soil is free of contamination.

MM Haz 6: If during construction of a specific facility, soil and/or groundwater contamination is suspected, construction in the area of the suspected contamination shall cease and appropriate health and safety measures shall be implemented. The construction contractor shall contact the respective jurisdictional enforcement agency (i.e., San Jacinto, Hemet, Riverside County, RCFCWCD) to obtain the necessary information on appropriate measures and their implementation. The measures recommended by the applicable enforcement agency will be implemented.

Line E Project: No New Impact/No Impact

The Line E Project site is not in proximity to any of the hazardous materials sites identified in the EDR report for the SJV MDP EIR. As required by SJV-MDP EIR **MM Haz 1**, the site was reviewed on the California Department of Toxic Substances Control databases. Based on the review of the California Department of Toxic Substances Control Envirostor and Geotracker databases, there are no hazardous waste facilities and sites with known contamination. (Envirostor.) Because Line E does not traverse a site listed on the Hazards Waste and Substances List, SJV-MDP EIR mitigation measure **MM HAZ 2** is not applicable. Nonetheless, both a Phase I Environmental Site Assessment (ESA) and a Phase II ESA were prepared by Roux Associates, Inc, *Phase I Environmental Site Assessment North Sanderson Avenue and Record Road, San Jacinto, California*, dated January 30, 2024 and *Phase II Subsurface Investigation Letter Report, Line (Proposed Irrigation Channel), North Sanderson Avenue and Record Road, San Jacinto, Riverside County, California, dated March 14, 2024*. These documents are hereinafter referred to as the Phase I ESA and Phase II ESA and are included as Appendices H.1 and H.2 to this Addendum.

The Phase I ESA was prepared in accordance with the American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-21). The Phase I ESA involved site reconnaissance, regulatory record review, and review of historical sources. (ROUX-A, pp. 1, 4.) The Phase I ESA identified a Recognized Environmental Condition (REC) in connection with current and historical agricultural operations in the Line E Project area. Based on long-term agricultural uses, it was determined that possible agricultural chemicals such as organochlorine pesticides (OCPs), lead-based and arsenic based pesticides may have been used and thus may have impacted soils. (ROUX-A, p. 22.) Thus, the Phase II subsurface investigation was conducted.

As part of Phase II ESA, shallow soil sampling was conducted in general accordance with DTSC's *Interim Guidance for Sampling Agricultural Properties*, dated August 7, 2008. A total of 54 soil samples were collected at a depth of 0.5 feet below ground surface (bgs) and composited in 13 samples that were analyzed for OCPs; eight (8) discrete samples were also analyzed for lead and arsenic. The analytical results were compared to the United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) and/or DTSC Human and Ecological Risk Office (HERO) Human Health Risk Assessment Health Risk Assessment (HHRA) Note Number 3 DTSC-modified Screening Levels (DTSC SLs) for commercial/industrial soil. Because the Line E project does not include any residential component, the commercial/industrial screening levels are appropriately used. In addition, total lead and arsenic concentrations were compared with regional background levels, as presented in *Background Concentrations of Trace and Major Elements in California Soils and Determination of a Southern California Regional Background Arsenic Concentration in Soil*. (ROUX-B, p. 2.)

No OCP constituents were reported above laboratory method reporting limits (MRLs). All MRLS were below applicable USEPA RSLs and DTSC SLs. (ROUX-B, p. 2.) Arsenic was detected above the laboratory reporting limit at concentrations ranging from 1.0 to 1.4 milligrams per kilogram (mg/kg). Arsenic was also detected above the DTSC SL of 0.36 mg/kg for commercial/industrial soil. However, arsenic did not exceed the regional background concentration of 12 mg/kg in any sample, and it did not exceed the USEPA RSL of 3.0 mg/kg for commercial/industrial soil. Lead was detected above the laboratory reporting limit at concentrations ranging from 1.8 to 2.4 mg/kg. Lead was detected below the DTSC SL of 500 mg/kg for commercial/industrial soil and below the USEPA RSL of 800 mg/kg for commercial/industrial soil. (ROUX-B, p. 3) Because the results of the Phase II ESA subsurface investigation determined that OCP, arsenic, and lead concentrations were below conservative regulatory thresholds for commercial/industrial land uses and regional background concentrations, no further investigation is recommended. (ROUX-B, p. 3.).

The Phase I ESA also identified Other Environmental Features (OEFs) in an adjoining dairy farm north of Record Road and west of the Line E alignment. The dairy farm features several ponds likely used to store dairy farm effluent including manure thus, the potential generation and migration of methane gas. (ROUX-A, p .22.)

Based on the results of the Phase I ESA and Phase II ESA, SJV-MDP EIR mitigation measures **MM Haz 3, MM Haz 4,** and **MM Haz-6** are not applicable to the Line E Project. Because soil import is not anticipated **MM Haz 5** is also not applicable.

As discussed in the response to item I.1 above, storm water is not considered a hazardous material and construction of the Line E Project would only involve the use of typical construction materials, such as vehicle and equipment grease, gasoline, lubricants, pipe/joint sealers, which are common on construction sites and are not considered hazardous or acutely hazardous in the amounts that would be used during construction of the Line E Project. Operation and maintenance of the Line E Project is not anticipated to require the use of significant amounts of hazardous materials, as rodenticides and pesticides. Therefore, impacts regarding the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be less than significant.

For the reasons set forth above, the Line E Project would not result in any new or increased impacts regarding the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the

environment. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

SJV-MDP EIR Conclusion: Less than Significant
The SJV-MDP IS determined that the proposed MDP Project is a master drainage plan, that would identify drainage facilities that may be constructed at some future date. Implementation of the SJV-MDP would ultimately involve the construction and maintenance of storm water conveyance facilities and detention basins. The MDP Facilities would not emit hazardous emissions or include the handling of acutely hazardous materials, substances, or wastes. Potential impacts to existing or proposed schools would be less than significant. (SJV-MDP IS, p. 21.)

Line E Project: No New Impact/No Impact
There are no existing or proposed schools within a one-quarter-mile radius of the Line E Project site. The closest existing school to the Line E Project site is Megan Cope Elementary which is approximately three-quarter mile from the southern end of the Project Disturbance area. Thus, the Line E Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school because there are no existing or proposed schools within one-quarter-mile of Line E Project site.

For the reasons set forth above, the Line E Project would not result in any new or increased significant impacts related to the emission of hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation
A search of available environmental records was conducted and reviewed for the SJV-MDP EIR. The environmental records listed a total of 64 sites within one-mile of the proposed project alignment, however the Project proposes facilities within close vicinity of 27 sites classified as hazardous materials sites under various regulatory statuses. None of these sites are on the Cortese List. As discussed in the response to item I.2. the SJV-MDP EIR determined that although no significant impacts from hazards or hazardous materials are anticipated from the project or its construction and operations, unanticipated contamination from sources like leaking underground storage tanks or unauthorized chemical releases could occur and these potential impacts would be reduced to less than significant through implementation of mitigation measures **MM Haz 1** through **MM Haz 6.** (SJV-MDP EIR, pp. 3.6-20 – 3.6-22.)

Line E Project: No New Impact/No Impact.
As required by SJV-MDP EIR **MM Haz 1**, the list compiled by Government Code Section 65962.5, known as the Cortese List, was reviewed to determine if any portion of the Line E Project site is on this list. None of the sites listed on the Cortese List are within or near the Line E Project disturbance area. Additionally, a review of the California Department of Toxic Substances Control's EnviroStor

database, which identifies sites that have known contamination or sites for where there may be reasons to investigate further, indicates there are no known environmental hazards or hazardous facilities in proximity to the Line E Project disturbance area. Because the Line E Project is not on or in proximity to a known hazardous materials site, implementation of the Line E Project would not create a significant hazard to the public or the environment. Because there are no known hazardous materials sites, SJV-MDP EIR mitigation measure **MM Haz 2** is not applicable. As discussed above in *item I.2*, the soil samples conducted as part of the Phase II ESA found that OCP, arsenic, and lead concentrations were below conservative regulatory thresholds for commercial/industrial land uses and regional background concentration therefore, no further investigation is needed. (ROUX-B, p. 3)

For the reasons set forth above, the Line E Project would not result in any new or increased significant impacts related to a significant hazard to the public or the environment resulting from the Project site being included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excess noise for people residing or working in the project area?

SJV-MDP EIR Conclusion: Less than Significant Impact
The SJV-MDP EIR determined that the nearest airport is the Hemet-Ryan Airport located less than one mile southwest from the southernmost portion of the proposed project. As the project will not result in the construction of new places of employment or new homes, impacts are considered less than significant. (SJV-MDP IS, p. 22.)

Line E Project: No New Impact/No Impact
The Line E Project site is located approximately four miles from Hemet-Ryan Airport and is not within the Hemet-Ryan Airport Land Use Compatibility Plan. Due to the distance from the Hemet-Ryan Airport and because the project would not involve the construction of new places of employment or new homes, there would be no impacts regarding airport noise.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to hazards from an airport. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

6) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

SJV-MDP EIR Conclusion: Less than Significant
The SVJ-MDP EIR determined that implementation of the proposed project would not interfere with evacuation or emergency response plans because road access would be maintained or detours provided during project construction. (SJV-MDP IS, p. 21.)

Line E Project: No New Impact/No Impact
Operation and maintenance of the Line E Project would not interfere with evacuation or emergency response plans as the Line E Project consists of storm water drainage facilities. If any road closures are required during construction, a traffic control plan would be prepared to maintain emergency

access or identify detours, if needed. Therefore, any potential impacts regarding emergency response would be less than significant and no mitigation is required.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to impairing implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

7) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined the proposed facilities are located within an area designated as having a high susceptibility for wildfires; however, the project includes construction and maintenance of storm water conveyance facilities and detention basins which would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts are considered less than significant. (SJV-MDP IS, p. 22.)

Line E Project: No New Impact/No Impact

The 2019 Fire Hazard Severity Zone map from the San Jacinto GP EIR, shows the Line E Project area is surrounded by areas designated as having a high susceptibility for wildfires. (SJGP EIR, p. 5.20-27.) The Line E Project is the construction and maintenance of storm water conveyance facilities and detention basins, which would not directly expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

The Line E project could indirectly induce new development in areas with a high susceptibility for wildfires. Protection from wildland fires is realized through creation of defensible areas around structures, the use of fire-resistant building materials, and coordinated emergency response. All new construction in San Jacinto is required to adhere to standards and requirements set forth in the San Jacinto Municipal Code, which incorporates the California Fire Code. In accordance with San Jacinto Development Code Section 17.300.050, all development located in or adjacent to wildfire prone areas would be required to prepare a fire management plan, which would be reviewed by the Riverside County Fire Department and may include additional fire protection measures (e.g., landscape or open space buffers), maintenance programs for weed and vegetation abatement, installation of fire-resistant plants, and the use of noncombustible building materials. Future development in San Jacinto would be required to comply with the provisions of federal, State, and local requirements related to wildland fire hazards, including State fire safety regulations associated with wildland-urban interfaces, fire-safe building standards, and defensible space requirements. As future development and infrastructure projects are considered by SA, each project would be evaluated for potential impacts, specific to the project, associated with wildland fire hazards as required under CEQA. Therefore, through compliance with existing federal, State, and local laws and regulations related to wildland fire hazards and implementation of the San Jacinto General Plan 2040 goals, policies, and actions, indirect impacts regarding the exposure of people or structures to significant loss, injury, or death involving wildland fires would be less than significant. (SJGP EIR, pp. 5.9-38 – 5.9-39.)

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding the exposure of people or structures that either directly or indirectly could lead to significant risk of loss, injury or death involving wildland fires. Thus, there are

no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

J. HYDROLOGY AND WATER QUALITY	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would result in: substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐
5) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
6) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?	☐	☐	☒	☐
7) In flood hazard, tsunami, or seiche zones, risk the release of pollutants due to project inundation?	☐	☐	☒	☐
8) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Source(s): GP DEIR; USGS, PDR, RWQCB

1) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that the proposed MDP Project would not significantly increase impervious surfaces, as it involves underground storm drain pipelines, trapezoidal channels, and earthen basins. The SJV-MDP aims to create a comprehensive stormwater drainage system to

support land use plans for San Jacinto, Hemet, and Riverside County, reducing current flooding issues. The drainage facilities would not generate significant runoff or pollutants, and detention basins will help settle sediments and attenuate peak flow rates.

Construction activities will be regulated by the RWQCB under the NPDES permit program, ensuring compliance with water quality standards. The project and future developments will adhere to water quality regulations, resulting in less-than-significant impacts on water quality. San Jacinto, Hemet, and Riverside County, as co-permittees under the MS4 permit, will manage stormwater runoff and eliminate illegal discharges. They will ensure that development projects incorporate BMPs to reduce stormwater contaminants.

Facilities near Metropolitan's infrastructure will require detailed plan submissions for review and approval, further ensuring minimal water quality impacts. Thus, the project's potential water quality impacts are anticipated to be less than significant. (SJV-MDP EIR, pp. 3.7-28 – 3.7-30.)

Line E Project: No New Impact/No Impact

Construction of the Line E Project would be required to comply with the RWQCB under the NPDES permit program, ensuring compliance with water quality standards during construction. The Line E Project in and of itself does not need to comply with WQMP requirements. The developments tributary to the Project would adhere to WQMP requirements, resulting in less than significant impacts to the water quality of stormwater conveyed by the Line E Project and to the receiving waters downstream of the Line E Project (e.g., San Jacinto River). San Jacinto and the Riverside County Flood Control and Water Conservation District, as co-permittees of the MS4 permit, would manage stormwater runoff quality and quantity, and minimize illegal discharges of non-stormwater to the extent practicable throughout their jurisdictions including the Project area.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined the proposed facilities are designed to convey stormwater without extracting groundwater or significantly increasing impervious surfaces. The earthen channels and basins will enhance regional groundwater recharge. Therefore, the project will not deplete groundwater supplies or interfere with recharge, resulting in less-than-significant impacts. (SJV-MDP IS, p. 23.)

Line E Project: No New Impact/No Impact

The Line E Project will not cause depletion of, or interfere with groundwater recharge, as this Project would convey stormwater. The segment of the Line E channel that is earthen and the earthen Confluence Basin could provide opportunity for groundwater recharge as they will be unlined facilities. As with the SJV EIR, there would be no use for groundwater nor interference with groundwater recharge from the Line E Project.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to groundwater supplies or groundwater recharge. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

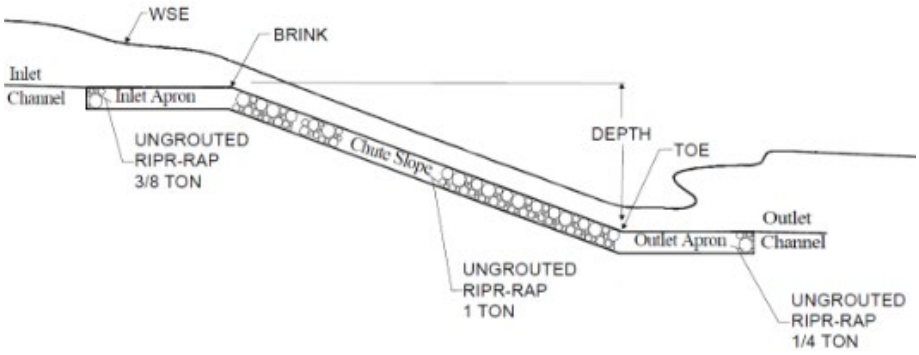
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would result in substantial erosion or siltation on- or off-site?

SJV-MDP EIR Conclusion: Less than Significant Impact

The MDP Facilities would primarily be constructed using earthen basins and channels to manage stormwater flow and increase percolation. While concrete-lined trapezoidal channels would add some impervious surfaces, the overall impact is minimal. Implementation of the SJV-MDP would improve drainage by directing flows, and future developments will follow the Riverside County WQMP to minimize impervious areas. Designed to handle 100-year stormwater flows, the Project will not cause on-site or off-site flooding. Impacts are considered less than significant, with no mitigation measures necessary. (SJV-MDP EIR, pp. 3.7-30 – 3.7-31.)

Line E Project: No New Impact/No Impact

The proposed Line E Project would have an earthen Confluence Basin and a mostly earthen channel to convey stormwater flows and facilitate percolation. The proportion of the Project channel that is earthen far exceeds the proportion that consists of concrete aprons upstream and downstream of ungrouted riprap drop structures ("Sloped Trapezoidal Rock Drop Structures"). The profile along the centerline of the Sloped Trapezoidal Rock Drop Structure is shown below:



The Project will alter the existing drainage pattern of the area by narrowly conveying flood flows into Line E instead of wide sheet flows across roads and fields as it does in the current condition. The Project does not alter the course of a stream or river as there are none in the Project area. According to the Project Preliminary Design Report (PDR), the Line E channel has been engineered to adequately convey flood flows from its tributary area up to the 100-Year flood event allowing plant growth within the channel. (PDR, p. 36.) Through the design of accommodating vegetation to grow within the channel, this vegetation would provide inadvertent stormwater treatment by slowing the speed of the water and allowing sediment to drop out of the water column as well as biological uptake of contaminants before outletting downstream, and therefore reducing erosion or siltation effects.

Future developments within the Line E tributary area would contribute runoff to the flows conveyed by Line E. These developments are required to comply with NPDES requirements for construction-phase erosion and sediment controls and post-construction WQMP requirements to treat stormwater runoff

prior to discharge into Line E. Therefore, the Line E Project would not create downstream erosion impacts from the indirect contributions of upstream developments.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to erosion or siltation on- or off-site. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP Project includes a conceptual plan for constructing and maintaining storm drain facilities. While these facilities will generally follow the existing drainage pattern of the area on a large scale, they will alter the drainage pattern locally within the Master Plan area to reduce flooding potential. The SJV-MDP will guide the location and size of drainage facilities needed by the City of San Jacinto or others as the area develops, and to resolve existing flooding issues. Many SJV-MDP drainage facilities are expected to be constructed alongside local development projects, with conditions of approval ensuring that impacts on surface runoff are less than significant. (SJV-MDP IS, p.24.)

Line E Project: No New Impact/No Impact

As stated previously in item J.4., the Project will alter the local drainage pattern by conveying flows in a channel instead of wide sheet flows. Also, the Project will have a minimal increase in impervious area (i.e., concrete aprons downstream and upstream of ungrouted riprap drop structures) and the Project would not alter an existing stream or river. The purpose of the Project is to reduce the chance of flooding by conveying flood flows into an engineered, flood control channel. According to the Project Preliminary Design Report (PDR), the channel has been engineered to adequately convey flood flows of its tributary area for up to the 100-Year flood event in a controlled manner that will not result in flooding which could cause adverse scour of the proposed channel, nor to downstream areas. (PDR, p. 36.)

The Project is within two FEMA flood hazard zones/flooding areas: one from the north of the Project related to the San Jacinto River (FEMA flood plan zone AE), and one from the south related to the San Jacinto Reservoir (FEMA flood plain zone A). (PDR, p. 10.) The Project would reduce the flooding associated with the San Jacinto Reservoir. (PDR, Figure 15.) However, after construction of the Line E Project, a portion of the Line E Channel would remain within the 100-Year floodplain of the San Jacinto River. (PDR, p. 10.)

To address the downstream flooding potential, the Confluence Basin to which the Line E Channel outlets would have approximately 57 acre-feet of capacity (approximately 16 million gallons) including 7.1 acre-feet (approximately 2 million gallons) of dead storage volume over an area of 6.25 acres with a 72-hour drawdown period. (PDR, p. 32.) The dead storage volume is the water below the elevation of the spillway and has no free flow outlet. The dead storage volume of the Confluence Basin will be released downstream/offsite at a controlled rate using a proposed pump station. (PDR, p. 32.) Once the pumps release the dead storage through the outlet of Line E, these flows would occur in the same areas that already receive flooding in the exiting condition. (PDR, Figure 16 – Existing Floodplain and Preliminary Post Project Floodplain.) The downstream/offsite property to which the Project outlets is

within the 100-Year floodplain of the San Jacinto River, by the time the dead storage volume of the Confluence Basin is exceeded, the downstream/offsite property will already be in a state of flooding due to the river (PDR, p. 37.)

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to increasing the rate of runoff resulting in flooding on- or off-site. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that implementation of the Master Drainage Plan would not contribute runoff water that would exceed storm water drainage systems. The SJV-MDP aims to create a comprehensive stormwater drainage system to support land use plans for San Jacinto, Hemet, and Riverside County, reducing current flooding issues. The drainage facilities will not generate significant runoff or pollutants, and detention basins will help settle sediments and attenuate peak flow rates. The Project will comply with NPDES general construction permit requirements and will obtain applicable dewatering permits from the SWRCB, no substantial sources of polluted runoff will be generated from project construction or operations. Therefore, impacts were determined to be less than significant with mitigation. (SJV-MDP EIR, pp. 3.7-28 – 3.7-34.)

Line E Project: No New Impact/No Impact

The Line E Project is the construction of a stormwater drainage system so that existing and planned runoff capacity is being achieved. As stated previously in the response to item J.4, the Line E Project would alter the local drainage pattern by conveying flows in a channel instead of wide sheet flows. Also, the Line E Project would have a minimal increase in impervious area (i.e., concrete aprons downstream and upstream of ungrouted riprap drop structures) and the Line E Project would not alter an existing stream or river. The purpose of the Line E Project is to reduce the chance of flooding by conveying flood flows into an engineered, flood control channel. As stated previously in the response to item J.5, up to 57.6 acre-feet of runoff conveyed by the Line E Channel would be held in the proposed Confluence Basin and then slowly released using a proposed pump station to downstream/offsite properties. The 7.1 acre-feet of dead storage volume in the Line E Channel and Confluence Basin would address the majority of storm events. The controlled release by the pump station has been designed so that Line E Project has the capacity to convey the runoff/discharge the project area. (PDR, p. 36.)

The SJV-MDP contemplates Line E being connected with other drainage facilities, none of which are being proposed for implementation at this time. The downstream/offsite facility to which the Line E Project outlets is an interim-condition earthen channel (referred to as a low-flow channel). (PDR, p. 36.) At some point in the future when development warrants, an ultimate SJV-MDP facility (Line Z) would be constructed in its place. (PDR, p. 5.) Ultimately as contemplated in the SJV-MDP, Line Z reaches the San Jacinto River. The existing downstream/offsite low-flow channel is constrained by a 60-inch diameter reinforced concrete pipe (RCP) culvert at Ramona Expressway. Line E flows onto the downstream/offsite property are within the 100-Year floodplain of the San Jacinto River. Line E flows will be comingled with the flooding that occurs with the San Jacinto River.

Although the Project would exceed the capacity of existing downstream/offsite drainage systems during a large flood event, the existing downstream drainage system would already be flooded because of the San Jacinto River's flood zone, and the contribution of additional flows from the Project would be insignificant compared to the existing flooding (PDR, p. 37 and PDR MDP Line E 2D HEC-RAS Low Flow Analysis, MDP Line E Proposed Low Flow Condition 2D HEC-RAS Work Map, p. 2 of 4.) When downstream SJV-MDP facilities are constructed to ultimate design in the future, such as Line Z, then the Line E Project's contribution would be contained within said future downstream MDP facilities. (PDR, p. 5.)

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to runoff that would exceed the capacity of existing or planned stormwater drainage systems or additional sources of polluted runoff. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

6) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that although the Master Drainage Plan will be constructed within areas mapped as 100-year flood hazard zones, the placement of these flood control facilities within such areas is necessary due to the relatively flat topography of the project area. The proposed MDP facilities will redirect sheet flows across the project area into basins, open channels, and underground storm drains, conveying these flows towards the San Jacinto River to the north. Once completed, the proposed drainage system will provide 100-year protection and eliminate major flood hazards in the project area. Because the construction of the proposed MDP facilities, in conjunction with the San Jacinto River Levee Stage 4 Project, would alleviate flooding potential within the project area, impacts are considered less than significant. (SJV-MDP EIR, pp. 3.7-32 – 3.7-33.)

Line E Project: No New Impact/No Impact

The purpose of the Line E Project is to prevent impeding or redirecting flows that would cause significant impacts, in an area with no existing streams or rivers that would have to be redirected or impeded. There are currently no formal flood control facilities within the Line E Project area, beyond some roadside ditches and sheet flow flooding is a common event in this area. Therefore, as outlined above, the Line E project conveys stormwater flows in a manner which will facilitate the capacity needed in the Project area to prevent flooding, erosion and will not redirect or impede these flows which then results in potentially significant impacts. Rather, the Project entails conveying stormwater in same location and direction as the existing conditions. Existing flooding occurring in the Project area will remain as long as the SJV-MDP is not built out.

Therefore, implementation of the Line E Project would not result in any new or increased significant impacts related to impeding or redirecting flood flows. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR.

7) In flood hazard, tsunami, or seiche zones, risk the release of pollutants due to project inundation?

SJV-MDP EIR Conclusion: Less than Significant Impact
The SJV-MDP EIR determined the MDP Project is not located within an area that would be subject to seiche, tsunami, or mudflow. The proposed basins would only store floodwaters temporarily during large and infrequent storm events further limiting the potential for inundation that would impact people or structures. Impacts are considered less than significant. (SJV-MDP IS, pp. 25 – 26.)

Line E Project: No New Impact/No Impact
Tsunamis are large waves that occur in coastal areas. The City is not located in a coastal area; therefore, there is no risk for the release of pollutants due to inundation by tsunami.

Seiches are seismically-induced oscillation or sloshing of water contained in enclosed bodies including lakes, ponds, reservoirs, and swimming pools. This hazard is dependent upon the frequency of seismic waves, distance and direction from the epicenter, and site-specific design criteria of the enclosed body of water. The proposed Confluence Basin would be like an enclosed body of water, but it has a 72-hour drawdown time, which means it can be drained completely within 72 hours and therefore presents a very unlikely seiche risk.

The Line E Project alignment is not located within an area that would be subjected to seiche, tsunami, or mudflow. (SJV-MDP IS, pp. 25-26.) Therefore, the release of pollutants due to flood, seiche or tsunami is not anticipated.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to the release of pollutants due to project inundation. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No new analysis is required.

8) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

SJV-MDP EIR Conclusion: Less than Significant
Refer to item J.1, above. The SJV-MDP EIR determined impacts to a water quality control plan or sustainable groundwater management plan would be less than significant. (SJV-MDP EIR, pp. 3.7-28 – 3.7-3.0.)

Line E Project: No New Impact/No Impact
The Regional Water Quality Control Board (RWQCB) sets water quality standards for all ground water and surface waters within the Santa Ana River Watershed, which includes the Line E Project area. Substantial regulation currently exists that addresses stormwater runoff and keeping non-stormwater pollutants out of receiving waters, including the statewide construction general permit (CGP) (i.e., SWPPP). The Line E Project would comply with these regulations. Through compliance with said regulations, the Project will be consistent with the RWQCB Water Quality Control Plan (Basin Plan).

The Project is located within an adjudicated portion of the San Jacinto Groundwater Basin (Basin) identified as the Hemet-San Jacinto Basin as defined by the Hemet-San Jacinto (HSJ) Stipulated Judgment (Riverside County Superior Court Case No. RIC 1207274, April 18, 2013). The purpose of the adjudication is to declare the individual and collective rights to surface water and groundwater in the basin "…and the imposition of a physical solution to achieve the optimum, reasonable, beneficial use of the waters of the Basin pursuant to section 2 of article X of the California Constitution" (Judgment, p. 5.)

The 2013 HSJ Judgment adopted The Hemet/San Jacinto Groundwater Management Area Water Management Plan (Management Plan) on November 7, 2007. The eight primary goals of the Management Plan are:

- Address pumping overdraft and declining groundwater levels,
- Provide for Soboba Band of Luiseno Indians' prior and paramount water rights,
- Ensure reliable water supply,
- Provide for planned urban growth,
- Protect and enhance water quality,
- Develop cost-effective water supply,
- Provide adequate monitoring for water supply and water quality, and
- Supersede the Fruitvale Judgment and Decree.

The Stipulated Judgment delineates the Basin into management zones. The Stipulated Judgment appointed the Hemet-San Jacinto Watermaster to oversee management of the Basin. The Watermaster consists of a board composed of one elected official and one alternate selected by each of the public agencies involved in the Judgment (i.e., EMWD, Lake Hemet Municipal Water District, City of Hemet, and City of San Jacinto) and one Private Pumper representative and one Private Pumper alternate. The court appointed Watermaster implements the HSJ Groundwater Management Plan. The Line E Project site is not a designated recharge site and is not slated to become one in the future. As such, development of the Project will not conflict with or obstruct the requirements of the Judgment.

Through implementation of existing regulations related to water quality and groundwater management, the Project would not conflict with or obstruct a water quality control plan or groundwater management plan.. Thus, there are no impacts, in this regard.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to the implementation of a water quality control plan or sustainable groundwater management plan Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

K. LAND USE/PLANNING	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Physically divide an established community?	☐	☐	☒	☐
2) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation of an agency with jurisdiction adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Source(s): Project Description, SJV-MDP IS

1) Physically divide an established community?

SJV-MDP EIR Conclusion: No Impact

SJV-MDP EIR determined that the primary goal of the proposed project is to manage flooding caused by stormwater runoff. The facilities will be situated at grade or below the ground surface, ensuring they do not physically divide any communities. Necessary crossings for streets, pedestrians, and wildlife over open channels would be provided. The proposed detention basins are within undeveloped areas. (SJV-MDP IS, 26.)

Line E Project: No New Impact/No Impact

There is not an existing community within immediate proximity to the Line E Project. The majority of the land surrounding the Line E Project disturbance area is vacant/agricultural with the exception of a few scattered residences and an Eastern Municipal Water District facility as shown on **Figure 26 – Existing Development**). Thus, no established communities would be divided as a result of implementation of the Line E Project.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding physically dividing an established community. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation of an agency with jurisdiction adopted for the purpose of avoiding or mitigating an environmental effect?

SJV-MDP EIR Conclusion: Less than Significant Impact

The proposed SJV-MDP is located within the City of San Jacinto, the City of Hemet, and unincorporated Riverside County. The drainage facility alignments are primarily situated within or adjacent to road rights-of-way and disturbed open areas. Typically, master planned drainage facilities are integrated into general plans, specific plans, and other land use plans adopted by the local lead agency with land use authority. This proposed project will not conflict with existing land use designations or zoning within the MDP Project area. Additionally, Section 18.2.a(b) of Riverside County Ordinance No. 348 exempts public agency projects like this one from County zoning regulations. Therefore, potential impacts are considered less than significant.

Line E Project: No New Impact/No Impact

The Line E Project implements one of the SJV MDP Facilities. The SJV-MDP was adopted to control and mitigate flooding in the City of San Jacinto and portions of the City of Hemet and unincorporated

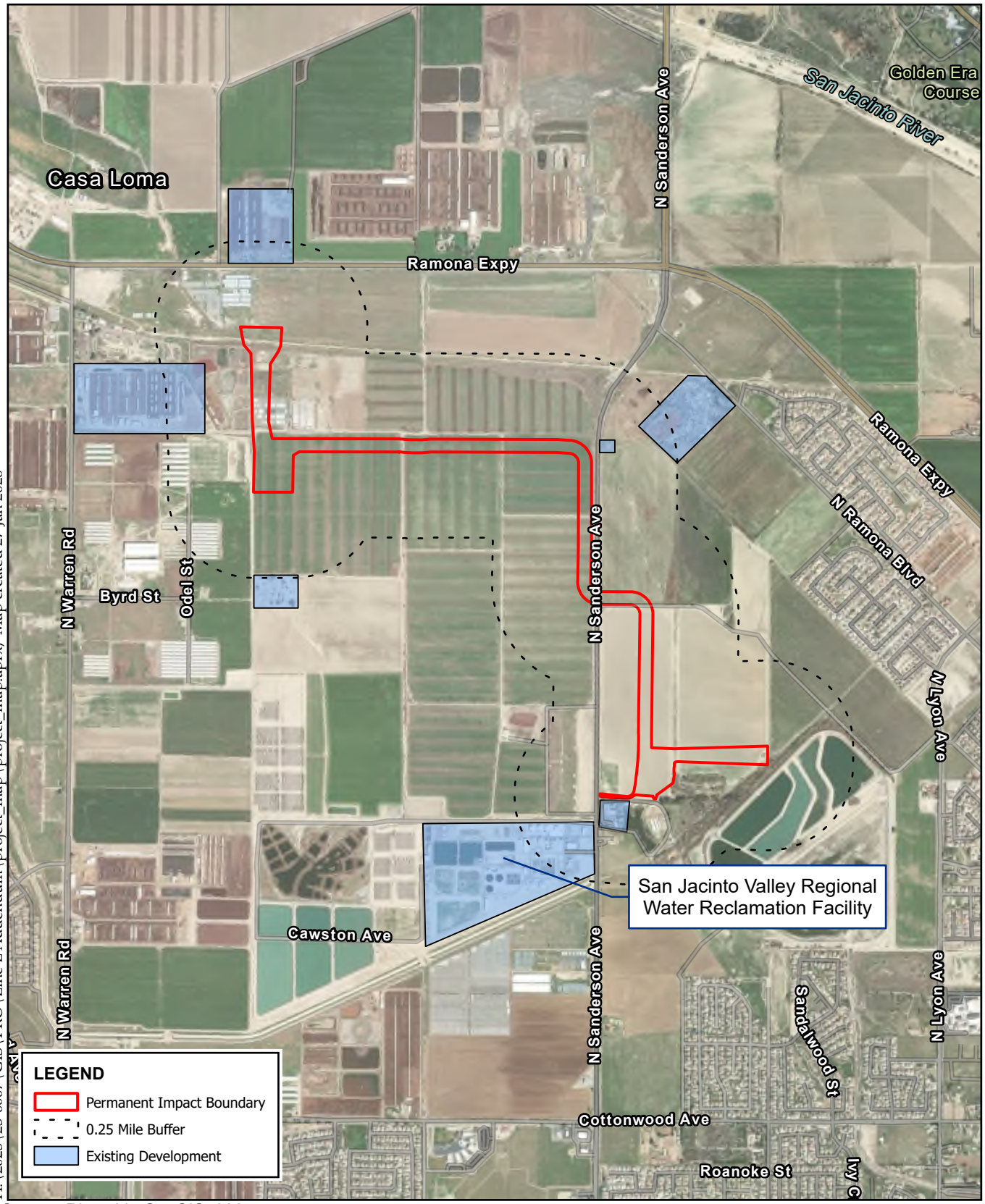
Riverside County. Further, the San Jacinto General Plan Land Use Element provides for a development and resource conservation pattern that preserves and protects San Jacinto's unique character while promoting opportunities for economic development, local job growth, and expanded housing opportunities. The Line E Project would remain consistent with the land use goals and policies identified in the Land Use Element. Additionally, the San Jacinto General Plan Resource Management Element encourages the protection and enhancement of natural and man-made resources in the City. The Project would be consistent with the land use goals and policies identified in the Resource Management Element. Therefore, the Project is consistent with the San Jacinto General Plan.

The San Jacinto Noise Ordinance, which is set forth in Municipal Code Chapter 8.40 – Noise Control is designed to protect people from non-transportation noise sources such as construction activity; commercial, industrial, and agricultural operations. Through compliance with the City of San Jacinto Municipal Code Chapter 8.40.050-A, the Line E Project would not result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan, noise ordinance adopted for the purpose of avoiding or mitigating an environmental effect. Refer to the discussion below in item M.2.

Additionally, the Project is also consistent with the MSHCP of which San Jacinto is a Permittee, as discussed above in item D.6.

Therefore, the Line E Project would not conflict with local land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect because it proposes drainage facilities consistent with the existing land use designations in the Line E Project area and would comply with the provisions of the San Jacinto Noise Ordinance.

For the reasons set forth above, implementation of the Line E Project would not conflict with any land use plan, policy, or regulation of an agency with jurisdiction adopted for the purpose of avoiding or mitigating an environmental effect. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.



H:\2023\23-0007\GIS\PRO\Line E Addendum\project_map\project_map.aprx; Map created 27 Jan 2026

Source: Riverside Co. GIS, 2025.

0 1,000 2,000 3,000 Feet

Figure 26 - Existing Development

Line E Addendum

ALBERT A. WEBB ASSOCIATES

L. MINERAL RESOURCES	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the state?	☐	☐	☒	☐
2) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

Source(s): SJV-MDP IS, GP DEIR

1) Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the state?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that the proposed MDP Project is located in the Mineral Resources Zone (MRZ-3) area, where the presence of mineral deposits is likely but their significance is undetermined. The drainage facility conceptual alignments are mainly within or adjacent to road rights-of-way and disturbed agricultural areas, which would not significantly impact known mineral resources. The MDP detention basins are also not situated on identified mineral resources and, being excavated earthen structures, their construction would not permanently affect mineral resource availability. Therefore, the MDP Project's potential impacts to known mineral resources are considered less than significant. (SJV-MDP IS, p. 26.)

Line E Project: No New Impact/No Impact

The Line E Project site is primarily disturbed agricultural land within MRZ-3. The City has no known or identified mineral resources of regional or statewide importance. (SJGP EIR, pp. 5.12-3, 5.12-7.) Therefore, no impact would occur regarding the loss of known mineral resources that would be of value to the region or residents of the state.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to the loss of availability of a known mineral resource that would be of value to the region or the residents of the state. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP IS determined that implementation of the SJV-MDP would not significantly impact known mineral resources. (SJV-MDP IS, p. 26.)

Line E Project: No New Impact/No Impact

The Line E Project disturbance area does not contain any locally important mineral resources recovery sites delineated on a local general plan, specific plan, or other land use plan. (SJGP EIR, pp. 5.12-3, 5.12-7.) There would be no impacts in this regard.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

M. NOISE	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project result in:				
1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
2) Generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
3) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☒	☐

Source(s): SJV-MDP IS, GP DEIR

1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that construction of MDP Facilities would involve heavy equipment such as backhoes, excavators, cranes, water trucks, wheeled loaders, blades/road graders, tunnel/boring machines, and dump trucks. Construction would also include truck trips to move, cut, and fill material for the proposed basins. Maintenance operations would include the use of utility trucks and occasionally, heavy machinery such as: excavators, scrapers, mowers, dozers, or backhoes to maintain the basins. These types of equipment can generate noise levels from 65-95 dBA at 50 feet. Riverside County Ordinance 457 restricts construction activities near residences between 6:00 p.m. and 6:00 a.m. from June to September, and between 6:00 p.m. and 7:00 a.m. from October to May. San Jacinto also requires compliance with its noise regulations to minimize temporary construction noise impacts. Construction may create significant short-term noise increases, which would cease when construction of the MDP Facility is complete. Maintenance activities would generate less noise than construction and occur infrequently and briefly. Therefore, through compliance with local noise ordinances, impacts would be less than significant and no mitigation is required. (SJV-MDP IS, p. 27.)

Line E Project: No New Impact/No Impact

Construction of the Line E Project would entail the use of the same types of equipment analyzed in the SJV MDP EIR. Specifically for Line E, it is expected the type of construction equipment used would include: off-road construction equipment, crawler tractor, excavators, graders, rollers, rubber tired loader, scrapers, signal boards, tractor/loaders/backhoes, crane, bore/drill rig, air compressors, plate compactor, and rough terrain forklifts. These types of equipment can generate noise levels from 80 dBA L_{max}[11] to 85 dBA L_{max} at 50 feet. (Caltrans, p. 7-22; FTA, p. 176.)

[11] L_{max} is the highest sound power level in a specific time period. (Caltrans).

Given that all Line E Project construction would take place within San Jacinto, the San Jacinto Noise Ordinance, which is set forth in Municipal Code Chapter 8.40 – Noise Control, is the applicable noise ordinance. The San Jacinto Noise Ordinance is designed to protect people from non-transportation noise sources such as construction activity; commercial, industrial, and agricultural operations. Stationary noise source standards are set forth in Municipal Code Chapter 8.40.050-A, which states*, The following noise standards for maximum allowable noise level due to stationary noise sources shall apply to all development and infrastructure projects, unless otherwise specifically indicated:*

Type of Land Use	***Allowed Equivalent Noise Level (dBA L_{eq})***	
	7:00 a.m. to 10:00 p.m.	***10:00 p.m. to 7:00 a.m.***
All single-family residential properties	*65*	*45*
All multifamily residential properties and mobile home parks	*65*	*50*
All commercial property	*65*	*60*
The residential portion of mixed-use properties	*70*	*70*
All manufacturing or industrial properties and all other uses	*70*	*70*

San Jacinto regulates construction noise per Municipal Code Chapter 8.40.090, which states:

A. The erection (including excavation), demolition, alteration or repair of any building shall occur between the hours of seven a.m. and seven p.m. on weekdays and Saturdays, and between nine a.m. and six p.m. on Sundays and holidays, except when such work complies with the terms of a temporary use permit which may be issued by the community development director or his or her designee, upon a showing of sufficient need due to hot or inclement weather, or the use of an unusually long process material, or other circumstances of unusual and compelling nature.

B. No landowner, construction company owner, contractor, subcontractor or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

C. Exceptions.

1. The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the city manager or his or her designee;

2. The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City of San Jacinto, or its employees, contractors or agents, unless:

a. The city manager or a department head determines that the maintenance, repair or improvement is immediately necessary to maintain public services; or

b. The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours; or

c. The city council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day that would otherwise be prohibited pursuant to this section;

3. Any construction that complies with the noise limits specified in Section 8.40.040 or 8.40.050.

Construction of the Line E Project would occur during daytime hours which minimizes potential noise impacts to nearby residences. Based on San Jacinto Municipal Code Chapter 8.40.050-A, the daytime construction noise threshold is 65 dBA L_{eq}. Using a construction noise level of 85 dBA L_{max} and assuming there is no intervening barrier between the construction equipment and noise receiver, construction noise may exceed 65 dBA at a distance of less than 500 feet[12] from where construction equipment is operating. This means, to comply with the noise limits set forth in Municipal Code Chapter 8.40.050-A, temporary noise barriers may be required if there are any sensitive receptors, such as occupied residences, less than 500 feet away. The closest sensitive receptors are an existing residence southeast of the intersection of Sanderson Avenue and Record Road. The distance to the property line for this residence across Sanderson Avenue is approximately 88 feet (27 meters). Should this residence still be occupied at the time of construction, the City could use a temporary noise barrier per this Municipal Code section if determined necessary.

(SJV-MDP IS, p. 27.) The Line E Project consists of stormwater drainage facilities, which will not generate noise once it is in operation. Other than maintenance, there would be no long-term noise resulting from operation of the Line E Project. Through compliance with the City of San Jacinto Municipal Code Chapter 8.40.050-A, the Line E Project would not result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies.

For the reasons set forth in the preceding paragraphs, implementation of the Line E Project would not result in any new or increased significant impacts resulting in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Line E Project area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is needed.

2) Generation of excessive ground-borne vibration or ground-borne noise levels?

SJV-MDP EIR Conclusion: Less than Significant

The SJV-MDP IS determined that the construction of the proposed project would generate temporary groundborne vibration and noise typical of grading activities. While these vibrations may temporarily affect nearby offices and residences, they would be short-term and not excessive. Therefore, potential impacts are considered less than significant. (SJV-MDP IS, p. 27.)

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[12] Distance calculated for R_2 using the formula $SPL_2 = SPL_1 – 20 \log(R_2/R_1)$ where SPL_1 = 85 dBA L_{max}; SPL_2 = 65 dBA $L_{eq;}$; R_1 = 50 feet.

Line E Project: No New Impact/No Impact
Construction activities that produce vibration that can be felt by adjacent land uses include the use of vibratory equipment, large bulldozers, and pile drivers. The primary sources of vibration during construction are usually vibratory rollers and large bulldozers. (SJGP EIR, p. 5.13-45.)

The only sensitive historic structure that could be affected by construction of the Line E Project is Metropolitan's Casa Loma Barrel No. 1. Metropolitan currently limits the vibrations within the existing siphon to 0.5 in/sec PPV to prevent damage to this structure from excessive vibrations. Depending on the design choice for how the Line E Channel crosses the Casa Loma Barrel No. 1, there is a potential to impose significant vibrations on this siphon. Preliminary analysis indicates it is feasible that construction induced vibrations from caisson drilling would not exceed Metropolitan's vibration limit of 0.5 PPV. (Kleinfelder-A, p. 2.) Therefore, because construction-related vibration would be temporary and under Metropolitan's limits, impacts regarding the generation of excessive ground-borne vibration or ground-borne noise levels would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to a generation of excessive ground-borne vibration or ground-borne noise levels. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

SJV-MDP EIR Conclusion: Less than Significant Impact
The SJV-MDP EIR determined the nearest airport to the Project area is, the Hemet-Ryan Airport located in Hemet less than one mile southwest from the southernmost portion of the MDP boundary. As the SJV-MDP Project would not result in the construction of new places of employment or new homes, the MDP Project would not involve placing people in a noisy environment near an airport or private airstrip. Potential impacts are considered less than significant. (SJV-MDP IS, p. 28.)

Line E Project: No New Impact/No Impact
As discussed in the response to item I.5, the Line E Project site is located approximately four miles from Hemet-Ryan Airport and is not within the Hemet-Ryan Airport Land Use Compatibility Plan. Due to the distance from the Hemet-Ryan Airport and because the project would not involve the construction of new places of employment or new homes, implementation of the Line E Project would not expose people residing or working in the Project area to excessive noise levels.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related the exposure of people to excessive noise levels from a private air strip, public airport, or public use airport. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

N. POPULATION AND HOUSING	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
2) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Source(s): DOF, SCAG

1) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

SJV-MDP EIR Conclusion: Significant and Unavoidable Impact

The SJV-MDP does not include the construction of new homes or businesses, and therefore would not directly induce substantial population growth in the MDP area. Implementation of the SJV-MDP may indirectly induce substantial population growth in the SJV-MDP boundaries by providing flood control infrastructure. As a comprehensive, area-wide master drainage plan, the SJV-MDP is sized and designed to accommodate continued development throughout the San Jacinto Valley per the San Jacinto, Hemet, and Riverside County General Plans. New development would be accompanied by construction of both on-site storm detention basins and related structures in the near term, and construction of master plan facilities in San Jacinto and Hemet that would accompany longer term improvements to the San Jacinto River channel. It is important to note, that while a project may have a potential to induce growth, it does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the public or private sectors. (SJV-MDP EIR. pp. 3.8-6 – 3.8-7.)

The SJV-MDP EIR determined the MDP Project could indirectly induce population growth in the San Jacinto Valley by removing one potential barrier to growth, by providing planned drainage infrastructure. The City of San Jacinto, the City of Hemet and the County of Riverside General Plans outline the type of development and growth that would be allowed in the area. Thus potential indirect impacts from development in the project area are not expected to exceed the potential impacts that have already been disclosed in their General Plan EIRs. Yet, because implementation of the proposed Project could indirectly induce substantial population growth in San Jacinto, Hemet, and portions of unincorporated Riverside County, impacts are considered significant. However, no mitigation measures can reduce these indirect impacts to less than significant levels, necessitating a Statement of Overriding Considerations prior to approval of the SJV-MDP Project. (SJV-MDP EIR, pp. 3.8-6 – 3.8-9.)

Line E Project: No New Impact/No Impact

The Line E Project would not directly induce population growth, as it does not introduce housing or long-term employment opportunities. As a regional drainage facility, the Line E Project has the potential to indirectly induce population growth in the Line E subwatershed by removing an obstacle to development. Since approval of the SJV-MDP Project in 2013, San Jacinto and Riverside County updated their respective General Plans and population projections in 2022 and

2015, respectively. Implementation of the Line E Project would indirectly facilitate future planned growth per the General Plans for San Jacinto, Hemet, and Riverside County. Thus potential indirect impacts from development Line E subwatershed are not expected to exceed the potential impacts that have already been analyzed and disclosed in the current San Jacinto, Hemet, and Riverside County General Plan EIRs.

Additionally, the SJV MDP still remains the guiding document to address stormwater and flooding control within the Line E Project area. Because the Line E Project would not directly or indirectly induce substantial unplanned population growth, there would be no new impact in this regard.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts resulting from the direct or indirect inducement of substantial unplanned population growth in the Line E Project subwatershed. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined the construction of the proposed MDP Facilities in the conceptual locations shown in the SJV-MDP EIR is not anticipated to displace any existing homes. Because no homes are being displaced, the construction of replacement housing is not required. Potential impacts would be less than significant. (SJV-MDP IS, p. 29.)

Line E Project: No New Impact/No Impact

Construction of the Line E Project would not require the displacement of existing people or housing; therefore construction of replacement housing is not required.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding the displacement of existing people or housing and the construction of replacement housing. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

O. PUBLIC SERVICES	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
1) Fire Protection	☐	☐	☒	☐
2) Police Protection	☐	☐	☒	☐
3) Schools	☐	☐	☒	☐
4) Parks	☐	☐	☒	☐
5) Other Public Facilities	☐	☐	☒	☐

Source(s): SJGP; SJGP EIR; SJDFS; USD; SJV-MDP IS

1) Fire Protection?

SJV-MDP EIR Conclusion: No Impact

The SJV-MDP EIR determined the proposed MDP Facilities would not require additional services or extended response times for fire protection services. When constructed, the proposed SJV-MDP Facilities should reduce the need for fire department resources related to flooding. (SJV-MDP IS, p. 29.)

Line E Project: No New Impact/No Impact

The Line E Project does not propose any new or physically altered government facilities. The Line E Project would not directly result in the need for new or physically altered fire protection facilities.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant substantial adverse physical impacts associated with the provision of new or physically altered government facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives related to fire protection. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Police Protection?

SJV-MDP EIR Conclusion: No Impact

The SJV MDP EIR determined that construction of the proposed SJV-MDP Facilities does not include new homes or businesses that would require additional police protection facilities, services or extended response times. Therefore, no impacts are anticipated. (SJV-MDP IS, p. 29.)

Line E Project: No New Impact/No Impact

The Line E Project does not propose any new or physically altered police protection facilities. The Line E Project would not directly result in the need for new or physically altered police protection facilities.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities or the need for new or physically altered police facilities,

the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives related to police protection. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Schools?

SJV-MDP EIR Conclusion: No Impact
The SJV MDP EIR determined the proposed SJV-MDP Project does not involve new housing or employment opportunities that would affect local school enrollment or the need for new school facilities. Because school facilities would not be impacted by implementation of the SJV-MDP, no impacts are anticipated. (SJV-MDP IS, p. 29.)

Line E Project: No New Impact/No Impact
The Line E Project does not propose any new or physically altered school facilities. The Line E Project would not directly result in the need for new or physically altered school facilities.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant substantial adverse physical impacts associated with the provision of new or physically altered school facilities or the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Parks?

SJV-MDP EIR Conclusion: No Impact
The SJV-MDP EIR determined that none of the proposed MDP Facilities would interfere with or have adverse impacts on parks. Nor would the project involve new housing or employment opportunities that would result in the need for new or physically altered park facilities. Therefore, no impacts are anticipated. (SJV-MDP IS, p. 30.)

Line E Project: No New Impact/No Impact
The Line E Project does not propose any new or physically altered park facilities. The Line E Project would not directly result in the need for new or physically altered park facilities.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant substantial adverse physical impacts associated with the provision of new or physically altered park facilities or the need for new or physically altered park facilities to maintain park standards, the construction of which could cause significant environmental impacts. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) Other Public Facilities?

SJV-MDP EIR Conclusion: No Impact
The SJV MDP EIR determined that there are no other public facilitates that would be adversely impacted by the construction of the proposed project. Therefore, no impacts are anticipated. (SJV-MDP IS, p. 30.)

Line E Project: No New Impact/No Impact

Other than the proposed drainage improvements, the Line E Project does not propose any new or physically altered government. The Line E Project would not directly result in the need for new or physically altered government facilities.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant substantial adverse physical impacts associated with the provision of new or physically altered other public facilities or the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

P. RECREATION	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
2) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Source(s): SJGP; SJGP DEIR; SJV-MDP IS

1) Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

SJV-MDP EIR Conclusion: No Impact

The SJV-MDP EIR determined that the MDP Project does not include new homes or businesses that would increase the use of existing parks or recreational facilities. Therefore, no impacts are anticipated. (SJV-MDP IS, p. 30.)

Line E Project: No New Impact/No Impact

The Line E Project does not include new homes or businesses that would generate residents or employees that would use parks and recreational facilities. As such, there would be no increase in the use of existing parks or recreations facilities such that substantial physical deterioration of the facility would occur or be accelerated.

For the reasons set forth above, implementation of the Line E Project would not increase in the use of existing parks or recreations facilities such that substantial physical deterioration of the facility would occur or be accelerated. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

SJV-MDP EIR Conclusion: No Impact

The SJV-MDP EIR determined that construction of the proposed MDP Project does not include housing or employment opportunities and would not trigger the need for construction or expansion of recreational facilities. However, the proposed Project basins could be designed for dual-use purposes. No impacts are anticipated. (SJV-MDP IS, p. 30.)

Line E Project: No New Impact/No Impact

The Line E Project, does not include recreational facilities. The Line E Project would not require the construction or expansion of recreational facilities. As such, there would be no adverse physical effect on the environment resulting from the construction of expansion of recreational facilities.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Thus, there are no new impacts, changes,

or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

Q. TRANSPORTATION	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
2) Conflict or be inconsistent with *State CEQA Guidelines* section 15064.3, subdivision (b)?	☐	☐	☒	☐
3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
4) Result in inadequate emergency access or access to nearby uses?	☐	☐	☒	☐

Source(s): Project Description

1) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

SJV-MDP EIR Conclusion: Less than Significant Impact
The SJV-MDP EIR determined that the project will be partially constructed within road rights-of-way, causing minor, short-term increases in vehicle traffic due to construction activities. This may result in slight delays or temporary congestion. Encroachment permits and traffic control plans will be obtained and approved by the relevant governing agencies to address these short-term traffic impacts. Consequently, potential impacts are considered less than significant.

Line E Project: No New Impact/No Impact
As an infrastructure project, the Line E Project would not in it of itself conflict with any program, plan, ordinance, or policy addressing the circulation system because the Line E Project is an earthen and underground channel located within ROW or proposed ROW. The Line E Project would be required to provide a traffic control plan for the construction of the Project. Through compliance with required traffic control plans, impacts to any program, plan, ordinance, or policy addressing the circulation system would be less than significant and no new mitigation is required.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related any program, plan, ordinance, or policy addressing the circulation system. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Conflict or be inconsistent with *State CEQA Guidelines* section 15064.3, subdivision (b)?

SJV-MDP EIR Conclusion: Less than Significant Impact
This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. Senate Bill 743 (SB 743) was passed by the California State Legislature and signed into law by Governor Brown in 2013. SB 743 required the Office of Planning and Research and the California Natural Resources Agency to develop alternative methods of measuring transportation impacts under the California Environmental Quality Act (CEQA). In December 2018, the California Natural Resources Agency finalized updates to the CEQA Guidelines, which included SB 743. CEQA

Guidelines Section 15064.3 provides that transportation impacts of projects are, in general, best measured by evaluating the project's vehicle miles traveled (VMT). As stated in CEQA Guidelines Section 15064.3(b)(2), “projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact.” The SJV-MDP EIR determined that the adoption of the MDP and the construction and operation of the facilities would not cause an increase in traffic and are not traffic generating. (SJV-MDP EIR, pp. 30-32.) As such, the impact on traffic was determined to be less than significant.

Line E Project: No New Impact/No Impact
The Line E Project will construct an earthen and underground stormwater channel that would temporarily increase traffic in the area as a result of construction-related vehicles. However, because water facilities are not trip generators, there would be no ongoing operational net increase in VMTs. Therefore, the Project would not conflict with or be inconsistent with CEQA Guidelines section 15064.3. subdivision (b). Thus, the Project’s impacts related to VMT would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related VMT. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

SJV-MDP EIR Conclusion: No Impact
The SJV-MDP EIR determined that construction of the project will not change current or future roadway configurations nor alter the area in such a way to introduce a new hazard or increase hazards. (SJV-MDP IS, p. 31.) Therefore, no impacts are anticipated.

Line E Project: No New Impact/No Impact
As stated in the SJV-MDP EIR, the construction of MDP facilities, including the Line E Project, which will be primarily earthen and underground within existing and proposed roadways, will not alter current roadway configurations or introduce new hazards. Therefore, the Line E Project would not result in impacts related to hazards due to design features.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to substantially increase hazards. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Result in inadequate emergency access or access to nearby uses?

SJV-MDP EIR Conclusion: No Impact
The SJV-MDP EIR determined that construction of the proposed project will not reconfigure current roadways that would result in inadequate emergency access. Access would be maintained throughout the construction activities. Therefore, no impacts are anticipated.(SJV-MDP IS, p. 31.)

Line E Project: No New Impact/No Impact
The Line E Project would not result in inadequate emergency access because the construction of the channel would not reconfigure current roadways that would result in inadequate emergency access. During temporary construction activities, as discussed above in item Q.1, traffic control measures to

accommodate local traffic and ensure the safety of drivers and workers during construction would be implemented. Additionally, in accordance with the original findings of the SJV-MDP EIR, access would be maintained throughout construction. Therefore, the Line E Project would not result in impacts related to inadequate emergency.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to inadequate emergency access. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

R. TRIBAL CULTURAL RESOURCES	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:				
1) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k), or	☐	☐	☒	☐
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision I of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Source(s): SJV-MDP EIR, AE-GP DEIR

Analysis of Project Effect and Determination of Significance

1) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k) or

2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision I of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision I(c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

SJV-MDP EIR Conclusion: Less than Significant Impact

These thresholds were not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. As discussed in Section E. Cultural Resources, prehistoric cultural resources were evaluated at a program level as not all of the conceptual alignments for the SJV-MDP Facilities could be surveyed. The results of a Native American Heritage Commission (NAHC) sacred lands record search conducted during preparation of the *Historical/Archeological Resources Survey Report, San Jacinto Master Drainage Plan,* October 8, 2008 (Appendix D.1 to the SJV-MDP EIR), identified the presence of Native American cultural resources within the SJV-MDP Project's boundary and suggested the Soboba Band of Luiseño Indians and 10 other local Native American representatives be contacted for further information. Correspondence was initiated with contacts of the 11 organizations on the referral list provided by NAHC, in addition to the Ramona Band of Cahuilla Indians, Morongo Band of Indians, Soboba Band of Luiseño Indians, and Temecula Band of Luiseño Mission Indians. No specific sites of Native American cultural concern were identified within the SJV-MDP Project boundary by any of the tribal representatives contacted; however, the presence of a Native American monitor was requested. Because portions of the conceptual footprint of the SJV-MDP Facilities were unable to be surveyed due to restricted access and Native American monitoring was requested, SJV-MDP EIR mitigation measures **MM Cultural 2a through MM Cultural 2c**, as set forth in item E.2 would be implemented to reduce impacts to cultural resources, to less than significant. (SJV-MDP EIR, pp. 3.5-15 – 3.5-16.)

Line E Project: No New Impact/No Impact

Effective July 1, 2015, Assembly Bill 52 (AB 52), signed into law in 2014, amends CEQA and establishes new requirements for tribal consultation. The law applies to all projects that have a notice of preparation or notice of negative declaration/mitigated negative declaration. It also broadly defines a new resource category of "tribal cultural resource" and establishes a more robust process for meaningful consultation that includes:

- Prescribed notification and response timelines
- Consultation on alternatives, resource identification, significance determinations, impact evaluation, and mitigation measures
- Documentation of all consultation efforts to support CEQA findings.

AB 52 does not apply to the Line E Project as neither a notice of preparation nor notice of intent to adopt a negative declaration/mitigated negative declaration is being issued. As identified in the response to item E.2, above, no prehistoric archaeological resources were documented within or adjacent to the site and no specific sites of Native American cultural concern were identified within the SJV-MDP Project boundary by any of the tribal representatives contacted.

As discussed in response item E.2, preparation of the *Cultural Resource Study for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California*, satisfies SJV-MDP mitigation measure **MM Cultural 2a.** Based on the results and recommendations of that study, the Line E Project would implement clarified mitigation measures **CMM Cultural 2b** and **CMM Cultural 2c**, as set forth above in item E.2**.** These clarified mitigation measures update, clarify, and amplify the requirements of SJV-MDP **MM Cultural 2b** and **MM Cultural 2c** for monitoring, preparation of a treatment and disposition plan, and the process to be followed for an inadvertent find. The clarified mitigation measures does not provide mitigation for a new potentially significant impact not disclosed in the SJV-MDP EIR.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts resulting in a substantial adverse change in the significance of a tribal cultural resource. Clarification of the SJV-MDP EIR mitigation measures to be Line E Project-specific does not mitigate new impacts or constitute new information of substantial importance. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

S. UTILITIES AND SERVICE SYSTEMS	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Would the project:				
1) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
2) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
3) Result in a determination by the wastewater treatment provider that serves or may service the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
4) Generate solid waste in excess of State or Local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
5) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Source(s): Project Description; SJV-MDP IS; UWMP; WSCP; WCSMP

Analysis of Project Effect and Determination of Significance

1) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

SJV-MDP EIR Conclusion: Less than Significant Impact

The SJV-MDP EIR determined that the MDP project would not generate wastewater, eliminating the need for wastewater treatment. However, constructing the proposed drainage facilities may necessitate relocating existing water and sewer lines. These relocations would take place within the SJV-MDP Project's impact area and would not result in significant impacts beyond those already associated with the proposed MDP Project. Therefore, potential impacts are considered less than significant. (SJV-MDP IS, p. 32.)

Line E Project Conclusion: No New Impact/No Impact

Existing utilities in conflict with the Line E Channel's RCBs crossing at Sanderson Avenue are shown on the Long Axis Plan included in Appendix B. Any proposed utility crossings would be coordinated with adjacent property owners and/or developers and projects to the extent that information is available, and relocation plans would be prepared during the final design phase. (PDR, p. 8.)

For the reasons set forth above, the implementation of the Line E Project, would not require the relocation or construction of additional water, stormwater drainage, electric power, natural gas, or telecommunications facilities beyond those analyzed originally. Therefore, there are no new impacts,

changes, or new information associated with the Line E Project that would necessitate the preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

SJV-MDP EIR Conclusion: Less than Significant Impact
The SJV-MDP EIR determined the SJV-MDP Project does not involve activities that would require permanent water supplies. Construction of the proposed MDP Facilities would necessitate short-term water use in order to provide for dust control. Impacts are less than significant. (SJV-MDP IS, p. 33.)

Line E Project Conclusion: No New Impact/No Impact
The Line E Project would use water for dust control during construction. Operation and maintenance of the Line E Project does not involve activities that would require permanent water supplies.

For the reasons set forth above, the implementation of the Line E Project would not result in any new or increased significant impacts related to reasonably foreseeable future development during normal, dry, and multiple-dry years. Therefore, there are no new impacts, changes, or new information associated with the Line E Project that would necessitate the preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Result in a determination by the wastewater treatment provider that serves or may service the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

SJV-MDP EIR Conclusion: No Impact
The SJV-MDP IS determined implementation of the MDP Project would not generate wastewater. No new wastewater treatment facilities are required as a result of the proposed SJV-MDP Project. (SJV-MDP IS, p. 33.)

Line E Project Conclusion: No New Impact/No Impact
The Line E Project consists of stormwater drainage facilities which would not generate wastewater. Thus, no new wastewater treatment facilities are required as a result of the proposed SJV-MDP Project.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding the capacity of the City (as wastewater treatment provider) to serve its existing commitments. Thus there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Generate solid waste in excess of State or Local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

SJV-MDP EIR Conclusion: No Impact
The SJV-MDP EIR determined the MDP Project would not generate solid waste or require landfill services long-term. Construction waste would mainly consist of trash from crews and minimal debris, with demolition possibly needed. Temporary construction and demolition waste is expected to be minimal, not exceeding a single commercial dumpster per week per phase. Local landfills, such as Badlands and Lamb Canyon, have sufficient capacity to accept this waste. (SJV-MDP IS, p. 33.)

Line E Project Conclusion: No New Impact/No Impact
As with the SJV-MDP Project, solid waste generated during the construction of the Line E Project is expected to be minimal. Local landfills, such as Badlands and Lamb Canyon, have sufficient capacity to accept this waste. Additionally, construction of the Line E Project would be required to comply with Municipal Code Chapter 8.34, Construction and Demolition Waste Management, which requires diversion of a minimum of 50 percent of the construction and demolition debris, in compliance with State and local statutory goals and policies, and creation of a mechanism to secure compliance with the stated diversion requirement to reduce the amount of waste generated within San Jacinto. (SJGP EIR, p. 5.9-13.)

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding the generation of solid waste in excess of State or Local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals related to solid waste. Thus there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

5) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

SJV-MDP EIR Conclusion: No Impact
As discussed in item S.5. above, the SJV-MDP EIR determined the proposed project would not generate large quantities of solid waste on a long-term basis. The disposal of construction waste will comply with all federal, state, and local statutes and regulations regarding solid waste. Potential impacts are less than significant. (SJV-MDP IS, p. 33.)

Line E Project Conclusion: No New Impact/No Impact
As discussed in item S.5, above, construction of the Line E Project would be required to comply with Municipal Code Chapter 8.34, Construction and Demolition Waste Management, which requires diversion of a minimum of 50 percent of the construction and demolition debris, in compliance with State and local statutory goals and policies, and creation of a mechanism to secure compliance with the stated diversion requirement. Thus, the disposal of construction waste would comply with all federal, state, and local statutes and regulations regarding solid waste.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to compliance with federal, state, and local management and reduction statues and regulations related to solid waste. Thus there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

T. WILDFIRE	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
If located in or near a state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
1) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
2) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
3) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
4) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Source(s): CALFIRE; GP DEIR; GP

1) Substantially impair an adopted emergency response plan or emergency evacuation plan?

SJV-MDP EIR Conclusion: Less than Significant Impact

This threshold was not a part of the State CEQA *Guidelines* at the time the SJV-MDP EIR was prepared. However, as discussed in item I.6. above, the SJV MDP EIR determined the SJV-MDP area is not located within a designated hazardous fire area. The proposed MDP Facilities would not interfere with evacuation or emergency response plans. Road access would be maintained or detours would be provided during project construction. Implementation of the MDP would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts are less than significant, and no mitigation is required. (SJV-MDP IS, p. 21.)

Line E Project: No New Impact/No Impact

As discussed in the response to item I.6., above, the Line E Project is not located within a designated hazardous fire area. Road access would be maintained or detours would be provided during Project construction so as not to not interfere with evacuation or impair execution of emergency response plans.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts related to substantially impairing and adopted emergency response plan or emergency evacuation plan. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

SJV-MDP EIR Conclusion: Less than Significant Impact
This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, as discussed in item I.6., above, the SJV-MDP EIR determined the MDP Project area, was not located within a designated hazardous fire area. Further, The SJV-MDP does not propose habitable structures; thus, there would be no project occupants. Implementation of the MDP would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts are less than significant, and no mitigation is required. (SJV-MDP IS, p. 21.)

Line E Project: No New Impact/No Impact
The Line E Project involves the construction of a channel and confluence basin and does not propose any habitable structures. Therefore, the Line E Project would not expose people or structures to significant risks from runoff, post-fire slope instability, or drainage changes. Therefore, the impacts are considered less than significant.

For the reasons set forth above, implementation of the Line E Project would not expose people or structures to significant risks resulting from flooding or landslides. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

3) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

SJV-MDP EIR Conclusion: Less than Significant Impact
This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, as discussed in item I.6., above, the SJV-MDP EIR determined the Master Drainage Plan area, are not located within a designated hazardous fire area. Implementation of the MDP would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts are less than significant, and no mitigation is required. (SJV-MDP IS, p. 21.).

Line E Project: No New Impact/No Impact
The Line E Project involves the construction of a stormwater drainage channel, in an area that is either vacant or used for active agriculture. The area the Line E Project is located within would not require installation or maintenance of infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Therefore, the Line E Project impacts related to exacerbated fire risk would be less than significant.

For the reasons set forth above, implementation of the Line E Project would result in infrastructure that may exacerbate fire risks. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

4) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

SJV-MDP EIR Conclusion: Less than Significant Impact
This threshold was not a part of the State CEQA Guidelines at the time the SJV-MDP EIR was prepared. However, as discussed in item I.6., above, the SJV-MDP EIR determined the Master Drainage Plan area, is not located within a designated hazardous fire area. Implementation of the

SJV-MDP would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts are less than significant, and no mitigation is required. (SJV-MDP IS, p. 21.)

Line E Project: No New Impact/No Impact

The Line E Project does not include habitable structures, nor would it substantially alter existing drainage patterns. Therefore, there would be no impacts with regard to exposing people or structures to significant risks resulting from runoff, post-fire instability, or drainage changes.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased significant impacts regarding exposure to post-fire risks. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

U. MANDATORY FINDINGS OF SIGNIFICANCE	New Potentially Significant Impact	New Mitigation is Required	No New Impact/No Impact	Reduced Impact
Does the Project:				
1) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
2) Have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probable future projects)?	☐	☐	☒	☐
3) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Source(s): Analysis in this Addendum, AE-A, GLA-A, GLA-B

1) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation.

Potential to Degrade the Quality of the Environment: Construction and operation of the SJV-MDP Project does not have the potential to degrade the quality of the environment. As indicated in the analysis in the MDP IS/EIR, either no impacts, less than significant impacts, or less than significant impacts with mitigation incorporated would occur with respect to each of the environmental issues analyzed in the SJV-MDP Project.

Potential to Impact Biological Resources:. Implementation of the SJV-MDP, has the potential to impact special status species, birds protected by the Migratory Bird Treaty Act and/or California Department of Fish and Game Code, riparian habitat, and drainage ditches regulated by CDFW. All potentially significant impacts to biological resources would be avoided or reduced to a less than significant impact with the implementation of SVJ-MDP EIR mitigation measures **MM Bio 1** through **MM Bio-8**. (SJV MDP EIR, pp. 3.4-22 – 3.4-28; 5.0-8 - 5.0-9.)

Potential to Eliminate Important Examples of the Major Periods of California History or Prehistory: Impacts related to historic and archaeological resources were found to be less than significant within the portions of the Project footprint surveyed. Additional surveys, documentation, and coordination with Native American Tribes will be required through **MM Cultural 1** through **MM Cultural 4** No unique geologic feature is known to exist and no fossils have been documented in the Project

footprint. However, the Project footprint is underlain by deposits that could potentially have a high sensitivity for paleontological resources. Mitigation measures **MM Cultural 5 through MM Cultural 8** outline specific measures that will be taken if certain soil types or any artifacts are unearthed during construction activities. Therefore, through implementation of proposed mitigation measures, potential impacts to cultural resources will be reduced to less than significant. (SJV MDP EIR, p. 5.0-13.)

Therefore, the potential of the SJV-MDP to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or an endangered plant or animal or eliminate important examples of the major periods of California history or prehistory would be less than significant with mitigation incorporated.

Line E Project: New Mitigation is Required

Potential to Degrade the Quality of the Environment: Construction of the Line E Project does not have the potential to degrade the quality of the environment. As indicated in the analysis in this Addendum, there is no substantial change in the significance of impacts from those disclosed in the SJV-MDP EIR. This means no new potentially significant impacts. The analysis determined either new mitigation required, or no new impact/no impact, or reduced impact would occur with respect to each to the environmental issues analyzed in this Addendum.

Potential to Impact Biological Resources: The results of the *Biological Technical Report and Jurisdictional Delineation of the Master Drainage Plan* (MDP) *Line E Project*, as well as the *Determination of Biologically Equivalent or Superior Preservation (DBESP) Analysis for Impacts to MSHCP Riparian/Riverine Area, San Jacinto Valley Master Drain Plan Line E*, and the analysis in the responses to items D.1 through D.4 above, indicate the Line E Project has the potential to impact special status species, birds protected by the Migratory Bird Treaty Act and/or California Department of Fish and Game Code, non-wetland waters regulated by the Regional Board and non-riparian streambed regulated by CDFW. However, with implementation of **MM Bio-E1, MM Bio-E2, MM Bio-E3**, **MM Bio-E4, MM Bio-E5, MM Bio-E6, MM Bio-E7, MM Bio-E8** and clarified mitigation measure **CMM Bio-1**, potential impacts to biological resources would be reduced to less than significant. Preparation of the BTR and focused surveys satisfies SJV-MDP EIR mitigation measures **MM Bio 2, MM Bio 3, MM Bio 4, MM Bio 5,** and **MM Bio 6.**

Potential to Eliminate Important Examples of the Major Periods of California History or Prehistory: The results of the *Cultural Resource Study for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California*, (CRS) identifies the entire Line E area as heavily disturbed on the surface by agricultural activity, road development, and addition of modern structures. It was concluded the Colorado River Aqueduct is eligible for listing, but is outside of the Project's vertical limits, and therefore would not be affected by this Project. Although, the likelihood of the presence of intact archaeological deposits is low, in order to provide protection in the unlikely event that archaeological resources are unearthed during construction, the Line E Project will implement clarified mitigation measures **CMM Cultural-2b** and **CMM Cultural-2c**. Preparation of the CRS satisfies SJV-MDP mitigation measure **MM Cultural 2a**. Through compliance with applicable regulations and clarified mitigation measures (**CMM Cultural 2b** and **CMM Cultural 2c**) impacts to important examples of California history or prehistory would be less than significant.

For the reasons set forth above, implementation of the Line E Project would not result in any new potentially significant impacts regarding potential to degrade the environment, potential to impact

biological resources, and potential to eliminate important examples of the major periods of California history or prehistory. New mitigation is required for the Line E Project to address potential impacts to Crotch's bumble bee and special status bird species; however through implementation of mitigation measures, impacts will be less than significant. This does not change the determination made in the SJV-MDP. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent EIR. No further analysis is required.

2) **Have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probable future projects)?**

SJV-MDP EIR Conclusion: Significant and Unavoidable

The SJV-MDP EIR concluded potential environmental impacts resulting from implementation of the SJV-MDP are temporary and would cease once construction is complete except for impacts to agricultural resources, and population and housing, specifically indirect growth inducement. The SJV-MDP boundaries contains approximately 4,600 acres of "Agricultural Land" as defined in Section 210060.1 of CEQA, implementation of the Project will have significant indirect and direct impacts to agricultural resources. Depending on the facility or combination of facilities constructed at any given time, SCAQMD regional significance thresholds for NOx, PM-10, and PM-2.5 and SCAQMD LSTs for PM-10 and PM-2.5 could be exceeded during construction. Although these are direct, short-term impacts that would cease once construction is complete. the impact is not considered to have a cumulatively considerable net increase on ozone and PM-10, which are non-attainment in the region under both state and federal standards, and is considered less than significant. The SJV-MDP has the potential to indirectly induce substantial population growth in San Jacinto, Hemet, and portions of unincorporated Riverside County by removing an obstacle to development. However, the potential indirect impacts would not exceed the impacts that have already been addressed during the adoption of the San Jacinto General Plan EIR (May 2006), the Hemet General Plan Final EIR (August 1992), or the Riverside County General Plan Final EIR (October 2003).

The SJV MDP is consistent with local and regional plans. The SJV MDP adheres to all other land use plans and policies with jurisdiction in the area and will not increase traffic volumes or VMT within the area. However, because the SJV MDP could indirectly induce growth and potentially exceed SCAQMD significance thresholds, Cumulative impacts would be significant and unavoidable. (SJV MDP EIR, pp. 5.0-6-8, 5.0-15-17.)

Line E Project: No New Impact/ No Impact

As discussed in the responses to Sections C, D, F, H, J, K, L, and M, the Line E Project is consistent with local and regional plans, and its mitigated air quality emissions do not exceed established thresholds of significance. The Line E Project adheres to all other land use plans and policies in San Jacinto and would not increase VMT. The Line E Project is not considered growth-inducing as defined by CEQA Guidelines Section 15126.2(d) because it would not induce, either directly or indirectly, population and/or housing growth beyond what is envisioned by San Jacinto General Plan. Therefore, construction and operation of the Line E Project would not result in incremental impacts that are considered cumulatively considerable.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased incremental significant impacts that are cumulatively considerable. Thus, there are no new

impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent MND. No further analysis is required.

3) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

SJV-MDP EIR Conclusion: Less than Significant with Mitigation.
Effects on human beings were evaluated as part of the aesthetics, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, population and housing, and traffic sections of the SJV MDP EIR. Except for indirect growth inducement, impacts to aesthetics, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise and traffic were found to be less than significant, or less than significant with mitigation incorporated.

Line E Project: No New Impact/ No Impact
This Addendum evaluated effects on human beings as part of the aesthetics, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, population and housing, and traffic and determined there is no substantial change in the significance of impacts from those disclosed in the SJV MDP EIR. Therefore, there are no new potential direct or indirect impacts on human beings resulting from the Line E Project.

For the reasons set forth above, implementation of the Line E Project would not result in any new or increased environmental effects that would cause substantial adverse effects on human beings. Thus, there are no new impacts, changes, or new information associated with the Line E Project that would require preparation of a Supplemental or Subsequent MND. No further analysis is required.

5. Earlier Analysis/References Incorporated by Reference

Section 15150 of the State *CEQA Guidelines* permits and encourages an environmental document to incorporate, by reference, other documents that provide relevant data. The documents summarized below are incorporated by reference, and the pertinent material is summarized throughout this Initial Study, where that information is relevant to the analysis of potential impacts of the Project. All documents incorporated by reference are available for review at, or can be obtained through, the City of San Jacinto Planning Department.

SJGP	City of San Jacinto. *Envision San Jacinto General Plan 2040.* November 2022. (Available at https://www.sanjacintoca.gov/UserFiles/Servers/Server_10384345/File/City%20Government/Community%20Development/Planning/General%20Plan%202040/Published%20Envision%20San%20Jacinto_2024.pdf, accessed October 2024.)
SJGP EIR	City of San Jacinto, General Plan Update Final Program Environmental Impact Report (SCH No.2020120312), July 2022. (Available at https://sanjacinto.generalplan.org/documents-amp-maps, accessed February 18, 2025.)
MC	City of San Jacinto, *Municipal Code*, December 6, 2022. (Available at https://www.codepublishing.com/CA/SanJacinto/#!/SanJacinto01/SanJacinto01.html, accessed February 12, 2025.)
SJV-MDP EIR	Albert A. Webb Associates, *Environmental Impact Report for the San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment (SJV-MDP) (State Clearinghouse Number 2009041077,* certified by the San Jacinto City Council, January 14, 2013. (Available at City of San Jacinto Planning Department, 595 S. San Jacinto Avenue, San Jacinto, CA 92583.)
SJV-MDP IS	Albert A. Webb Associates, *Environmental Checklist Form, San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment,* April 13, 2009. (Included as Appendix A to the *Environmental Impact Report for the San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment (SJV-MDP) (State Clearinghouse Number 2009041077),* certified by the San Jacinto City Council, January 14, 2013. (Available at City of San Jacinto Planning Department, 595 S. San Jacinto Avenue, San Jacinto, CA 92583.)

Additional reference materials that were used in the preparation of this Addendum include the following:

AE-A	Applied Earthworks Inc., *Cultural Resources Study for the San Jacinto Master Drainage Plan Line E, City of San Jacinto, Riverside County, California.* January 2024. (Appendix E)
AE-B	Applied Earthworks Inc., *Revised Paleontological Technical Memorandum for the Shea Properties- Sanderson Avenue Project, City of San Jacinto, Riverside County, California.* October 9, 2023. (Appendix F)

ALUC	County of Riverside Airport Land Use Commission, *Hemet-Ryan Airport Land Use Compatibility Plan*, adopted February 9, 2017. (Available at https://rcaluc.org/sites/g/files/aldnop421/files/2023-06/Hemet.pdf, accessed February 3, 2025.)
CalEEMod Output	Albert A Webb Associates. *CalEEMod Output*. August 2024. (Included as Appendix C.)
Caltrans	California Department of Transportation, *Technical Noise Supplement to the Caltrans Traffic Noise Analysis Protocol,* September 2013. (Available at https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf, accessed February 24, 2025.)
CARB-A	California Air Resources Board, *State and Federal Standard Area Designations* webpage, November 2023. Available at https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations, accessed October 21, 2024.
CAPCOA	California Air Pollution Control Officers Association. *CalEEMod User Guide, Version 2022.1.* April 2022. Available at https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf, accessed October 21, 2024.
CEC	California Energy Commission, *Electricity Consumption by Entity*, 2022. Available at http://www.ecdms.energy.ca.gov/elecbyutil.aspx, accessed October 2024.
Cortese	California Department of Toxic Substances Control, EnviroStor, *Hazardous Waste and Substances Site List (Cortese).* (Available at https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29, accessed February 11, 2025.)
DOF	Department of Finance, *Table 2: E-4 Population Estimates for Cities, Counties, and State, January 2021-2024 with 2020 Benchmark*. (Available at https://dof.ca.gov/forecasting/demographics/estimates/e-4-population-estimates-for-cities-counties-and-the-state-2021-2024-with-2020-census-benchmark/, accessed February 10, 2025.)
Energy Tables	Albert A Webb Associates, Energy Tables, September 2024. (Included as Appendix G).
FTA	Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018. (Available at https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed February 24, 2025.)
FMMP	California Department of Conservation - Farmland Mapping and Monitoring Program, *Farmland Mapping and Monitoring Program Farmland Map: Riverside County,*

	California. (Available at https://maps.conservation.ca.gov/DLRP/CIFF/, accessed February 11, 2025.)
GLA-A	Glen Lukos Associates, Inc., *Biological Technical Report for San Jacinto Valley Master Drainage Plan Line E, Located in the City of San Jacinto, Riverside County, California,* January 28, 2025. (Included as Appendix D.1.)
GLA-B	Glen Lukos Associates, Inc., *Determination of Biologically Equivalent of Superior Preservation (DBESP) Analysis for Impacts to MSHCP Riparian/Riverine Areas, San Jacinto Valley Master Drainage Plan Line E,* January 20, 2026. (Included as Appendix D.2.)
GLA-C	Glen Lukos Associates, Inc., *Jurisdictional Delineation of the Master Drainage Plan (MDP) Line E Project, and Approximately 14,000 Linear-Foot Drainage Alignment in the City of San Jacinto Riverside County, California,* October 30, 2024. (Included as Appendix H in Appendix D.1.)
GLA-D	Glen Lukos Associates, Inc., R*esults of Focused Surveys for Crotch's Bumble Bee Conducted for the MDP Line E Project, an Approximately 14,000 Linear-Foot Alignment in the City of San Jacinto, Riverside County, California,* August 14, 2025. (Included as Appendix D.3.)
Judgment	Eastern Municipal Water District v. City of Hemet, et al. Riverside County Superior Court Case No. RIC 1207274 entered April 18, 2013. Available at https://www.emwd.org/post/hemet-san-jacinto-watermaster, accessed January 12, 2024.
Kleinfelder-A	Kleinfelder, *Structures Report,* February 14, 2025. (Included as Appendix A.1.)
Kleinfelder-B	Kleinfelder, *Draft Geotechnical Investigation Report, Dan Jacinto Line E Storm Drain, San Jacinto, California,* February 13, 2025. (Included as Appendix A.2.)
PDR	Albert A. Webb Associates, *Preliminary Design Report for Line E,* San Jacinto Valley Master Drainage Plan, May 15, 2025. (Available at Riverside County Flood Control and Water Conservation District, 1995 Market Street, Riverside CA 92501.)
ROUX-A	Roux Associates Inc. *Phase I Environmental Site Assessment North Sanderson Avenue and Record Road, San Jacinto, California,* January 30, 2024. (Included as Appendix H.1)
ROUX-B	Roux Associates Inc. *Phase II Subsurface Investigation Letter Report, Line E (Proposed Irrigation Channel), North Sanderson Avenue and Record Road, San Jacinto, Riverside County, California,* March 14, 2024. (Included as Appendix H.2)
SCAQMD-A	South Coast Air Quality Management District. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning, May 2005. Available at https://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf?sfvrsn=4, accessed October 2024.

SCAQMD-B	South Coast Air Quality Management District. *Localized Significance Thresholds Methodology*, Revised July 2008. Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds, accessed October 2024.
SCAQMD-C	South Coast Air Quality Management District. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance*, October 2008. Available at https://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2, accessed October 2024.
USD	San Jacinto Unified School District. *District Sites 2022-2023.* Available at https://4.files.edl.io/36b3/07/20/22/151729-f47375f4-ac59-4223-b89e-904b64b6c14b.pdf, accessed January 15, 2025.

STRUCTURES REPORT

February 14, 2025
Kleinfelder Project No.: 24002328.001A

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

Subject: Structural Design of Line E Channel Crossing over MWD Casa Loma Barrel No. 1
San Jacinto, California

Introduction

This report discusses the development of a preliminary crossing design for the proposed Line E channel over the existing Casa Loma Barrel No.1 Siphon operated by the Metropolitan Water District (MWD). This report discusses the concepts considered for this crossing and why one concept was ultimately chosen over the other. Additionally, this report presents the design criteria, plans for the preliminary crossing and the preliminary design calculations. Finally, construction restrictions and a preliminary construction work plan are discussed.

Crossing Concepts

Two concepts were developed for the proposed crossing. Both concepts support a reinforced concrete "relieving slab" isolated from the soil above the siphon by a 6-inch layer of polystyrene foam. The first concept is supported on shallow spread footing foundations, and the second concept is supported on cast-in-drilled-hole (CIDH) concrete piles. Preliminary geometries and dimensions for both concepts are presented in Attachment 1.

Concept 1: Relieving Slab on Spread Footings

This concept is more consistent with the MWD Detail SK-1 from the *Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Right-of-Way*. An advantage of this concept is that it simplifies the settlement analysis by limiting the effects of the crossing structure on the global settlement behavior. The primary drawback of this concept is that, due to the quality of the native soil, the local settlement beneath the crossing is higher than in Concept 2. One mitigation method for this issue is to stage the construction to allow foundation settlement due to backfill and dead load to

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occur prior to the placement of the channel liner. Using this methodology, differential settlement between the crossing structure and the channel liner can be limited to under 1 inch. Another drawback of this concept is that it requires greater excavation than Concept 2 which, in turn, can impose greater heave on the siphon during the construction sequence. The magnitude of this heave can be reduced by dividing up the footing excavation and placing segments of the footings prior to excavating the full length of the footing.

Concept 2: Relieving Slab on CIDH Concrete Piles

This concept is supported on CIDH concrete piles that rely on skin friction along the length of the pile. The top portion of these concrete piles are cased in a smooth steel casing to limit the transfer of the forces from the piles to the siphon. The main benefit of this concept is that the crossing settlement can be reduced by increasing the pile length. Also, the overall structure width of Concept 2 is 14 feet less than Concept 1, allowing more room in the right of way for future MWD projects. One disadvantage of this concept is that, because the concrete piles are supported on deeper soil layers, the crossing structure may not necessarily settle with the adjacent surface level structures. This means that if significant subsidence or liquefaction occurs, the crossing structure may settle less than the surrounding structures resulting in it ending higher than the adjacent liner. A transition slab was incorporated into this option to mitigate this potential. Additionally, the installation of these piles has the potential to impose significant vibrations on the existing siphon. Preliminary analysis using of Caltrans' Transportation Construction Vibration Guidance Manual (April 2020) showed that drilling shafts at this distance from the siphon without exceeding the sustained peak particle velocity limit of 0.5 in/sec set by MWD is feasible. It should be noted though, there is some uncertainty in this analysis given the variability of soils and equipment.

Proposed Crossing Design

Of the concepts considered, the relieving slab on shallow foundations (Concept 1) was chosen as the proposed crossing type. This crossing geometry was chosen because its main limitations, including large crossing settlements and heave during excavation, can be mitigated to acceptable levels through construction staging. The CIDH concrete piles in Concept 2 present greater risk to the siphon during construction. Additionally, the possibility of the crossing rising above the adjacent channel lining due to the surrounding soil subsiding could infringe on the functionality of the channel. Preliminary plans for the proposed crossing are provided in Attachment 4, and preliminary structural calculations supporting this design are provided in Attachment 5.

Design Criteria

The crossing is designed according to AASHTO LRFD Bridge Design Specifications 8th Edition with Caltrans Amendments, dated August 2019 and Errata dated June 2024 as modified by the project specific Design Criteria Memo dated 01-12-2024 (provided in Attachment 2). In addition to the H-20 design vehicle discussed in the Design Criteria Memo, the anticipated service vehicles used by Riverside County Flood Control, a Volvo EC300E Excavator (36.5 Ton) and a Caterpillar D6 Bulldozer (24.25 Ton), are also considered. These two additional vehicles are treated as typical design vehicles, and their demand is

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included in the live load envelopes for Strength IA and Service IA load combinations. The geometries for these vehicles are presented in Attachment 5.

Settlement Analysis

A preliminary global settlement analysis using PLAXIS 3D was conducted for both concepts and included the adjacent channel berms. This settlement analysis calculated the displacement imposed on the existing siphon due to the crossing structure and berm construction sequence along with the subsequent water and live loading on the crossing and the surrounding area. This analysis determined the necessity of using lightweight fill (preliminarily assumed 30 pcf maximum unit weight) for the channel berms within the vicinity of the siphon (see Attachment 3 for preliminary limits of lightweight fill). Based on this analysis the proposed crossing would satisfy the MWD limit of 0.25 inches of settlement over 100 feet. This settlement analysis is discussed in the Project Geotechnical Investigation Report.

Construction Restrictions and Methods

Restrictions must be placed on staging and methods of construction to mitigate detrimental effects on the siphon during the construction of the crossing structure. These restrictions will be introduced here. Additionally, a preliminary work plan for the construction of this crossing is presented in Attachment 6.

Excavation for the footings shall be conducted symmetrically on either side of the siphon. The excavation and placement of the footings shall be broken into three stages to prevent excessive heave on the siphon. Additionally, to limit vibrational impacts to the siphon, flowable backfill shall be used for backfilling the footing. Placement of this backfill is to be conducted simultaneously on either side of the siphon and in front and behind the footings. A maximum difference in backfill depth of 1 foot is allowable in both locations. Excavation and backfill restrictions are discussed in greater detail in the Project Geotechnical Investigation Report.

MWD requires any excavation within 2 feet of the siphon to be performed with hand equipment. The footings are located such that the 1.5H:1V excavation slope does not infringe in this 2-foot buffer zone. The final cover over directly over the siphon is less than 2 feet and will require infringing on this buffer zone. As discussed in the preliminary work plan (Attachment 5) it is proposed that a vacuum truck be used to safely remove the soil in this region.

The formwork for the stem of the footing shall be supported without bracing against the soil covering the siphon. This can be achieved by bracing against heel of the footing and across to the stem formwork on the opposite side of the siphon. The base of the footing may be poured neat against the sides of the excavation.

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List of Attachments

Attachment 1 – Conceptual Exhibits
Attachment 2 – Design Criteria Memo (Kleinfelder, 1-12-2024)
Attachment 3 – Preliminary Lightweight Fill Limits
Attachment 4 – Preliminary Crossing Plans
Attachment 5 – Preliminary Crossing Calculations
Attachment 6 – Preliminary Foundation Work Plan

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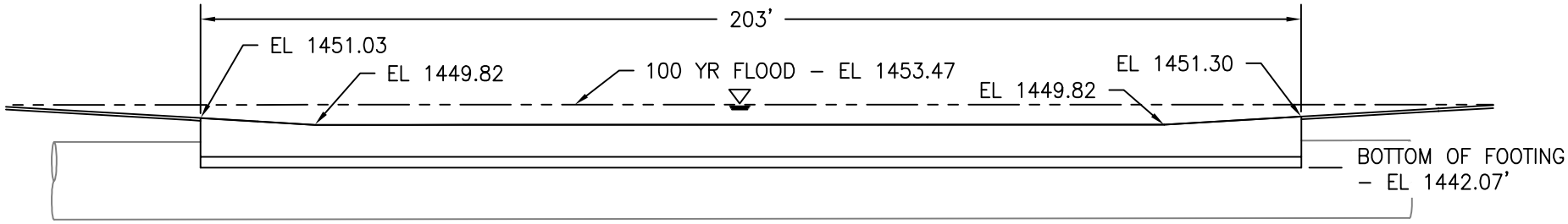
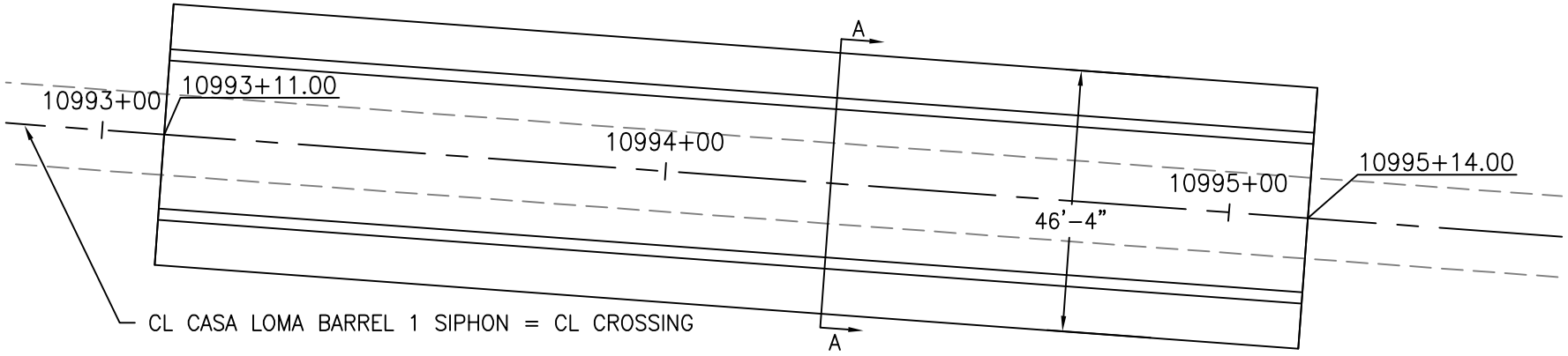
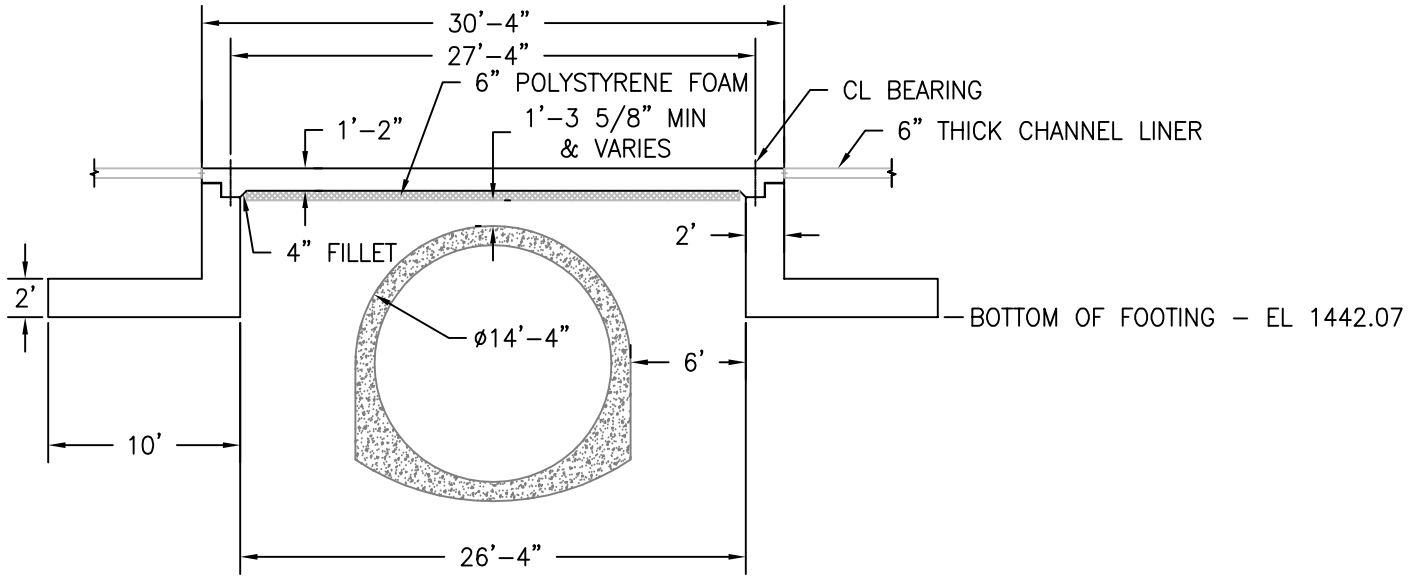


PROFILE – CONCEPT 1

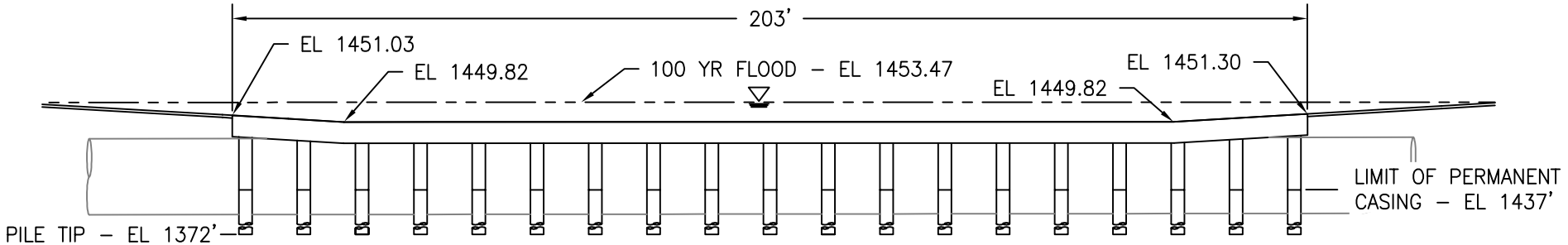


PLAN – CONCEPT 1

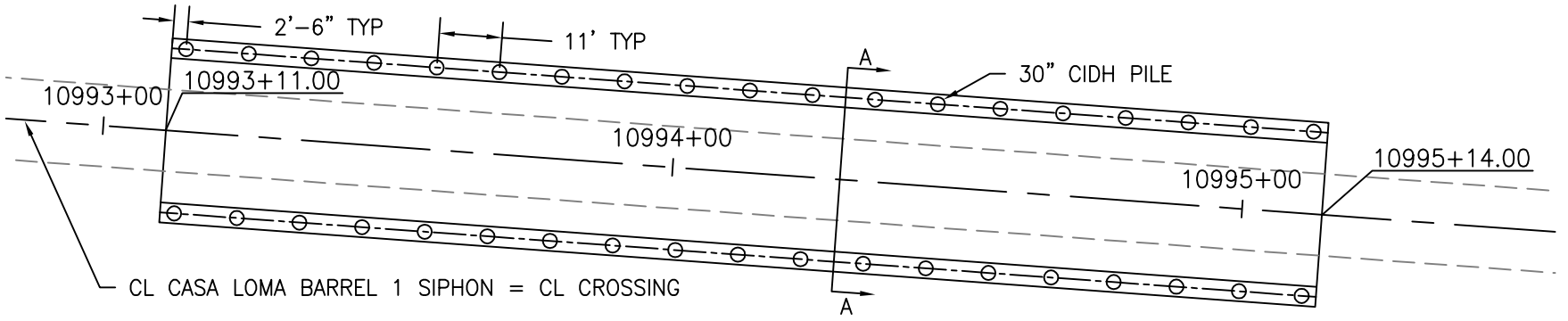


SECTION A–A – CONCEPT 1

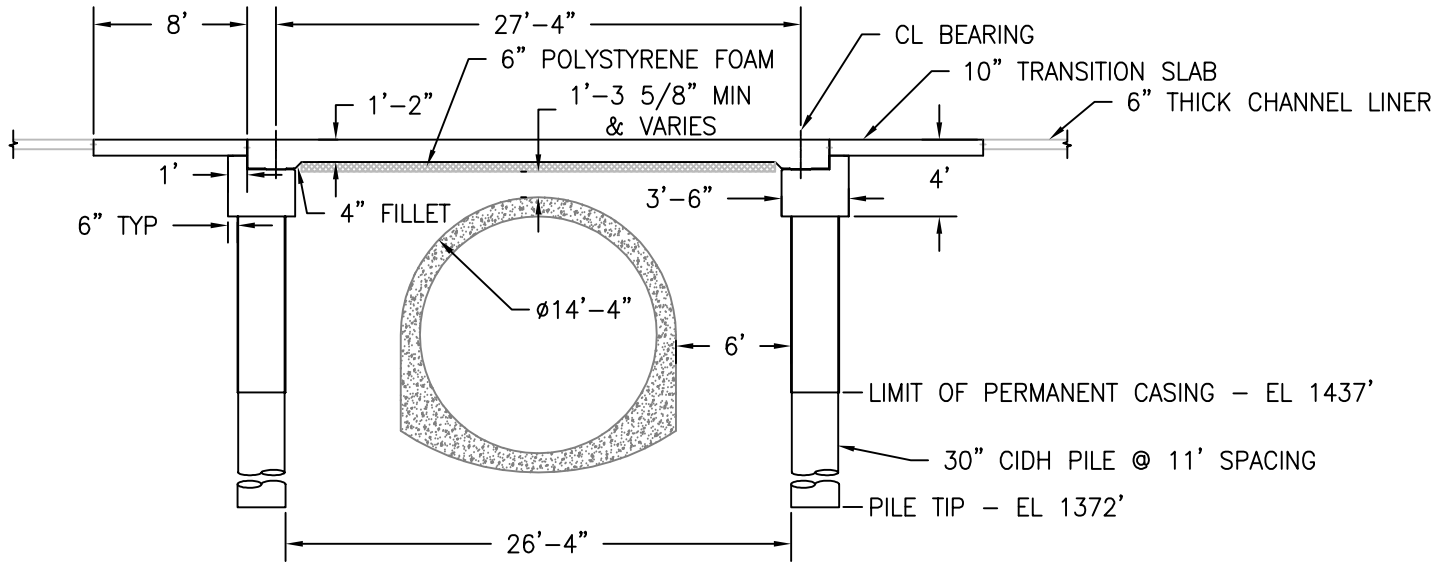
ATTACHMENT 1 - CONCEPT 1: SHALLOW FOUNDATION EXHIBIT



PROFILE – CONCEPT 2



PLAN – CONCEPT 2



SECTION A–A – CONCEPT 2

ATTACHMENT 1 - CONCEPT 2: DEEP FOUNDATION EXHIBIT

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M E M O R A N D U M

TO: Eric Hays | Albert A. Webb Associates

FROM: Keith Gazaway | Kleinfelder

Jake Montgomery | Kleinfelder

DATE : January 12, 2024

SUBJECT: Shea Properties – Line E

Design Criteria Memo

PROJECT DESCRIPTION

This design criteria memo pertains to the proposed crossing structure to span the existing Casa Loma Barrel No. 1 Siphon. The crossing is located just west of the city of San Jacinto in Riverside County, California where the proposed San Jacinto Valley Master Drainage Plan (MDP) Line E storm water channel crosses the existing siphon. The purpose of the crossing structure is to prevent additional loading on the existing siphon due to channel loads including potential maintenance vehicles and water loads. The crossing structure will be placed where soil cover over the existing siphon is reduced to under 4 feet or where warranted by the results of settlement analysis.

DESIGN METHODOLOGY

The crossing will be designed according to AASHTO LRFD Bridge Design Specifications 8th Edition with Caltrans Amendments, dated August 2019 and Errata, dated October 2019 (AASHTO LRFD). Project specific requirements and modifications will be listed in the following sections. The Municipal Water District's (MWD) "Improvement and Construction Guidelines" (dated July 2018) is incorporated into this design criteria.

DESIGN LOAD

The crossing structure will be designed to support a single H-20 truck design vehicle with a multiple presence factor of 1.0. The crossing will be designed to resist the weight of water loading; the water height will match the height of the adjacent canal berms for strength loads cases and will match the 100-year flood level for service load cases. Vehicle loading and water loading will not be considered concurrently. Seismic loading will be checked to ensure the crossing structure does not impart additional seismic surcharge on the existing siphon. The applicable load combinations from the tables below will be used for the design of the crossing structures:

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CROSSING LOAD COMBINATIONS

Load Combination	DC, DD, DW, EH, EV, ES, EL, PS, CR & SH *	LL, IM, CE, BR, PL & LS	WA	TU	EQ
Strength IA	Υ_p	1.75	0	0.5/1.2	0
Strength IB	Υ_p	0	1	0.5/1.2	0
Service IA	1	1	0	1.0/1.2	0
Service IB	1	0	1	1.0/1.2	0
Extreme I	1	0	0	0	1

*Load factors for permanent loads are based on AASTHTO LRFD Table 3.4.1-2

GEOMETRIC LIMITS

The crossing structure will be designed to provide a minimum of 6 inches of undisturbed soil over the top of the Casa Loma Barrel No. 1 Siphon. Additionally, the crossing structure will be designed to allow for a compressible blanket, consisting of 6 inches of expanded polystyrene foam, to be placed between the bottom of the structure and top of the undisturbed soil. This compressible blanket will extend a minimum 1 foot past the edge of the existing siphon. If footings are used for the crossing structure, the edge of the footing will be offset a minimum of 5 feet from the outside of the existing siphon and placed so that a line running at a 45-degree angle from the toe of footing does not intersect the outside circumference of the existing siphon. If driven pile foundations are used to support the crossing structure no portion of the pile will infringe on a region within 20 feet of the center of the existing siphon. If drilled micropile or cast-in-place pile foundations are used, no portion of the pile will be placed within 5 feet of the outside of the existing siphon. If pile foundations are used, the piles will be detailed to prevent down drag forces from being developed above the centerline of the existing siphon.

DISPLACEMENT LIMITS

The maximum allowable differential settlement along the length of the existing siphon will not exceed ¼ inch over 100 feet. Differential settlement between the crossing structure and the adjacent channel liner will not exceed 1 inch. The combined crossing long-term structural deformation, short-term structural deformations and soil settlement will not exceed the thickness of the compressible blanket. Service load combinations will be used for the calculation of displacements.

CONCRETE COVER

AASHTO LRFD-CA Table 5.10.1-1 provides minimum concrete cover over reinforcement depending on the components and site conditions. Based on the geotechnical investigation this site is considered a non-marine environment with non-corrosive soil. Therefore, where concrete components are adjacent to soil, a minimum concrete cover of 3 inches will be used. A minimum of 2 inches of cover will be used for any surface exposed to the channel flow. A minimum of 1.5 inches of cover will be used for surfaces adjacent to the polystyrene foam. Where necessary, according to Caltrans Memo to Designer 10-5, these minimum

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covers may be reduced by utilizing epoxy coated rebar (ECR) and/or supplementary cementitious materials (SCM). Cover may be reduced by ½ inch when using post-fabricated ECRs and 1 inch when using pre-fabricated ECRs and/or SCM. By no means will clear cover be reduced below 1 inch.

CRACK CONTROL

AASHTO LRFD Article 5.6.7 provides a check to limit crack width under service level loading. Two design levels are given: Class 1 applies to conditions where a wider crack width is acceptable due to reduced concerns of appearance and corrosion. Class 2 applies where reducing crack width is desirable to improve appearance and corrosion resistance. A Class 2 exposure factor will be used for an surfaces exposed to the channel flow. A Class 1 exposure factor will be used elsewhere.

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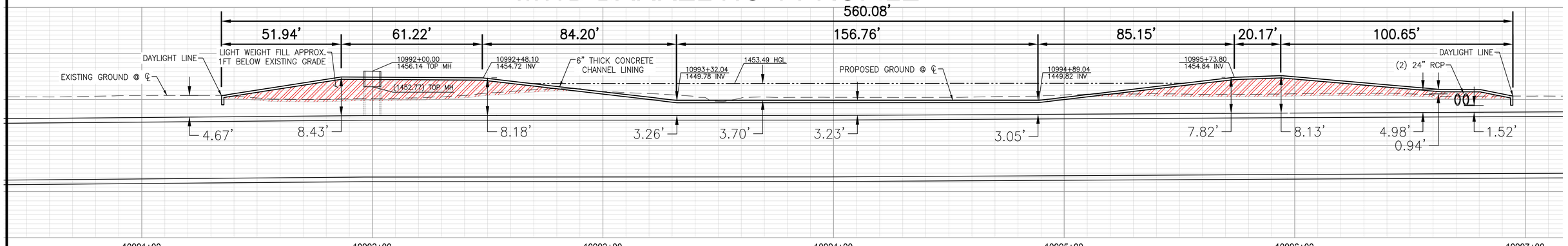
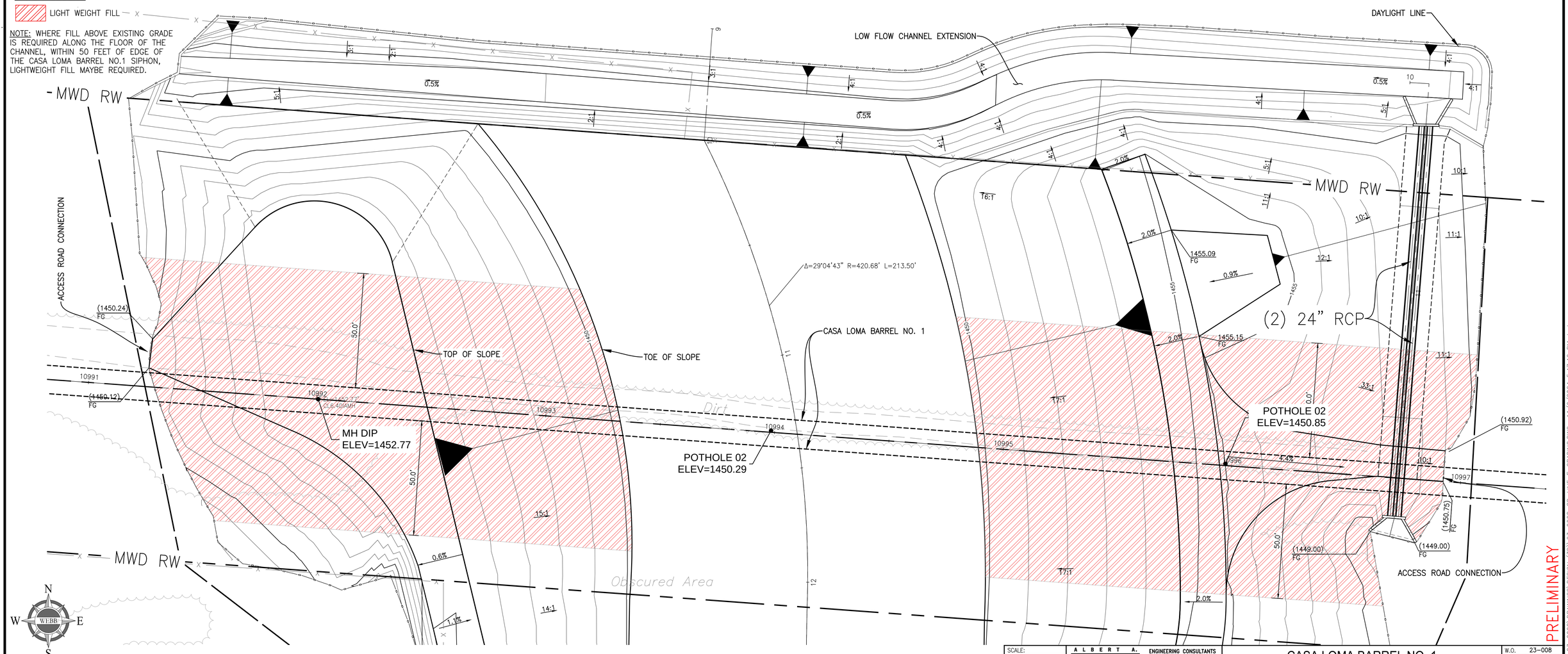
MWD BARREL NO 1 PROFILE



HATCH LEGEND

LIGHT WEIGHT FILL

NOTE: WHERE FILL ABOVE EXISTING GRADE IS REQUIRED ALONG THE FLOOR OF THE CHANNEL, WITHIN 50 FEET OF EDGE OF THE CASA LOMA BARREL NO.1 SIPHON, LIGHTWEIGHT FILL MAYBE REQUIRED.



1" = 40'

40 0 40 80 120

ATTACHMENT 3 - PRELIMINARY LIGHTWEIGHT FILL LIMITS

SCALE:	
DATE:	11/7/2024
DESIGNED:	JJO
CHECKED:	EH
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

PLOT DATE: 07/11/2024

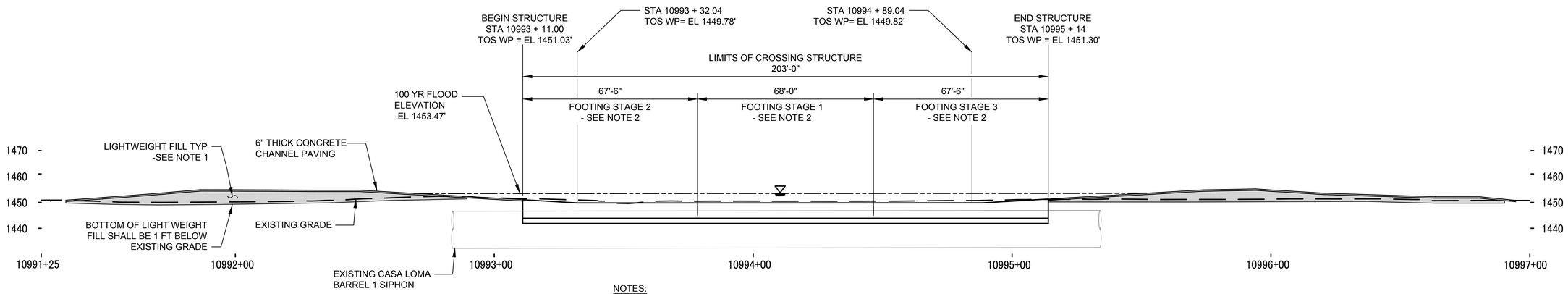
CASA LOMA BARREL NO. 1
MDP LINE E CONCRETE CHANNEL
CROSSING EXHIBIT

W.O.	23-008
SHEET	
OF	1 SHEETS
DWG. NO.	1

PRELIMINARY

H:\2023\23-0008\DRAWINGS\DESIGN (3D)\23-0008-SD-LINE_E_GRADING.DWG 11/6/2024 5:47:46 PM Joshuab

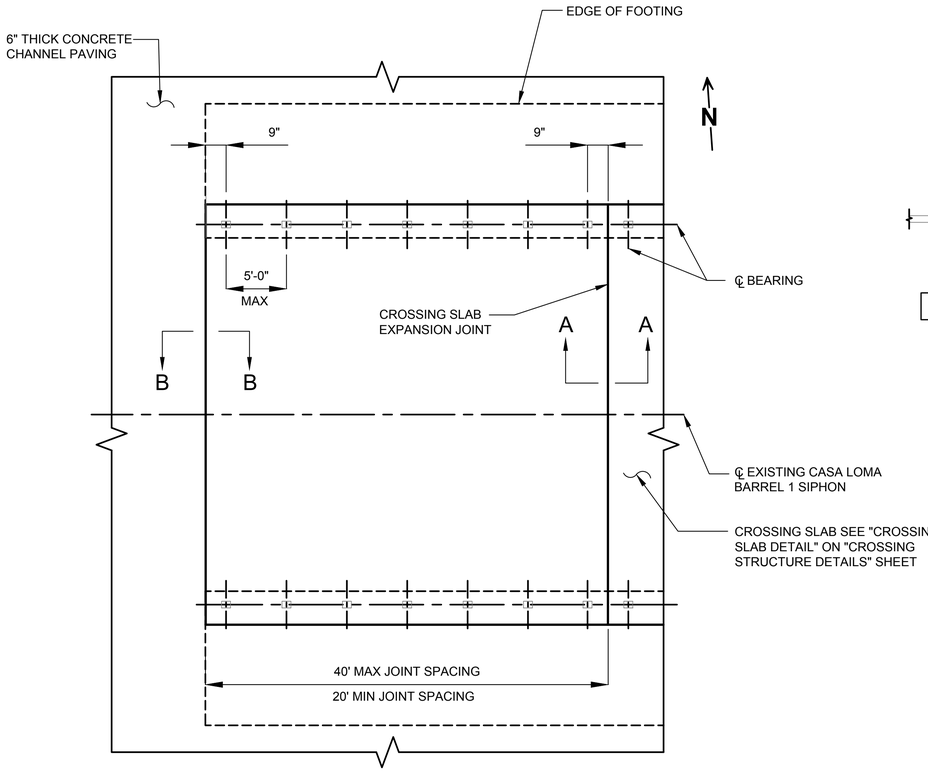
ATTACHMENT 4 - PRELIMINARY CROSSING PLANS



NOTES:
1) LIGHTWEIGHT FILL SHALL BE USED WHERE FILL ABOVE EXISTING GRADE IS REQUIRED WITHIN 50 FEET OF THE EDGE OF THE CASA LOMA BARREL 1 SIPHON.
2) THE FULL FOOTING SHALL BE PLACED IN EACH STAGE PRIOR TO BEGINNING EXCAVATION ON THE SUBSEQUENT STAGE.

CROSSING ELEVATION

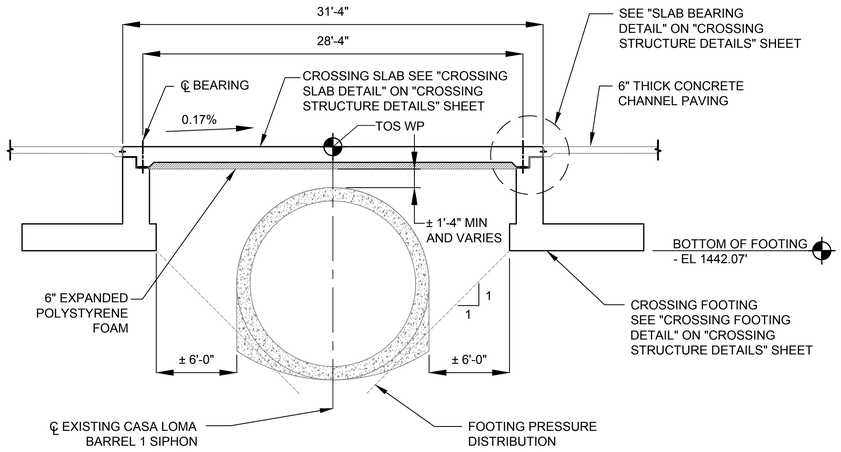
SCALE: 1"=20'-0"



NOTE: FOR "SECTION A-A" AND "SECTION B-B" SEE "CROSSING STRUCTURE DETAILS" SHEET

PARTIAL PLAN VIEW

SCALE: 3/16"=1'-0"



TYPICAL SECTION

SCALE: 3/16"=1'-0"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION 2017, AND THE CALIFORNIA AMENDMENTS, PREFACE DATED APRIL 2019 WITH JUNE 2024 ERRATA

CONSTRUCTION SPECIFICATIONS:

EXISTING CONDITIONS:
BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL REVIEW EXISTING SITE CONDITIONS, VERIFY ALL DIMENSIONS AND VERIFY THE EXACT LOCATION OF EXISTING UTILITIES.

CONCRETE:
SLAB CONCRETE SHALL BE F'C = 5 KSI COMPRESSIVE STRENGTH @ 28 DAYS.
FOOTING CONCRETE SHALL BE F'C =3.6 KSI COMPRESSIVE STRENGTH @ 28 DAYS.

REINFORCING STEEL:
ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60

CONSTRUCTION STAGING:
EXCAVATION, FOOTING PLACEMENT AND BACKFILL SHALL BE CONDUCTED CONCURRENTLY AND SYMMETRICALLY ON EITHER SIDE OF THE SIPHON. A MAXIMUM DIFFERENCE OF 1 FOOT IS ALLOWED BETWEEN THE EXCAVATION, CONCRETE AND BACKFILL ON EITHER SIDE OF THE SIPHON. THE PLACEMENT OF THE ADJACENT CONCRETE LINER SHALL OCCUR NO LESS THAN 1 WEEK AFTER THE PLACEMENT OF THE CROSSING SLAB.

BACKFILL:
BACKFILL SHALL CONSIST OF MEDIUM WEIGHT FLOWABLE FILL (UNIT WEIGHT OF 85 PCF ±). BACKFILL ON EITHER SIDE OF THE FOOTING SHALL BE PLACED CONCURRENTLY AND SYMETRICALLY SO THAT THE DIFFERENCE IN FILL DEPTH IS NOT GREATER THAN 1 FOOT.

NOT FOR CONSTRUCTION

KLEINFELDER
Bright people, Right Solutions.
770 First Ave, Suite 400 San Diego, CA 92101
Tel. (619) 831-4600 Kleinfelder.com

ENGINEER OF WORK DATE

DESIGNED:	JRM
DRAWN:	FH
CHECKED:	KG
DATE:	11/8/2024

PLAN REVISION

REVISION	BY	DATE	APPROVAL
FOR REVIEW	JRM	11/8/2024	

MDP LINE E CONCRETE CHANNEL
CROSSING STRUCTURE LAYOUT

S1

OF XX SHEETS

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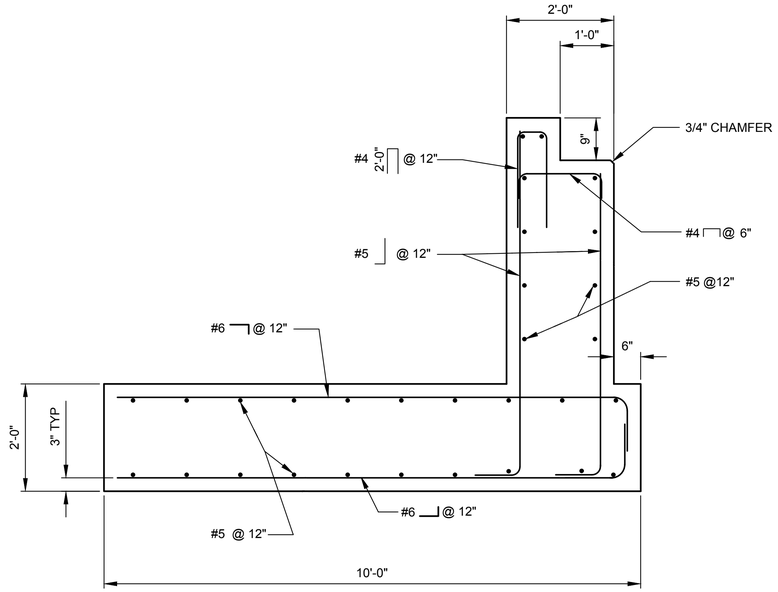
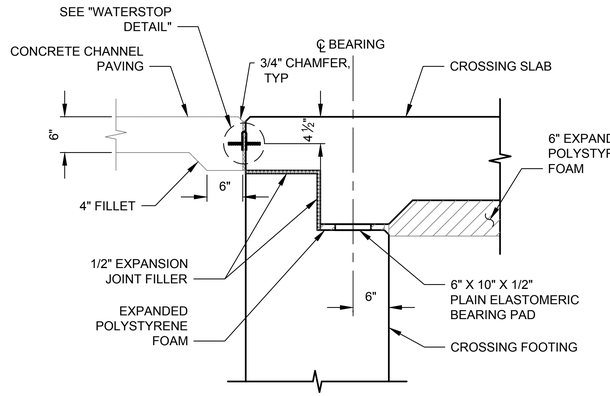
Date: Nov 07, 2024 - 9:54am SCALE: 1/1 Drawn:FHie

ATTACHMENT 4 - PRELIMINARY CROSSING PLANS



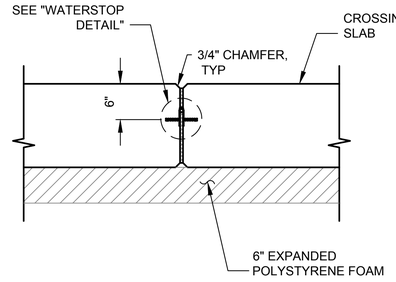
CROSSING FOOTING DETAIL

SCALE: 3/4"=1'-0"



SLAB BEARING DETAIL

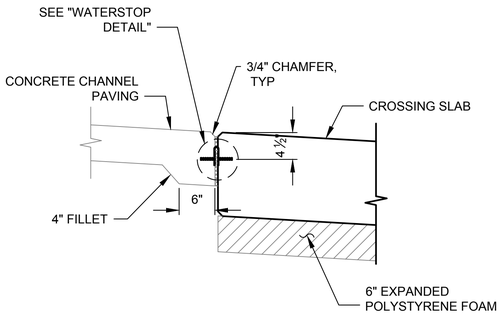
SCALE: 1"=1'-0"



NOTE: FOR LOCATION OF "SECTION A-A" SEE "PARTIAL PLAN VIEW" DETAIL ON "CROSSING STRUCTURE LAYOUT" SHEET

SECTION A-A

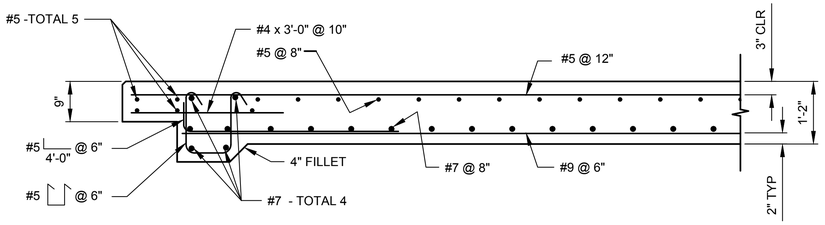
SCALE: 1"=1'-0"



NOTE: FOR LOCATION OF "SECTION B-B" SEE "PARTIAL PLAN VIEW" DETAIL ON "CROSSING STRUCTURE LAYOUT" SHEET

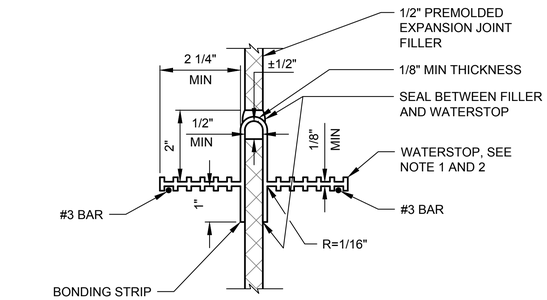
SECTION B-B

SCALE: 1"=1'-0"



CROSSING SLAB DETAIL

SCALE: 3/4"=1'-0"



NOTES:

1) HOLES WILL BE PERMITTED IN THE OUTER 1/2" OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #3 REINFORCING BARS @ 12" MAXIMUM INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED FOR APPROVAL OF THE ENGINEER.
2) WATERSTOP TO HAVE 5 OR MORE PARS OF RAISED RIBS TO PROVIDE 0.1 SQUARE INCH MINIMUM RIB CROSS-SECTION AREA ON EACH HALF OF THE WATERSTOP.

WATERSTOP DETAIL

NO SCALE

NOT FOR CONSTRUCTION

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Date: Nov 07, 2024 - 9:54am SCALE: 1/1 Drawn:FHie

KLEINFELDER
Bright people, Right Solutions.
770 First Ave, Suite 400 San Diego, CA 92101
Tel. (619) 831-4600 Kleinfelder.com

ENGINEER OF WORK DATE

DESIGNED:	JRM
DRAWN:	FH
CHECKED:	KG
DATE:	11/8/2024

PLAN REVISION

REVISION	BY	DATE	APPROVAL
FOR REVIEW	JRM	11/8/2024	

MDP LINE E CONCRETE CHANNEL

CROSSING STRUCTURE DETAILS

S2

OF XX SHEETS

Preliminary Design Calculations for the Line E Crossing Structure Over Casa Loma Barrel No.1 Siphon

Line E Storm Drain - San Jacinto, CA

02/14/2025

KLEINFELDER
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Bright People. Right Solutions.

PROJECT San Jacinto Line E Storm Drain
BRIDGE NAME Crossing Over Casa Loma Barrel 1 Siphon

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PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

1 Project Information

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 20242328
Subject: Project Information

Originator: JRM
Date: 11/07/2024

Project Information

Project Discussion:
The San Jacinto Line E Storm Drain Project involves the design of approximately 3-miles of storm drain channel in the City of San Jacinto, California. Near the end of this proposed storm drain channel it crosses the existing Casa Loma Barrel No. 1 Siphon operated by the Metropolitan Water District (MWD). The construction of this channel requires the removal of some cover over the existing siphon. MWD requires a relieving slab to be constructed over this siphon if the cover is reduced below 4 feet. In order to construct the proposed channel a crossing over this existing siphon must be designed to support both the channel water loading and channel service vehicles.

Location:
San Jacinto, California

Structure Type:
28'-4" Single span 1'-2" deep reinforced concrete slab supported on spread footings.

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

2 Design Criteria

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 20242328
Subject: Design Criteria

Originator: JRM
Date: 11/07/2024

Design Criteria

- Project Design Criteria Memo Dated January 12, 2024
- AASHTO LRFD Bridge Design Specifications, 8th Edition and the California amendments. Preface Dated April 2019 with June 2024 Errata.
- Caltrans Seismic Design Criteria, Version 2.0 Dated April 2019 with October 2019 Interim Revisions (SDC)
- Caltrans Bridge Design Manuals
    - Memo to Designers (MTD)
    - Bridge Design Aids (BDA)
    - Bridge Design Practice (BDP)
    - Bridge Design Details (BDD)
    - Bridge Design Memos (BDM)
    - Structure Technical Policies (STPS)

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

3 Materials

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 20242328
Subject: Materials

Originator: JRM
Date: 11/07/2024

Materials

Concrete:

Superstructure:

$$f_c' = 5\ ksi$$

Substructure:

$$f_c' = 3.6\ ksi$$

Reinforcing Steel:

Grade 60:

$$f_y = 60\ ksi$$

$$E_s = 29000\ ksi$$

KLEINFELDER
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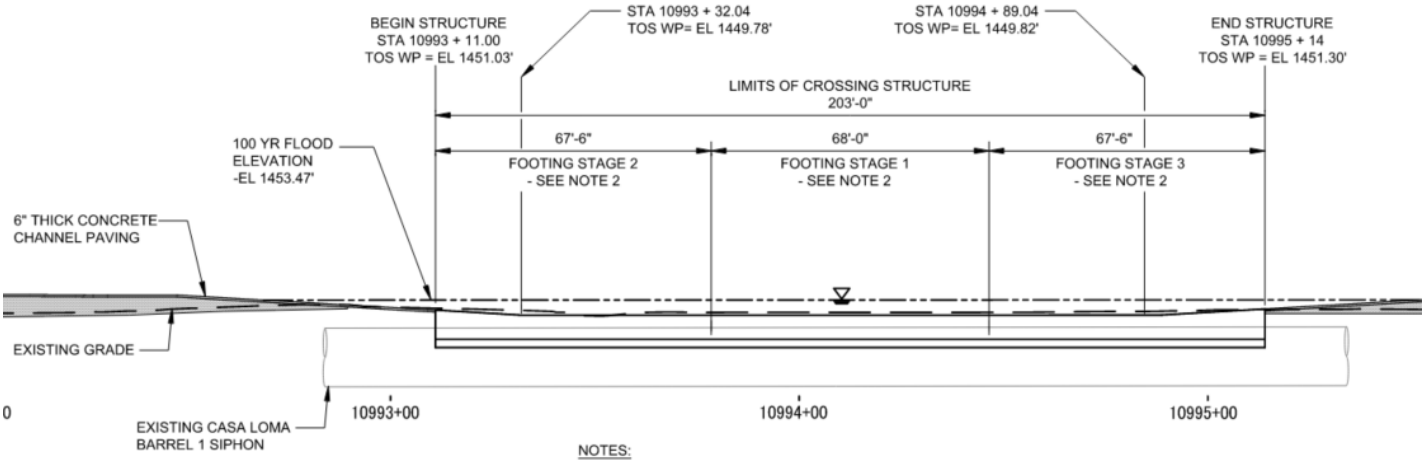
PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

4 Geometry

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Geometry

Originator:JRM
Date: 11/7/2024



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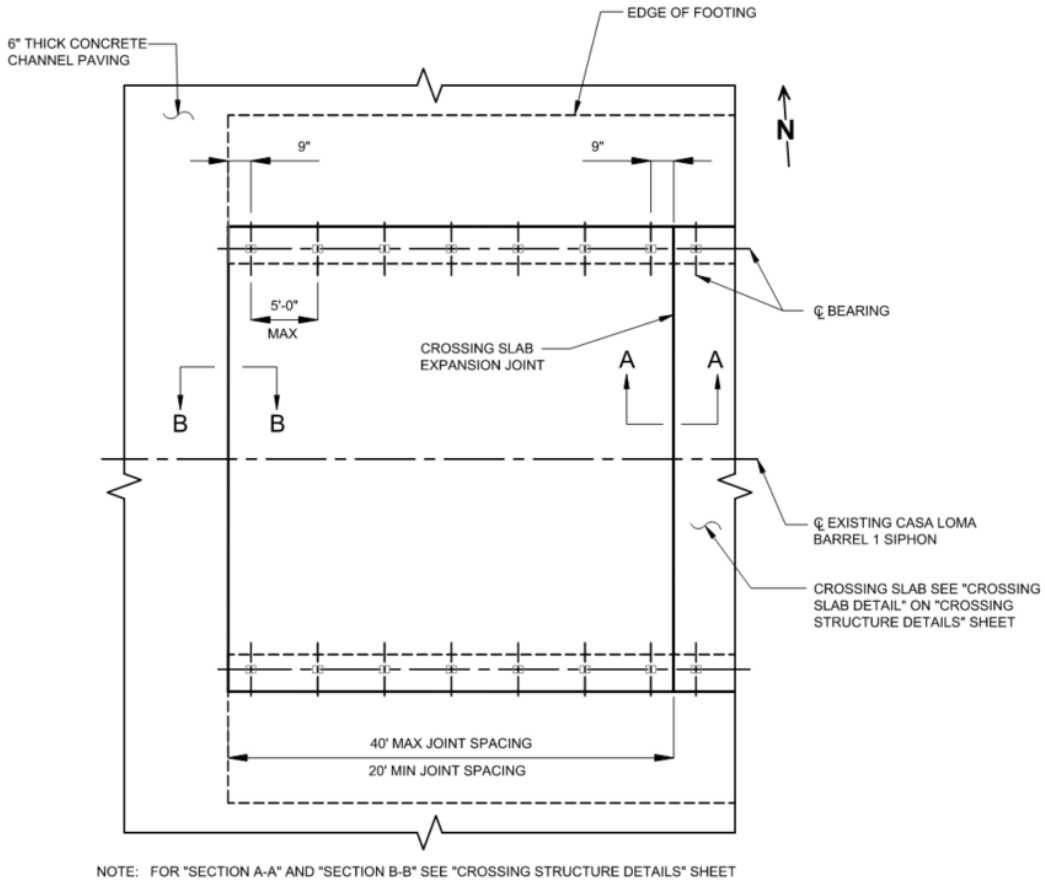


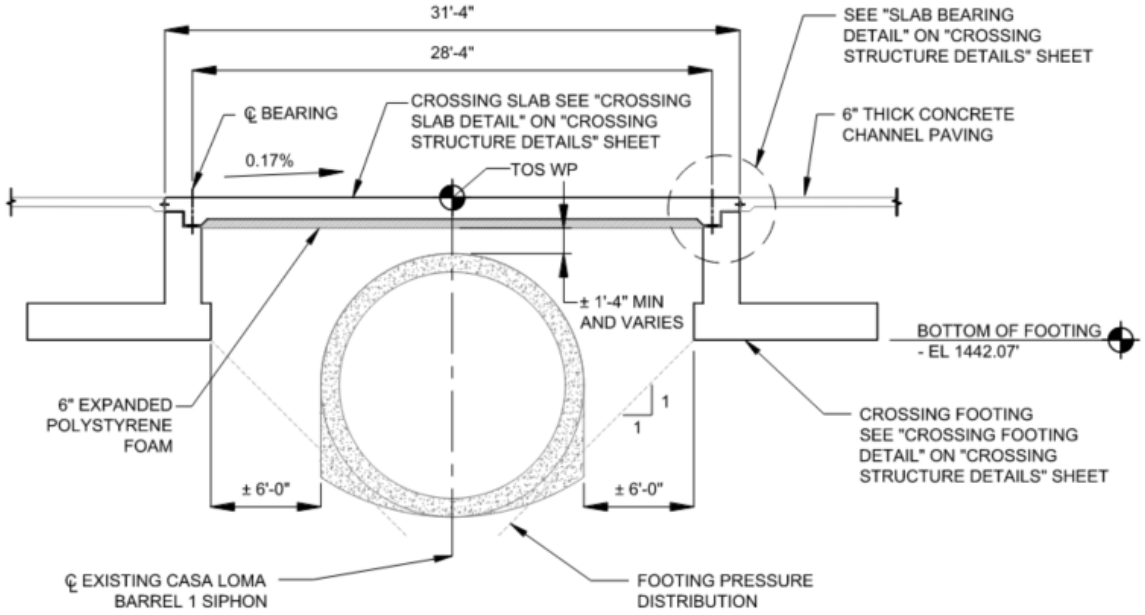
NOTE: FOR "SECTION A-A" AND "SECTION B-B" SEE "CROSSING STRUCTURE DETAILS" SHEET

PARTIAL PLAN VIEW

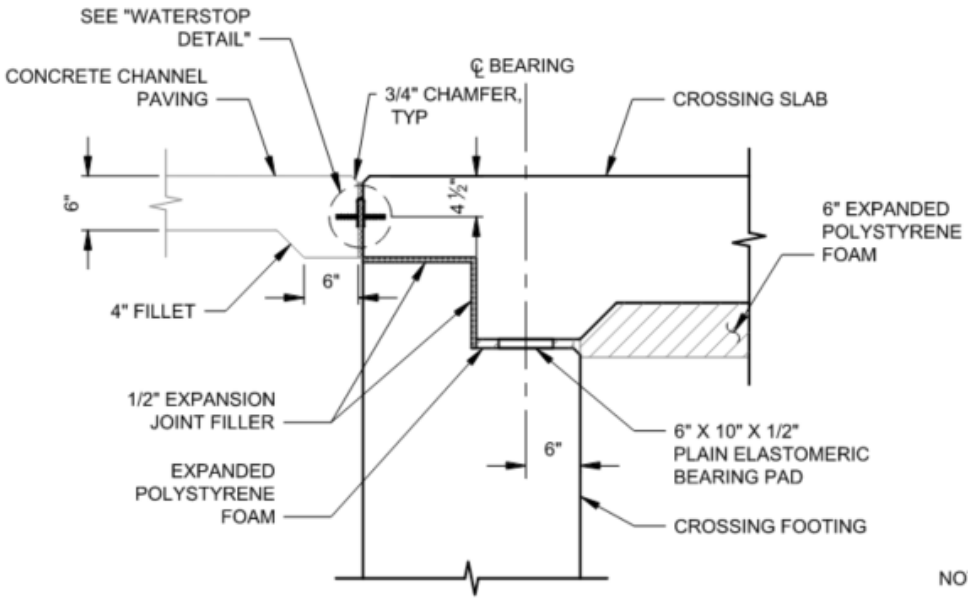
770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Geometry

Originator:JRM
Date: 11/7/2024



TYPICAL SECTION



SLAB BEARING DETAIL

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

5 Superstructure Design

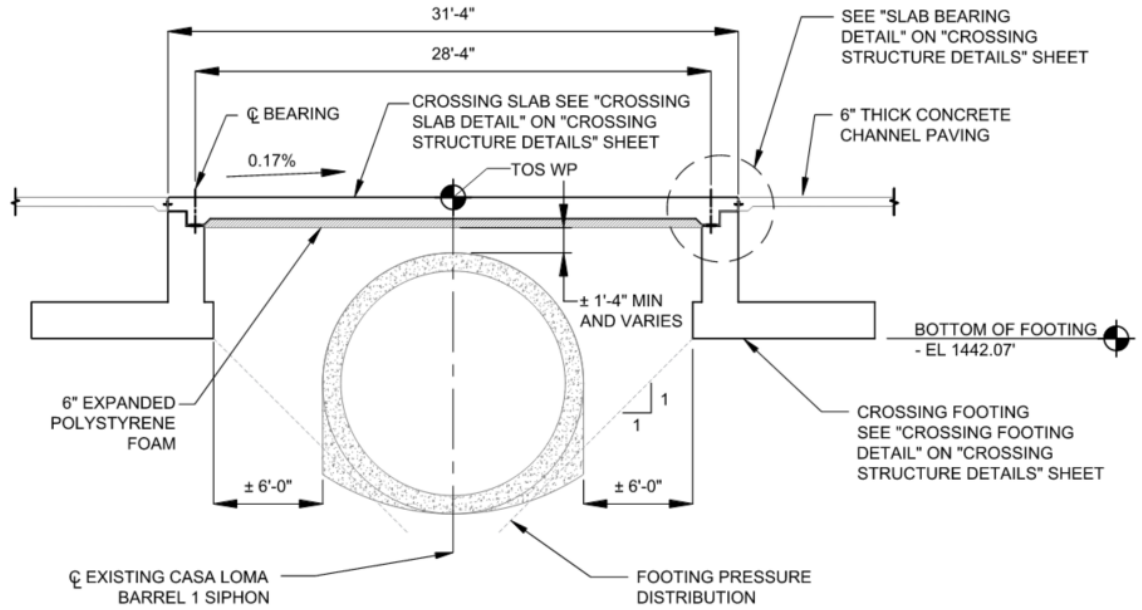
PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

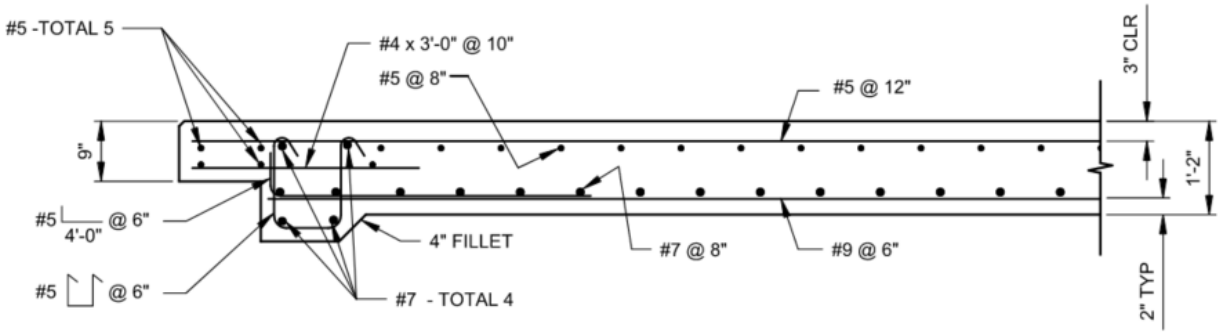
5.1 Typical Sections

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Typical Sections

Originator:JRM
Date: 11/7/2024





CROSSING SLAB DETAIL

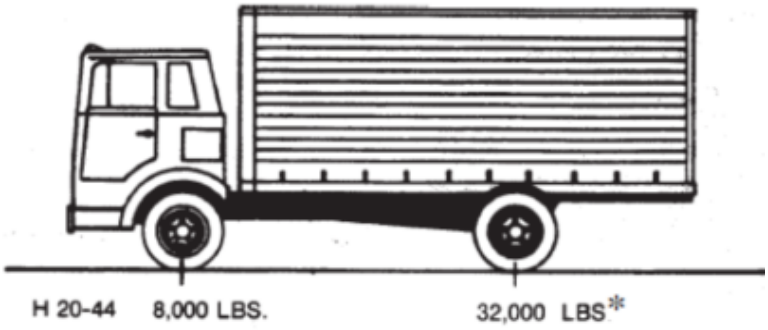
PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

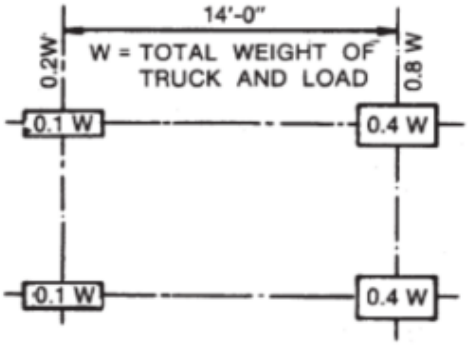
5.2 Superstructure Loads

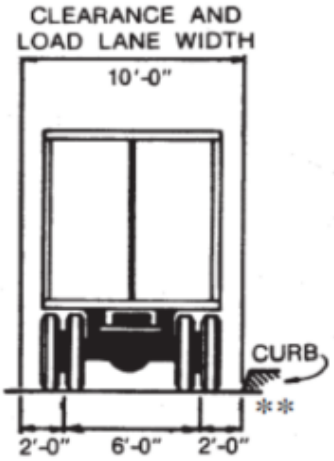
Design Vehicles

H-20 Design Vehicle

Figure 1: AASHTO H-20 Loading

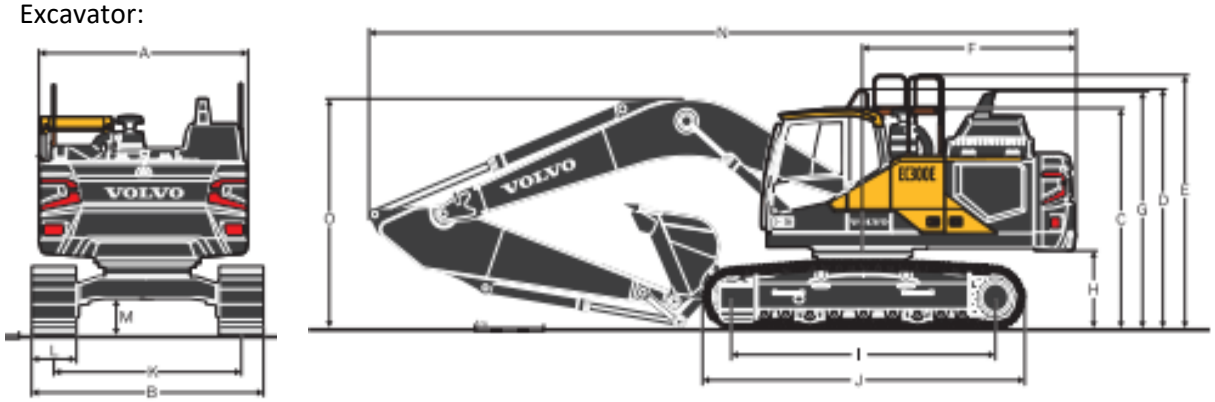






Design Vehicles

Excavator:



Description	Unit		EC300EL												EC300ELR	
Boom	m, ft in		6.2, 20'4"						6.2, 20'4" 2-piece						10.2, 33'6"	
Arm	m	ft in	2.55	8'4"	3.05	10'0"	3.7	12'2"	2.55	8'4"	3.05	10'0"	3.7	12'2"	7.9	25'11"
A. Overall width of upper structure	mm	ft in	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"
B. Overall width	mm	ft in	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"
C. Overall height of cab	mm	ft in	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"
D. Overall height of handrail	mm	ft in	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"
E. Overall height of guardrail (Unfolded)	mm	ft in	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"
E'. Overall height of handrail/ guardrail (Folded)	mm	ft in	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"
F. Tail swing radius	mm	ft in	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,155	10'4"
G. Overall height of diffuser	mm	ft in	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"
H. Counterweight clearance *	mm	ft in	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"
I. Tumbler length	mm	ft in	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"
J. Track length	mm	ft in	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"
K. Track gauge	mm	ft in	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"
L. Shoe width	mm	ft in	600	24"	600	24"	600	24"	600	24"	600	24"	600	24"	600	24"

Specifications

MACHINE WEIGHTS AND GROUND PRESSURE

Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	in	kg	lb	kPa	psi	mm	in
EC300EL			6.2 m (20'4") boom (GP), 3.05 m (10'0") arm (GP), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight						6.2 m (20'4") boom (HD), 3.05 m (10'0") arm (HD), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight					
Triple grouser	600	24	30,640	67,560	59.1	8.6	3,190	10'6"	30,940	68,220	59.7	8.7	3,190	10'6"
	600 (HD)	24	30,860	68,050	59.5	8.6	3,190	10'6"	31,150	68,690	60.1	8.7	3,190	10'6"
	700	28	31,230	68,860	51.6	7.5	3,290	10'10"	31,520	69,500	52.1	7.6	3,290	10'10"
	800	31	31,590	69,660	45.7	6.6	3,390	11'1"	31,880	70,300	46.1	6.7	3,390	11'1"
	900	35	31,950	70,450	41.1	6.0	3,490	11'5"	32,240	71,090	41.5	6.0	3,490	11'5"
Double grouser	700	28	31,420	69,280	52.0	7.5	3,290	10'10"	31,710	69,920	52.4	7.6	3,290	10'10"
			6.2 m (20'4") boom (2-piece), 3.05 m (10'0") arm (GP), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight						6.2 m (20'4") boom (2-piece), 3.05 m (10'0") arm (HD), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight					
Triple grouser	600	24	31,230	68,860	60.3	8.7	3,190	10'6"	31,610	69,700	61.0	8.8	3,190	10'6"
	600 (HD)	24	31,450	69,350	60.7	8.8	3,190	10'6"	31,820	70,160	61.4	8.9	3,190	10'6"
	700	28	31,820	70,160	52.6	7.6	3,290	10'10"	32,190	70,980	53.2	7.7	3,290	10'10"
	800	31	32,180	70,960	46.6	6.7	3,390	11'1"	32,550	71,770	47.1	6.8	3,390	11'1"
	900	35	32,540	71,750	41.9	6.1	3,490	11'5"	32,910	72,570	42.3	6.1	3,490	11'5"
Double grouser	700	28	32,010	70,580	52.9	7.7	3,290	10'10"	32,380	71,400	53.5	7.8	3,290	10'10"
EC300ELR			10.2 m (33'6") boom (LR), 7.9 m (25'11") arm (LR), 478 kg (1,050 lb) / 0.57 m³ (150 gal) bucket, 6,900 kg (15,210 lb) counterweight											
Triple grouser	600	24	31,770	70,050	61.3	8.9	3,190	10'6"						
	600 (HD)	24	31,980	70,520	61.7	8.9	3,290	10'10"						
	800	31	32,710	72,130	47.3	6.9	3,390	11'1"						
	900	35	33,080	72,940	42.5	6.2	3,490	11'5"						

Design Vehicles

Bulldozer:

D6/D6 XE Track-Type Tractors Specifications

Configuration Tables – D6/D6 XE

	Configuration	D6/D6 XE*	
	Operating Weight**	22 000 kg	48,500 lb
	Shipping Weight***	19 060 kg	42,020 lb
	Ground Pressure (ISO 16754)	54 kPa	7.9 psi
	Undercarriage (Standard)	42 Section with 7 Bottom Rollers	
1	Track Gauge	1.930 m	76 in
2	Width of Maximum Track Shoe	0.610 m	24 in
3	Width over Tracks	2.540 m	100 in
	Width over Trunnions	2.692 m	106 in
4	Length of Track on Ground	2.964 m	116.7 in
	Ground Contact Area (ISO 16754)	3.992 m²	6188 in²
	Track Pitch	0.2028 m	7.9 in
	Grouser Height (Moderate Service)	0.065 m	2.6 in
	Ground Clearance	0.361 m	14.2 in
	Oscillation at Front Idler	0.103 m	4.0 in
5	Machine Height****	3.172 m	124.9 in
6	Length of Machine without Blade	4.730 m	186.2 in

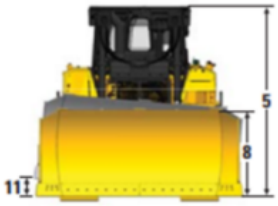
All dimensions above with Heavy Duty undercarriage with Moderate Service shoes of maximum width for configuration, 6 SU blade, and calculated per ISO 16754 unless otherwise specified.

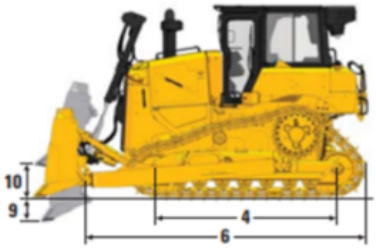
*XE power train adds 0.7 kPA (0.1 psi) and 273 kg (600 lb) to the published ground pressure and weights.

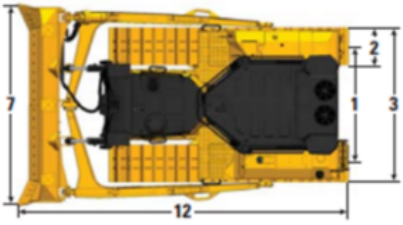
**Operating weight includes blade, lubricants, coolant, full fuel tank, ROPS/FOPS cab, drawbar, and 75 kg (165 lb) operator.

***Shipping weight includes blade lift cylinders, lubricants, coolant, 10% fuel, ROPS/FOPS cab, and drawbar.

****Machine height from tip of grouser to top of Product Link™ Antenna. For sweeps, add 66 mm (2.6 in) to overall machine height. For forestry sweeps, add 122 mm (4.4 in). With Extreme Service Track Shoes add 12 mm (0.5 in). When Cat GRADE with 3D antennas are installed there is no addition to machine height.







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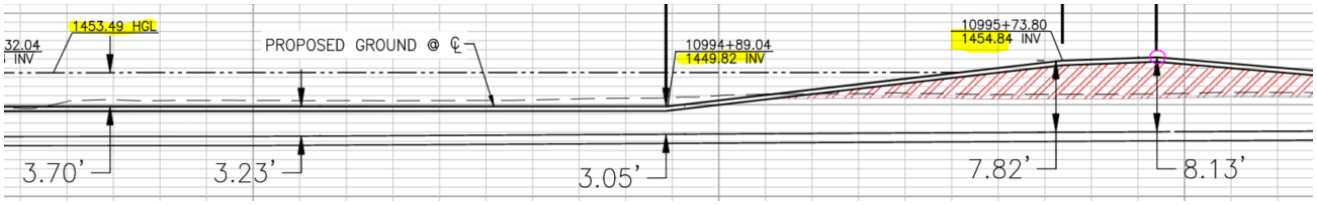
Project: Shea Properties
Project #: 24002328
By: JRM
Date: Nov-24

Water Loading



EL_{HGL}	1453.5 ft	100 yr flood hydraulic grade line	
$EL_{tp,channel}$	1455.2 ft	Elevation at top of the channel berm	
$EL_{btm,channel}$	1449.8 ft	Elevation at bottom of the channel	
$h_{w,ser}$	3.7 ft	EL_{HGL} - $EL_{btm,channel}$	Water level for service level load cases
$h_{w,str}$	5.3 ft	EL_{HGL} - $EL_{tp,channel}$	Water level for strength level load cases

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

5.3 Superstructure Design

Slab Design - H20 - Longitudinal

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)
+Deflection
+Distribution Reinforcement
+Temperature and Shrinkage

Section:

$W := 40\ ft$ — Max expansion joint spacing

$S := 28\ ft + 4\ in = 28.33\ ft$ — Span length

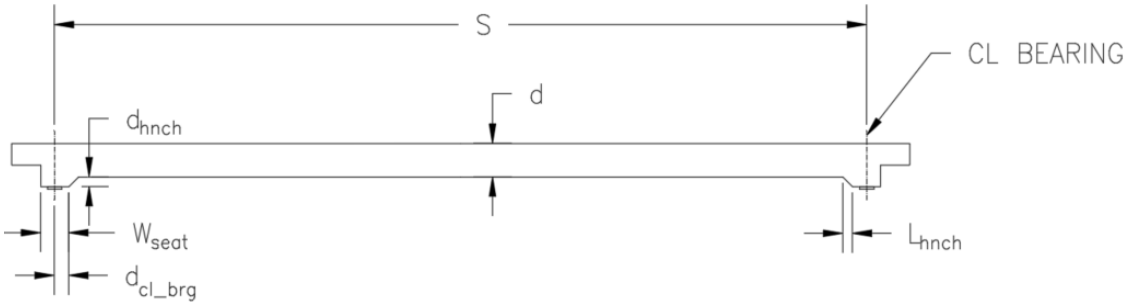
$d_{cl\_brg} := 6\ in$ — Distance to bearing CL

$d := 14\ in$ — Slab depth

$d_{hnch} := 4\ in$ — Haunch depth

$L_{hnch} := d_{hnch} = 0.333\ ft$ — Length haunch

$W_{seat} := 1\ ft$ — Seat width



Equivalent strip width For Box Culverts, AASHTO 4.6.2.10.2:

$$E := 96\ in + 1.44\ \frac{S}{ft} \cdot in = 11.4\ ft$$

$b := E = 11.4\ ft$ — Section width

Material Properties:

$f'_c := 5\ ksi$ — Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ — AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ — Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ — AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

$E_s := 29000\ ksi$ — Steel modulus of elasticity

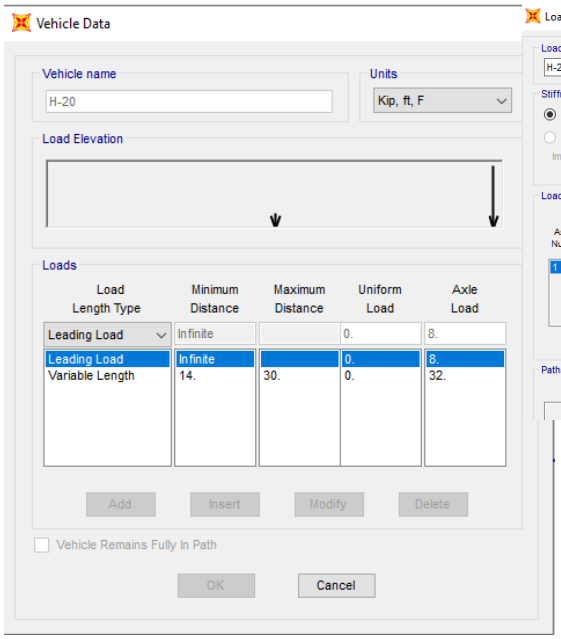
$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

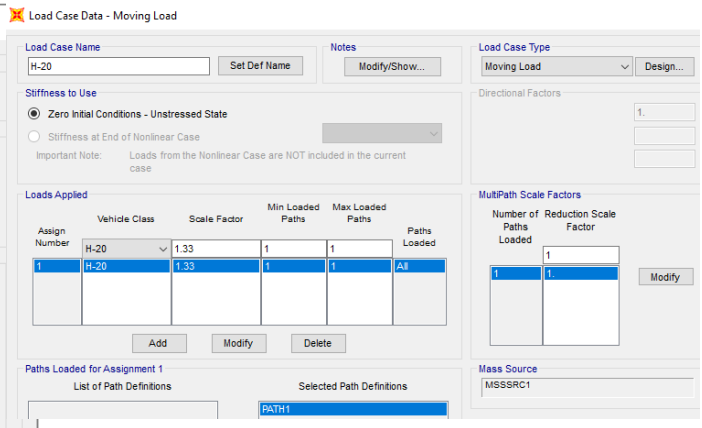
$\gamma_w := 62.4\ pcf$

$\gamma_s := 125\ pcf$

SAP2000 Model







Slab Demands:

+Live Load Demand:

$M_{H20\_IM} := 306\ kip \cdot ft$ Max moment at mid-span of slab

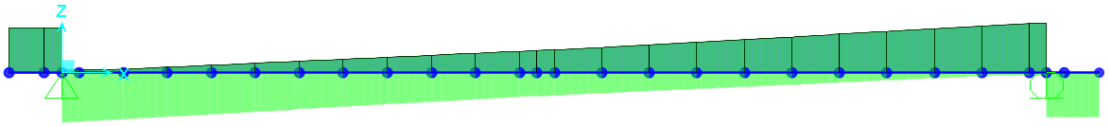
$V_{H20\_IM} := 47.0\ kip$ Max shear

$M_p := 1.0$ Multiple presence factor (1 per design criteria report)

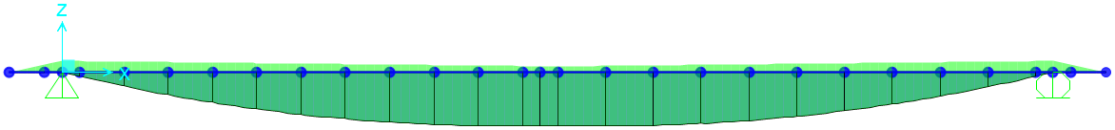
$M_{LL\_IM} := M_p \cdot \max\left(M_{H20\_IM}\right) = 306\ kip \cdot ft$

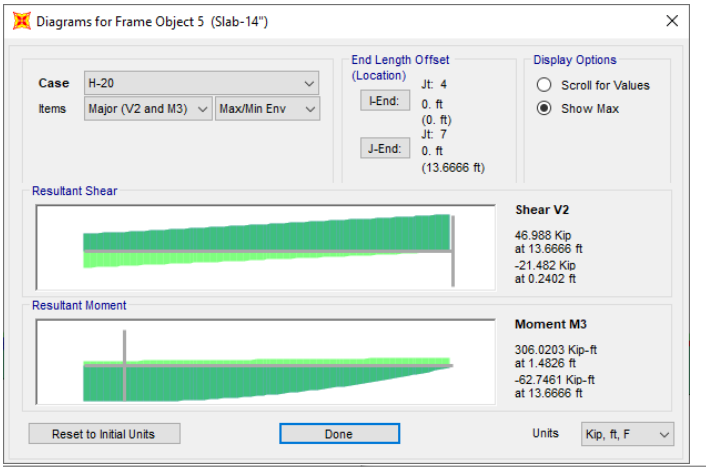
$V_{LL\_IM} := M_p \cdot \max\left(V_{H20\_IM}\right) = 47\ kip$

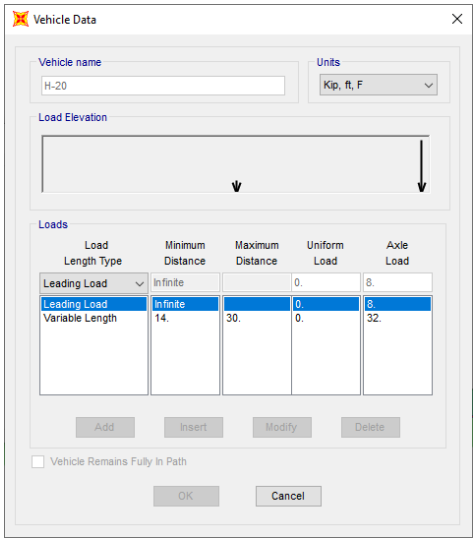
Shear Diagram from SAP2000:

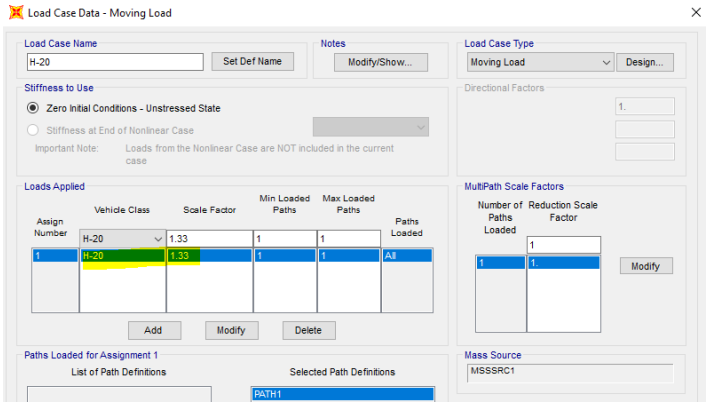


Moment Diagram from SAP2000:









+Dead Load Demand:

$w_{DC} := d \cdot E \cdot \gamma_c = 1.995$ **klf**

$V_{slab} := d \cdot E \cdot \gamma_c \cdot (0.5 \cdot S) = 28.263$ **kip**

$V_{hnch} := 0.5 \ d_{hnch} \cdot E \cdot \gamma_c \cdot L_{hnch} = 0.095$ **kip**

$V_{end} := d_{hnch} \cdot E \cdot \gamma_c \cdot d_{cl\_brg} = 0.285$ **kip**

$V_{DC} := V_{slab} + V_{hnch} + V_{end} = 28.643$ **kip**

$M_{DC} := V_{slab} \cdot \left(\frac{S}{4}\right) + V_{hnch} \cdot \left(\frac{L_{hnch}}{3} + d_{cl\_brg}\right) + V_{end} \cdot \left(\frac{d_{cl\_brg}}{2}\right) = 200.32$ **kip·ft**

+Water Demand:

$h_{w\_ser} := 3.7$ **ft**

$h_{w\_str} := 5.3$ **ft**

$w_{w\_ser} := h_{w\_ser} \cdot E \cdot \gamma_w = 2.632$ **klf**

$w_{w\_str} := h_{w\_str} \cdot E \cdot \gamma_w = 3.77$ **klf**

$M_{WA\_ser} := \frac{w_{w\_ser} \cdot S^2}{8} = 264.117$ **kip·ft**

$M_{WA\_str} := \frac{w_{w\_str} \cdot S^2}{8} = 378.33$ **kip·ft**

$V_{WA\_str} := \frac{w_{w\_str} \cdot S}{2} = 53.411$ **kip**

Load Combinations:

$M_{sA} := M_{LL\_IM} + M_{DC} = 506.3 \ kip \cdot ft$

$M_{sB} := M_{WA\_ser} + M_{DC} = 464.4 \ kip \cdot ft$

$M_{uA} := 1.75 \cdot M_{LL\_IM} + 1.25 \cdot M_{DC} = 785.9 \ kip \cdot ft$

$M_{uB} := 1.0 \cdot M_{WA\_str} + 1.25 \cdot M_{DC} = 628.7 \ kip \cdot ft$

$N_u := 0 \ kip$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 118.1 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 89.2 \ kip$

$M_u := \max\left(M_{uA}, M_{uB}\right) = 785.9 \ kip \cdot ft$

$M_s := \max\left(M_{sA}, M_{sB}\right) = 506.3 \ kip \cdot ft$

$V_u := \max\left(V_{uA}, V_{uB}\right) = 118.1 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#9s @ 6":

$b_{sz} := 9$ — Bar size

$s := 6\ in$ — Bar spacing

$n_b := 1$ — Bars per bundle

$A_s := E \cdot \frac{n_b\ A_{bar}\left(b_{sz}\right)}{s} = 22.8\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 2\ in$ — Cover on longitudinal reinforcement

$d_s := d - \left(d_{c1} + 0.5\ d_{ba}\left(b_{sz}\right)\right) = 11.375\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := \left(d_s - c\right)\ \frac{0.003}{c} = 0.0086$

$f_{s1} := min\left(f_y, E_s \cdot \varepsilon_t\right) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$

$\varepsilon_t := \left(d_s - c\right)\ \frac{0.003}{c} = 0.009$

$f_{s2} := min\left(f_y, E_s \cdot \varepsilon_t\right) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 2.35\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 1163\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.751$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.167\ ft \quad b = 11.4\ ft \quad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 4469\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 240\ kip \cdot ft$

$M_u = 785.9\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 240\ kip \cdot ft$

$\phi_f \cdot M_n = 1046\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.229$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7) - Negative Flexure:

$s_1 := s = 6\ in$ Spacing of flexure steel

$M_s = 506.322\ kip \cdot ft$
$d_s = 11.375\ in$
$b = 136.8\ in$
$n = 7$
$d_c := d - d_s = 2.625\ in$
$h := d = 1.167\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.33$$

$\gamma_e := 0.75$ Assume Exposure Class 2, corrosion potential

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$$a_o := \frac{-b}{2}$$
$b_o := -n \cdot A_s$ $A_s = 22.8\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 4.116\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 11590\ in^4$$

$$f_{ss} := \mathrm{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 26.64\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 9.571\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.627$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 118.053$ *kip* Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60$ *ksi* $A_s = 22.8$ *in*^{2} $d_s = 11.375$ *in*

$d_{v1} := 0.72 \cdot (d) = 10.08$ *in*

$d_{v2} := 0.9 \cdot (d_s) = 10.24$ *in*

$d_v := \max(d_{v1}, d_{v2}) = 10.24$ *in*

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5$ *ksi*
$b_v := b = 136.8$ *in*

$\theta := 45$ *deg*

$\beta := 2.0$

$V_s := 0$ *kip* AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 198$ *kip* AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 1576$ *kip*

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 178$ *kip*

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 178.1$ *kip*

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.663$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

The span is simply supported, the longitudinal reinforcement equation at the end is modified according to 5.7.3.5-2

Shear/Torsion Component:

$V_u = 118.053$ ***kip*** $V_s = 0$ ***kip*** $V_p := 0$ ***kip***

$$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 0 \text{ } \textbf{\textit{kip}}$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 131 \text{ } \textbf{\textit{kip}}$$

Capacity Check:

$A_s = 22.8$ ***in***^{2} $f_y = 60$ ***ksi***

$$C := A_s \cdot f_y = 1368 \text{ } \textbf{\textit{kip}}$$

$\frac{D_V}{C} = 0.096$ <1, OK

+Deflections:

Effective Moment of Inertia AASHTO LRFD 5.6.3.5.2

$I_g := \frac{b \cdot d^3}{12} = (3.128 \cdot 10^4)\ in^4$

$y_t := 0.5 \cdot d = 7\ in$

$f_r = 536.656\ psi$

$M_{cr} := f_r \cdot \frac{I_g}{y_t} = 199.851\ kip \cdot ft$

$\frac{I_{eff}}{I_g} = 0.37$

$M_a := M_s = 506.322\ kip \cdot ft$

$I_{cr} := I_{eff} = 11589.551\ in^4$

$I_e := min\left(\left(\frac{M_{cr}}{M_a}\right) \cdot I_g + \left(1 - \left(\frac{M_{cr}}{M_a}\right)\right) I_{cr}, I_g\right) = (1.936 \cdot 10^4)\ in^4$

$I_{mod} := \frac{I_e}{I_g} = 0.619$

$b'_{sz} := 5$

$s' := 12\ in$

$A'_s := E \cdot \frac{A_{bar}(b'_{sz})}{s'} = 3.53\ in^2$

$\delta_{DL} := 0.367\ in$ Instantaneous dead load deflections based on effective section properties

$\delta_{LL} := 0.462\ in$ Live load deflections based on effective section properties H-20

$\delta_{WA\_ser} := 0.484\ in$ Water load deflections based on effective section properties

$n_{mag} := \max\left(3 - 1.2\left(\frac{A'_s}{A_s}\right), 1.6\right) = 2.814$

$\delta_{Total\_LT} := \max(\delta_{LL} + n_{mag} \cdot \delta_{DL}, \delta_{WA\_ser} + n_{mag} \cdot \delta_{DL}) = 1.517\ in$

$\delta_{settle\_Net} := 1\ in$ Settlement after placement of foundation and backfill

$\delta_{Total} := \delta_{Total\_LT} + \delta_{settle\_Net} = 2.517\ in$ <6 in, OK

Distribution Reinforcement (AASHTO 2017, 9.7.3.2):

Primary reinforcement is perpendicular to traffic:

$$P_{dist} := min\left(\frac{220}{100\sqrt{S \cdot ft^{-1}}}, 67\%\right) = 41.33\%$$

$$A_{dist\_req} := P_{dist} \cdot \frac{(A_s)}{E} = 0.827\ \frac{in^2}{ft}$$

Use #7 @ 9"

$$A_{bar\_dist} := A_{bar}(7) = 0.6\ in^2$$

$$s_{dist} := 8\ in$$

$$A_{dist} := \frac{A_{bar\_dist}}{s_{dist}} = 0.9\ \frac{in^2}{ft}$$

$$DCR_{dist} := \frac{A_{dist\_req}}{A_{dist}} = 0.918$$ <1, OK

Temperature and Shrinkage (AASHTO LRFD 2017, 5.10.6):

By inspection the #5@12 T&S in the 12" slab over the 14" fuel line will control, check this case.

$d_{cl\_brg} = 0.5\ ft$

$L_{slb} := S + 2 \cdot \left(2\ ft - d_{cl\_brg}\right) = 31.333\ ft$

$b_0 := min\left(W, L_{slb}\right) \cdot in^{-1} = 376$ Slab width (inches)

$h_0 := d \cdot in^{-1} = 14$ Slab thickness (inches)

$f_{y0} := 60$

$$A_{s\_min} := \left(\frac{1.3 \cdot b_0 \cdot h_0}{2 \cdot \left(b_0 + h_0\right) \cdot f_{y0}}\right) \frac{in^2}{ft} = 0.146\ \frac{in^2}{ft}$$

Transverse reinforcement (#5s @ 12" spacing)

$b_{sz} := 5$

$A_{s\_0} := A_{bar}\left(b_{sz}\right) = 0.31\ in^2$

$s_0 := 12\ in$

$$A_{s0} := \frac{A_{s\_0}}{s_0} = 0.31\ \frac{in^2}{ft}$$

$\frac{A_{s\_min}}{A_{s0}} = 0.472$ <1, OK

Slab Design - H20 - Transverse

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)
+Deflection

Section:

$S := 28\ ft + 4\ in = 28.33\ ft$ Span length

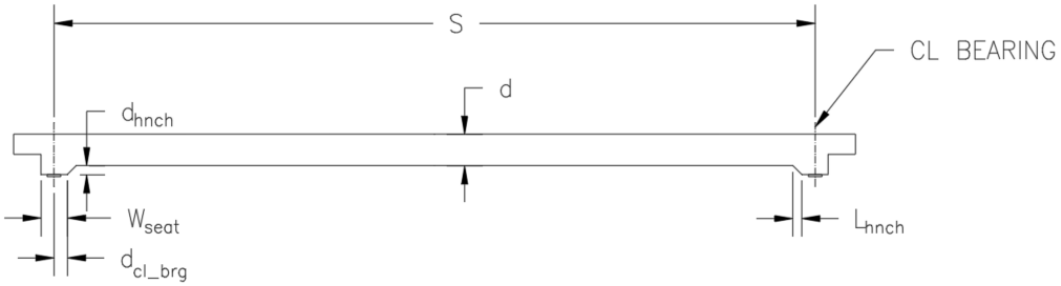
$d_{cl\_brg} := 6\ in$ Distance to bearing CL

$d := 14\ in$ Slab depth

$d_{hnch} := 4\ in$ Haunch depth

$L_{hnch} := d_{hnch} = 4\ in$ Length haunch

$W_{seat} := 1\ ft$ Seat width



Equivalent strip width, per AASHTO Article 4.6.2.10.3, when traffic travels perpendicular to the span the provisions of Article 4.6.2.1 should be used. due to its length it is assumed he slab will be placed in sections creating joints perpendicular to the direction of traffic. To account for this only half the effective width is used per 4.6.2.1.4c.

$$E_p := 0.5 \left(26\ in + 6.6 \frac{S}{ft} \cdot in\right) = 8.875\ ft$$

$b := E_p = 8.875\ ft$ Section width

Material Properties:

$f'_c := 5\ ksi$ — Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ — AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ — Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ — AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

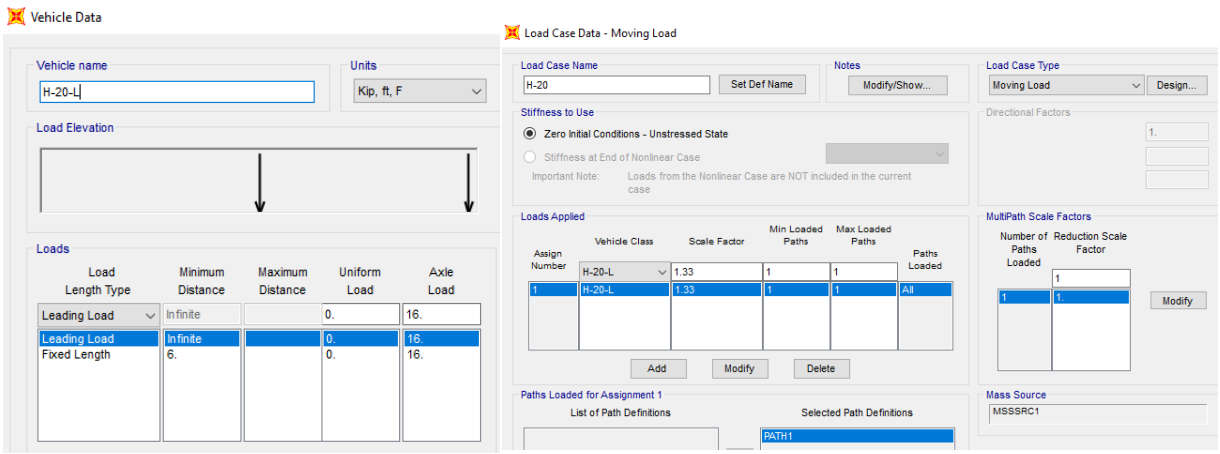
$E_s := 29000\ ksi$ — Steel modulus of elasticity

$\gamma_w := 62.4\ pcf$

$\gamma_s := 125\ pcf$

SAP2000 Model





Demands Positive Reinforcement:

+Live Load Demand:

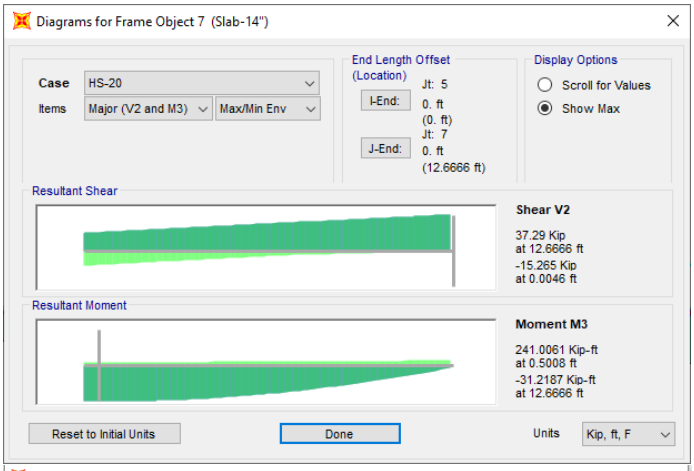
$M_{H20\_IM} := 241\ kip \cdot ft$ Max moment at mid-span of slab

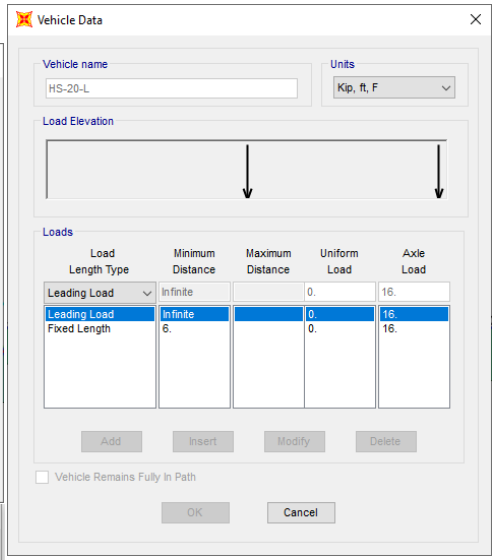
$V_{H20\_IM} := 37.3\ kip$ Max shear

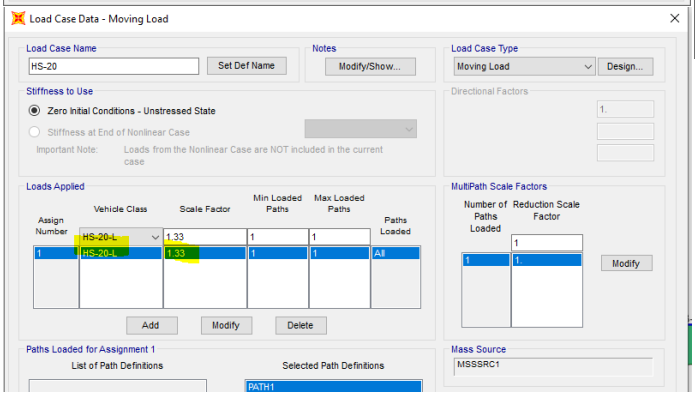
$M_p := 1.0$ Multiple presence factor (1 per design criteria report)

$M_{LL\_IM} := M_p \cdot \max\left(M_{H20\_IM}\right) = 241\ kip \cdot ft$

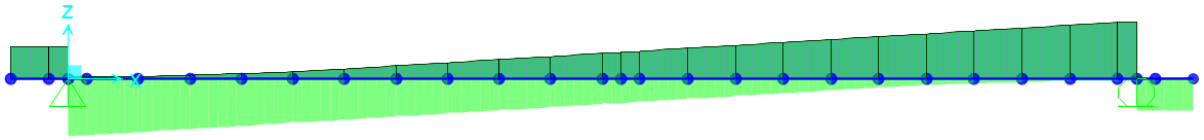
$V_{LL\_IM} := M_p \cdot \max\left(V_{H20\_IM}\right) = 37.3\ kip$



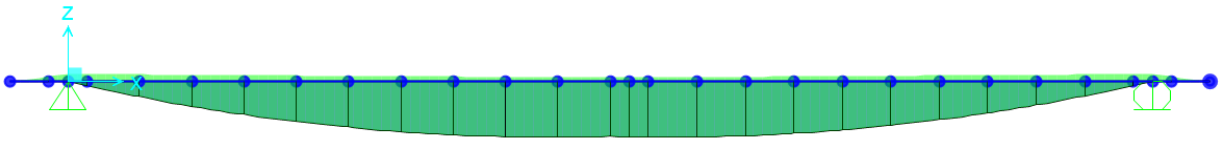




Shear Diagram from SAP2000:



Moment Diagram from SAP2000:



+Dead Load Demand:

$w_{DC} := d \cdot E_p \cdot \gamma_c = 1.553$ **klf**

$V_{slab} := d \cdot E_p \cdot \gamma_c \cdot (0.5 \cdot S) = 22.003$ **kip**

$V_{hnch} := 0.5 \ d_{hnch} \cdot E_p \cdot \gamma_c \cdot L_{hnch} = 0.074$ **kip**

$V_{end} := d_{hnch} \cdot E_p \cdot \gamma_c \cdot d_{cl\_brg} = 0.222$ **kip**

$V_{DC} := V_{slab} + V_{hnch} + V_{end} = 22.298$ **kip**

$M_{DC} := V_{slab} \cdot \left(\frac{S}{4}\right) + V_{hnch} \cdot \left(\frac{L_{hnch}}{3} + d_{cl\_brg}\right) + V_{end} \cdot \left(\frac{d_{cl\_brg}}{2}\right) = 155.952$ **kip·ft**

+Water Demand:

$h_{w\_ser} := 3.7$ **ft**

$h_{w\_str} := 5.3$ **ft**

$w_{w\_ser} := h_{w\_ser} \cdot E_p \cdot \gamma_w = 2.049$ **klf**

$w_{w\_str} := h_{w\_str} \cdot E_p \cdot \gamma_w = 2.935$ **klf**

$M_{WA\_ser} := \frac{w_{w\_ser} \cdot S^2}{8} = 205.617$ **kip·ft**

$M_{WA\_str} := \frac{w_{w\_str} \cdot S^2}{8} = 294.533$ **kip·ft**

$V_{WA\_str} := \frac{w_{w\_str} \cdot S}{2} = 41.581$ **kip**

Load Combinations:

$M_{sA} := M_{LL\_IM} + M_{DC} = 397 \ kip \cdot ft$

$M_{sB} := M_{WA\_ser} + M_{DC} = 361.6 \ kip \cdot ft$

$M_{uA} := 1.75 \cdot M_{LL\_IM} + 1.25 \cdot M_{DC} = 616.7 \ kip \cdot ft$

$M_{uB} := 1.0 \cdot M_{WA\_str} + 1.25 \cdot M_{DC} = 489.5 \ kip \cdot ft$

$N_u := 0 \ kip$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 93.1 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 69.5 \ kip$

$M_u := \max\left(M_{uA}, M_{uB}\right) = 616.691 \ kip \cdot ft$

$M_s := \max\left(M_{sA}, M_{sB}\right) = 396.952 \ kip \cdot ft$

$V_{u\_max} := \max\left(V_{uA}, V_{uB}\right) = 93.148 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
9s @ 6":

$b_{sz} := 9$ — Bar size

$s := 6\ in$ — Bar spacing

$n_b := 1$ — Bars per bundle

$A_s := E_p \cdot \frac{n_b\ A_{bar}(b_{sz})}{s} = 17.75\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 2\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 11.375\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.0086$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 2.35\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 905\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.757$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.167\ ft \quad b = 8.875\ ft \quad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.75)

$S_c := \frac{d^2 \cdot b}{6} = 3479\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 187\ kip \cdot ft$

$M_u = 616.7\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 187\ kip \cdot ft$

$\phi_f \cdot M_n = 815\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.229$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7) - Negative Flexure:

$s_1 := s = 6\ in$ Spacing of flexure steel

$M_s = 396.952\ kip \cdot ft$

$d_s = 11.375\ in$

$b = 106.5\ in$

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

$n = 7$

$d_c := d - d_s = 2.625\ in$

$h := d = 1.167\ ft$

$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.33$

$\gamma_e := 1.0$ Assume Exposure Class 2, corrosion potential

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$

$b_o := -n \cdot A_s$

$c_o := n \cdot \left(A_s \cdot d_s\right)$

$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 4.116\ in$

$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 9023\ in^4$

$f_{ss} := \text{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 26.828\ ksi$ Stress in flexure steel at service loading

$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 14.373\ in$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.417$ <1, OK

Maximum Shear:

Demands at Section:

$V_{u\_max} = 93.148\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 17.75\ in^2$ $d_s = 11.375\ in$

$d_{v1} := 0.72 \cdot (d) = 10.08\ in$

$d_{v2} := 0.9 \cdot (d_s) = 10.24\ in$

$d_v := \max(d_{v1}, d_{v2}) = 10.24\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5\ ksi$
$b_v := b = 106.5\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 154\ kip$ AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 1227\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 139\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 138.7\ kip$

$DCR := \frac{\text{abs}(V_{u\_max})}{\phi V_n} = 0.672$ <1, OK

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

The span is simply supported, the longitudinal reinforcement equation at the end is modified according to 5.7.3.5-2

Shear/Torsion Component:

$V_{u\_max} = 93.148\ kip \quad V_s = 0\ kip \qquad V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}\left(V_{u\_max}\right)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_{u\_max}}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 103\ kip$$

Capacity Check:

$A_s = 17.75\ in^2 \qquad f_y = 60\ ksi$

$C := A_s \cdot f_y = 1065\ kip$

$\frac{D_V}{C} = 0.097$ <1, OK

+Deflections:

Effective Moment of Inertia AASHTO LRFD 5.6.3.5.2

$I_g := \frac{b \cdot d^3}{12} = (2.435 \cdot 10^4)\ in^4$

$y_t := 0.5 \cdot d = 7\ in$

$f_r = 536.656\ psi$

$M_{cr} := f_r \cdot \frac{I_g}{y_t} = 155.586\ kip \cdot ft$

$\frac{I_{eff}}{I_g} = 0.37$

$M_a := M_s = 396.952\ kip \cdot ft$

$I_{cr} := I_{eff} = 9022.567\ in^4$

$I_e := min\left(\left(\frac{M_{cr}}{M_a}\right) \cdot I_g + \left(1 - \left(\frac{M_{cr}}{M_a}\right)\right) I_{cr}, I_g\right) = (1.503 \cdot 10^4)\ in^4$

$I_{mod} := \frac{I_e}{I_g} = 0.617$

$b'_{sz} := 5$

$s' := 12\ in$

$A'_s := E_p \cdot \frac{A_{bar}(b'_{sz})}{s'} = 2.75\ in^2$

$\delta_{DL} := 0.367\ in$ Instantaneous dead load deflections based on effective section properties

$\delta_{LL} := 0.540\ in$ Live load deflections based on effective section properties

$\delta_{WA\_ser} := 0.484\ in$ Water load deflections based on effective section properties

$n_{mag} := \max\left(3 - 1.2\left(\frac{A'_s}{A_s}\right), 1.6\right) = 2.814$

$\delta_{Total\_LT} := \max(\delta_{LL} + n_{mag} \cdot \delta_{DL}, \delta_{WA\_ser} + n_{mag} \cdot \delta_{DL}) = 1.573\ in$

$\delta_{settle\_Net} := 1\ in$ Settlement after placement of foundation and backfill

$\delta_{Total} := \delta_{Total\_LT} + \delta_{settle\_Net} = 2.573\ in$ <6 in, OK

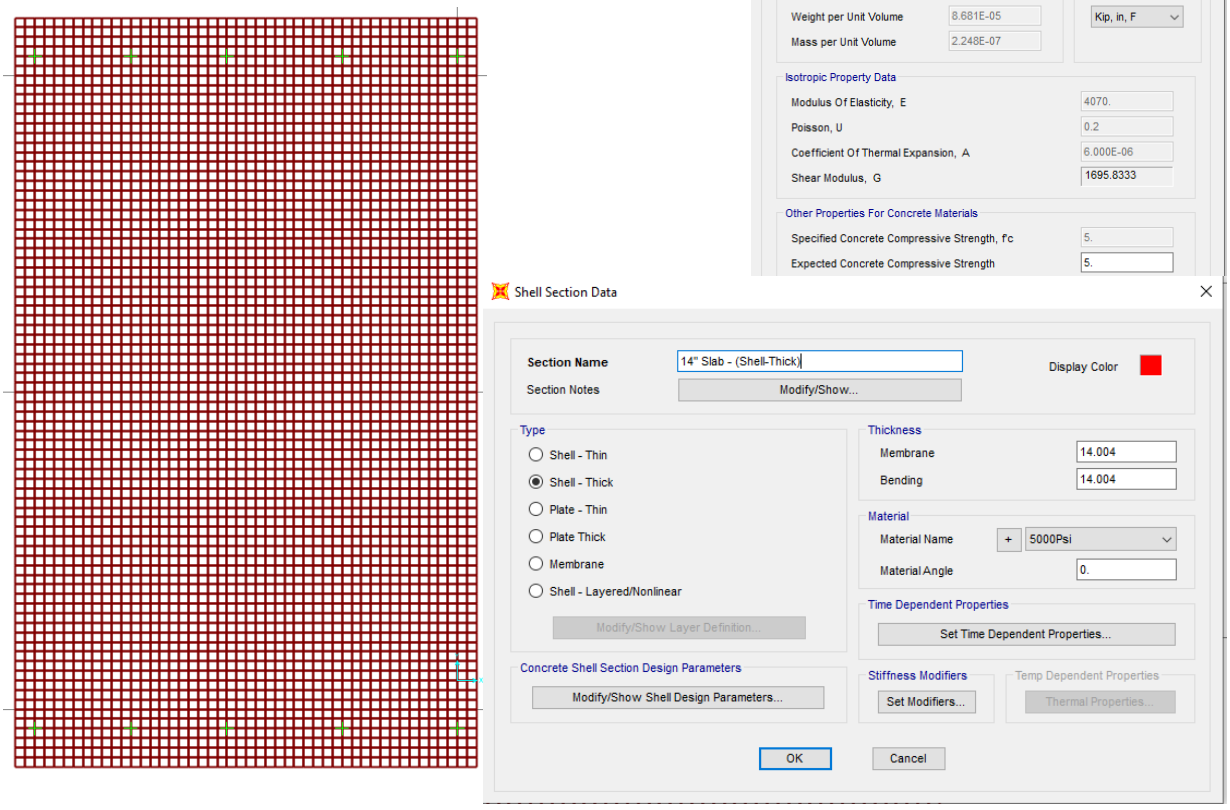
Slab Design - Excavator and Bulldozer

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Analysis:

The excavator and bulldozer vehicles that will be used to service this channel have a axle widths and patch loadings inconsistent with the standard AASHTO design vehicles. Because of this the equivalent strip width methodolgy used elsewhere in these calculations is not appropriate. To analyze the force effects of these vehicles an shell model is created in SAP2000. This model uses thick shell elements with a 5" mesh size. The slab is supported by pins at the center of the bearings. Area loads are applied on the slab over the area of the track. The excavator and bulldozer are placed longitudinally and tranversely on the slab as shown on the following sheets.



Section:

$S := 28\ ft + 4\ in = 28.33\ ft$ Span length

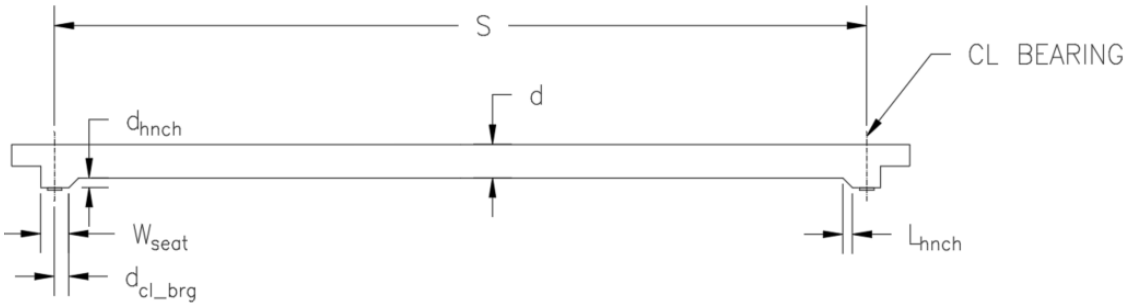
$d_{cl\_brg} := 6\ in$ Distance to bearing CL

$d := 14\ in$ Slab depth

$d_{hnch} := 4\ in$ Haunch depth

$L_{hnch} := d_{hnch} = 4\ in$ Length haunch

$W_{seat} := 1\ ft$ Seat width



$E := 1\ ft$ Design strip width

$b := E = 1\ ft$ Section width

Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

$\gamma_w := 62.4\ pcf$

$\gamma_s := 125\ pcf$

Vehicle Pressures:

Excavator Track Pressures:

$P_{ex} := 72.94\ kip$

$W_{trac} := 24\ in$

$L_{trac\_ex} := 158\ in$

$$p_{ex} := \frac{P_{ex}}{2\ W_{trac} \cdot L_{trac\_ex}} = 1.385\ ksf$$

Bulldozer Track Pressures:

$P_{bd} := 48.5\ kip$

$W_{trac} = 24\ in$

$L_{trac\_bd} := 116.7\ in$

$$p_{bd} := \frac{P_{bd}}{2\ W_{trac} \cdot L_{trac\_bd}} = 1.247\ ksf$$

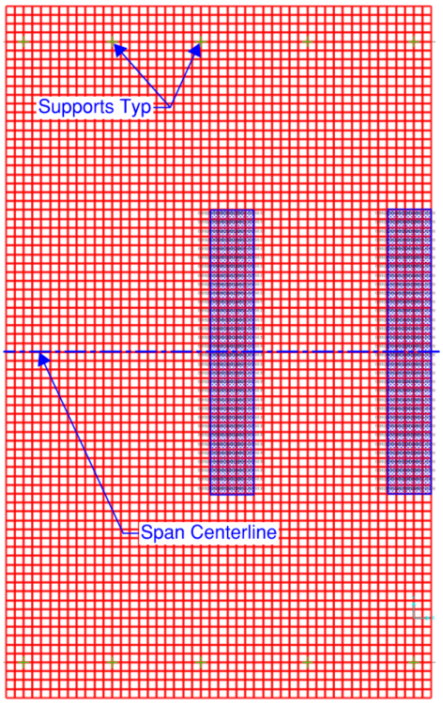
Maximum Moment - Excavator Patch Loads:

Calculate the distance from the centerline of bearing to the centerline of track producing the maximum moment for the transverse loading scenerio.

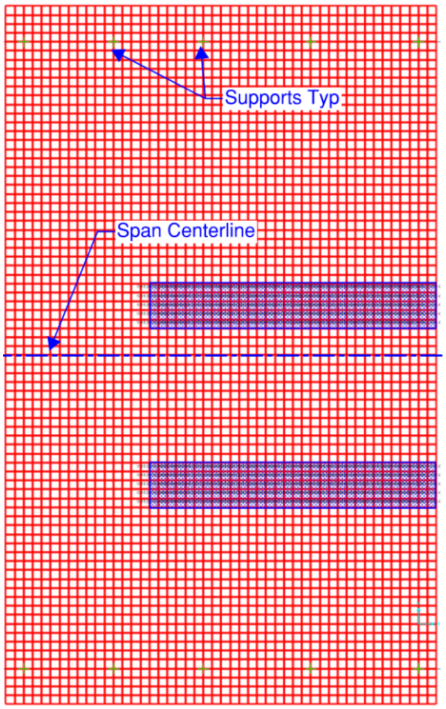
$S = 28.333\ ft$

$d_{axle\_ex} := 8.5\ ft$

$d_{track1} := \frac{d_{axle\_ex} - 2 \cdot S}{-4} = 12.042\ ft$



Excavator - Longitudinal



Excavator - Transverse

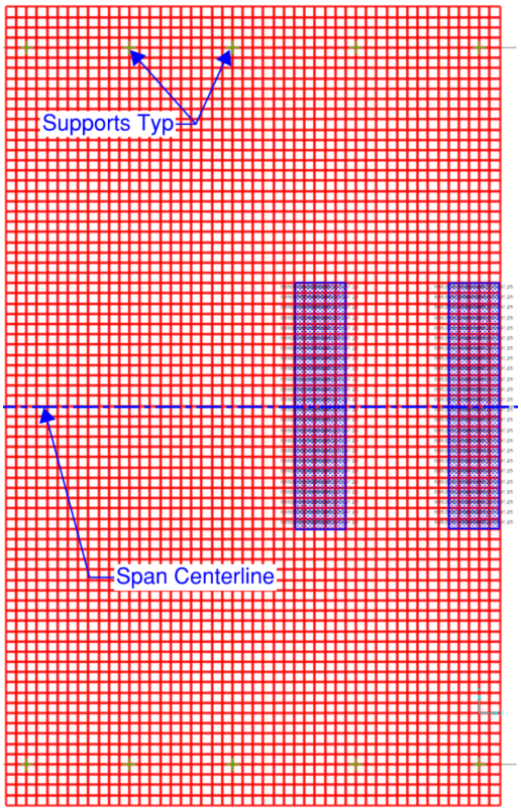
Maximum Moment - Bulldozer Patch Loads:

Calculate the distance from the centerline of bearing to the centerline of track producing the maximum moment for the transverse loading scenerio.

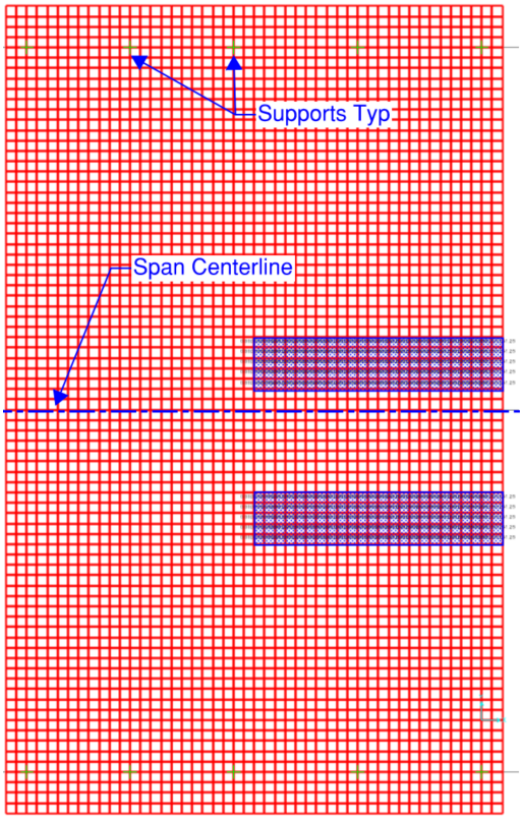
$S = 28.333\ ft$

$d_{axle\_bd} := 6.33\ ft$

$$d_{track1\_bd} := \frac{d_{axle\_bd} - 2 \cdot S}{-4} = 12.584\ ft$$

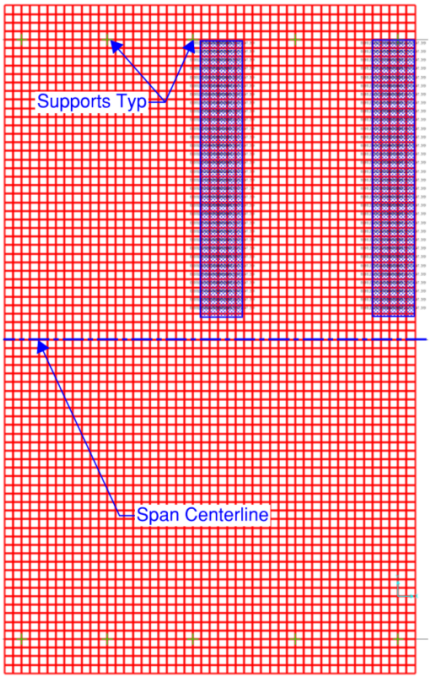


Bulldozer - Longitudinal

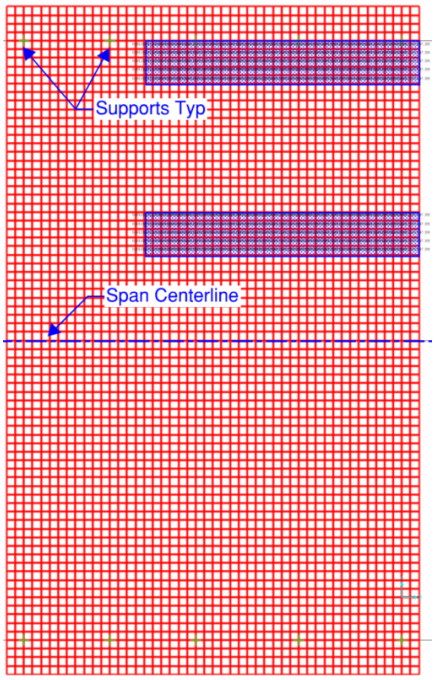


Bulldozer - Transverse
First Track ~12'-6" from CL Bearing

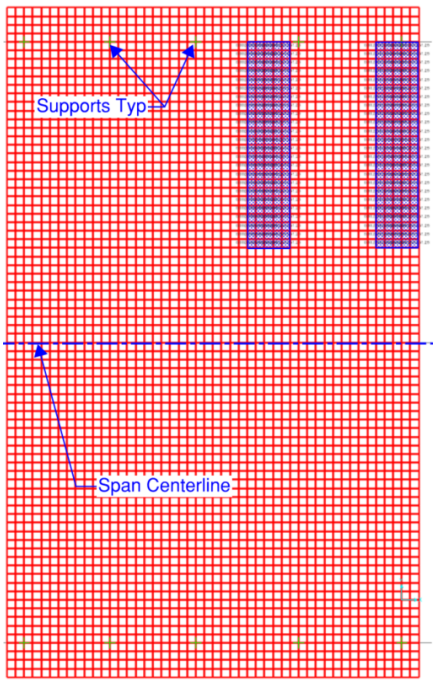
Maximum Shear - Excavator and Bulldozer Patch Loads:



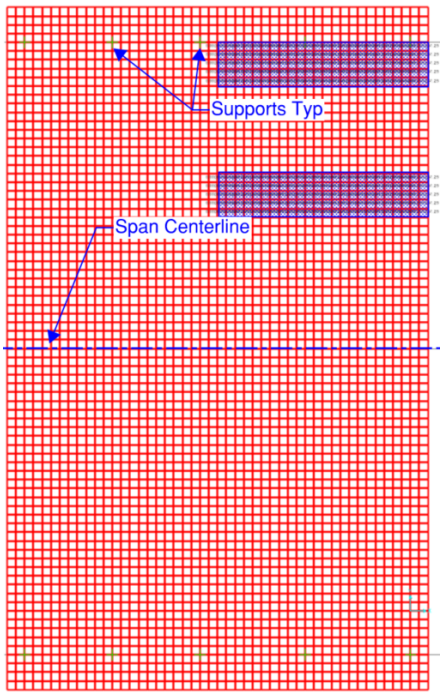
Excavator - Longitudinal - Max Shear



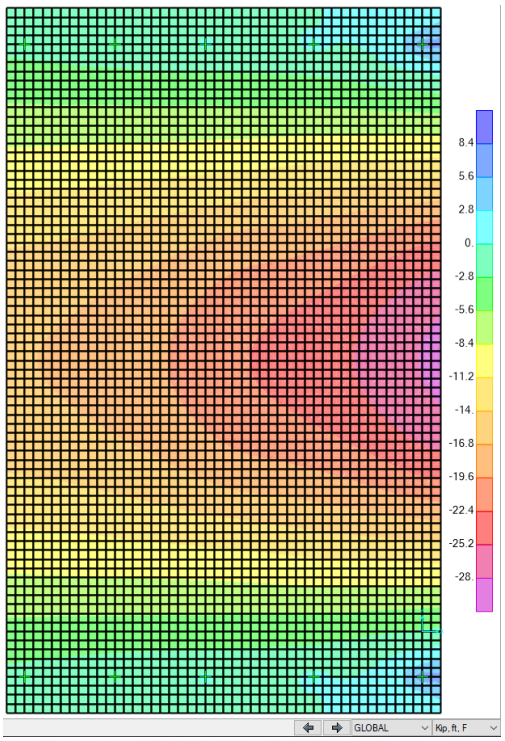
Excavator - Transverse - Max Shear



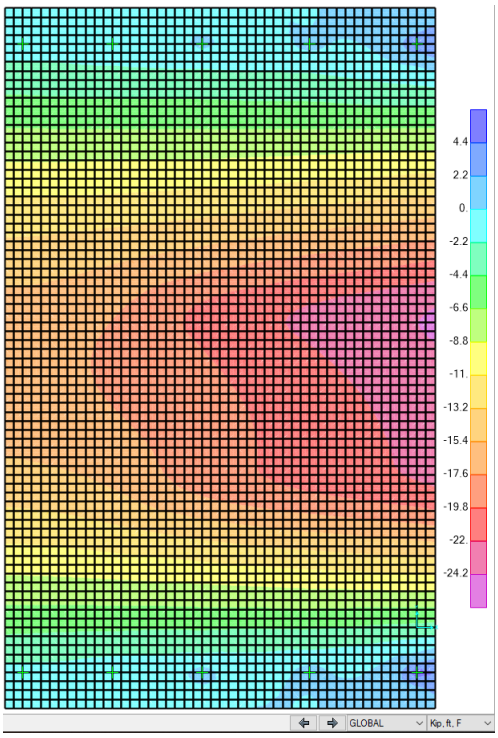
Bulldozer - Longitudinal - Max Shear



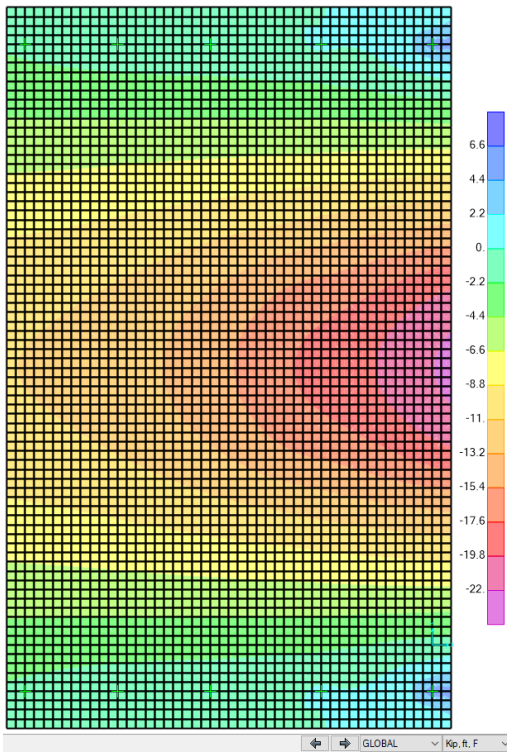
Bulldozer - Transverse - Max Shear



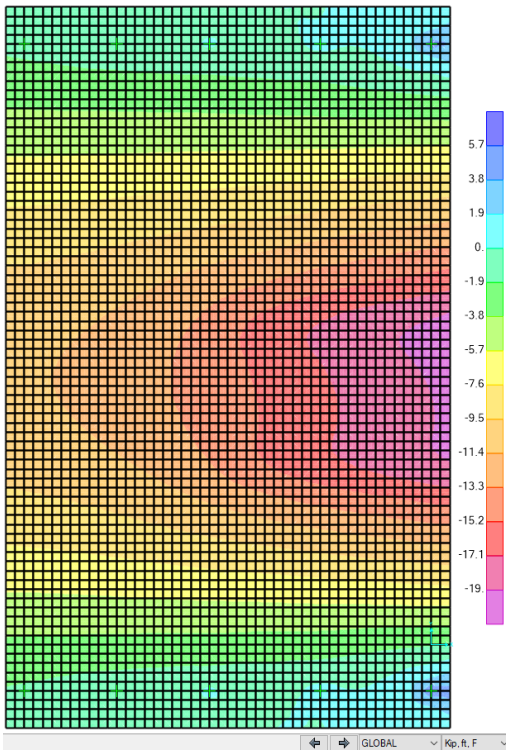
Excavator - Longitudinal - Moment



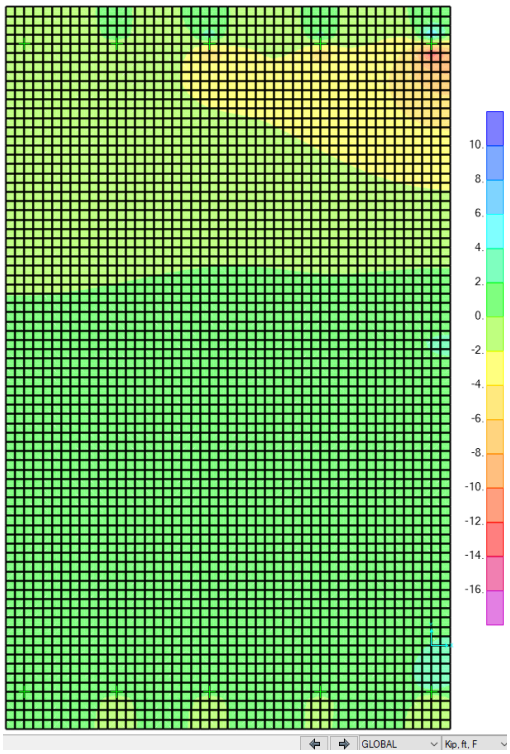
Excavator - Transverse - Moment



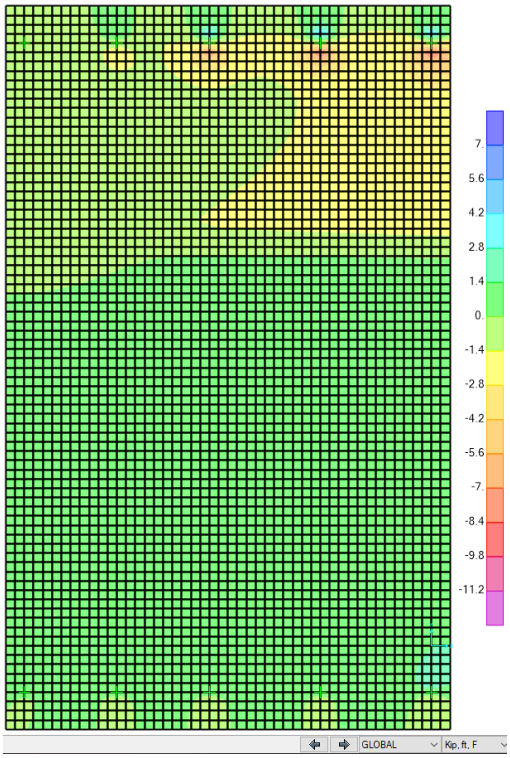
Bulldozer - Longitudinal - Moment



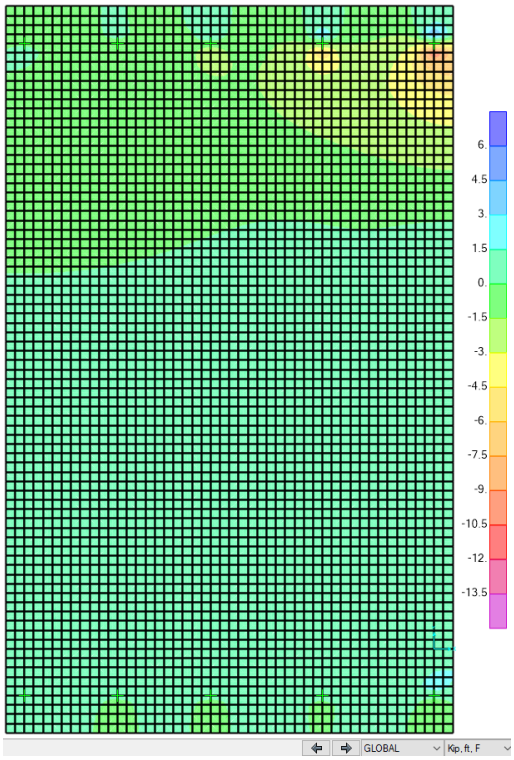
Bulldozer - Transverse - Moment



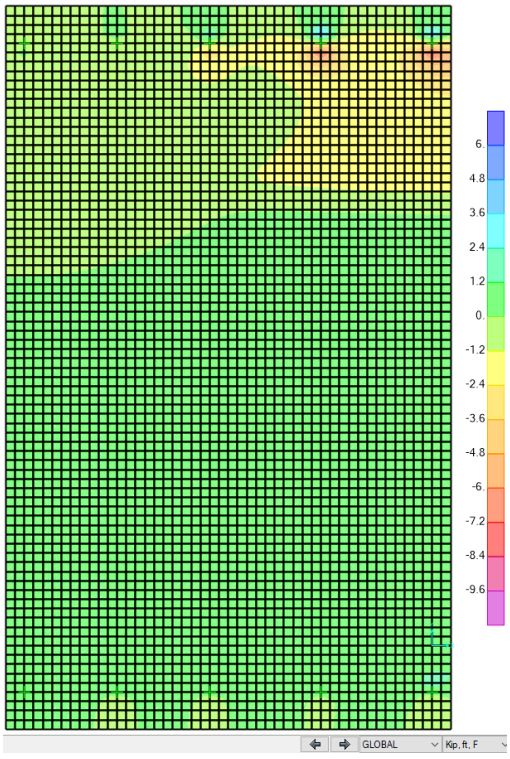
Excavator - Longitudinal - Shear



Excavator - Transverse - Shear



Bulldozer - Longitudinal - Shear



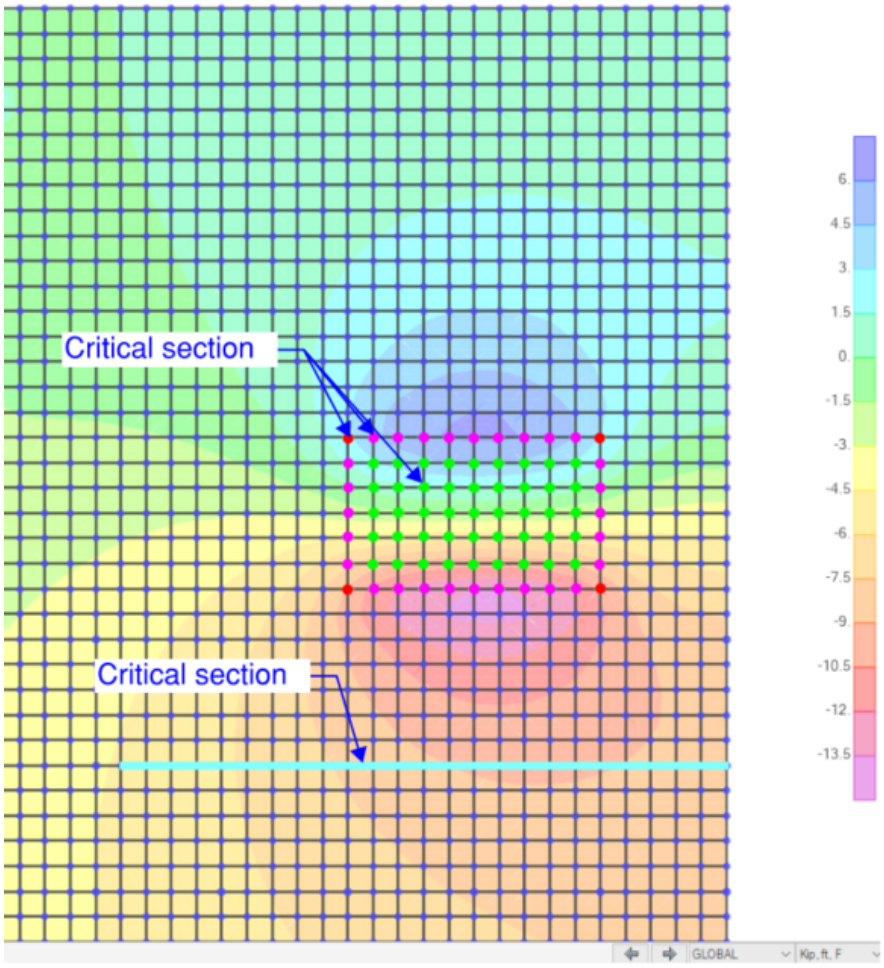
Bulldozer - Transverse - Shear

A shear stress concentration was observed near the bearings in all three shear load cases with the maximum magnitude shown in the longitudinal excavator load case.

To determine a clearer demand a model was refined with 1"x1" mesh in the vicinity of the bearing and with the bearing modelled by a number of springs with a realistic total stiffness based on the bearing design. The stress concentration is located within the end diaphragm so demand is taken at the edge of fillet 10" from the CL of bearing.

Spring Stiffness

$\varepsilon_{brg} := 6.95\%$	Bearing compressive strain (see bearing design)
$\sigma_{brg} := 703\ psi$	Bearing compressive stress (see bearing design)
$E_{brg} := \frac{\sigma_{brg}}{\varepsilon_{brg}} = 10115\ psi$	Effective bearing elastic modulus
$w_{brg} := 6\ in$	Bearing width
$l_{brg} := 10\ in$	Bearing length
$t_{brg} := 0.5\ in$	Bearing thickness
$A_{brg} := w_{brg} \cdot l_{brg} = 60\ in^2$	Bearing area
$k_{brg} := \frac{E_{brg} \cdot A_{brg}}{t_{brg}} = 14566\ \frac{kip}{ft}$	Total bearing stiffness
$A_{trb\_spr1} := 1\ in^2$	Tributary area of spring 1 type (green)
$A_{trb\_spr2} := 0.5\ in^2$	Tributary area of spring 2 type (magenta)
$A_{trb\_spr3} := 0.25\ in^2$	Tributary area of spring 3 type (red)
$k_{spr1} := k_{brg} \cdot \frac{A_{trb\_spr1}}{A_{brg}} = 242.8\ \frac{kip}{ft}$	Stiffness of spring 1 type (green)
$k_{spr2} := k_{brg} \cdot \frac{A_{trb\_spr2}}{A_{brg}} = 121.4\ \frac{kip}{ft}$	Stiffness of spring 3 type (magenta)
$k_{spr3} := k_{brg} \cdot \frac{A_{trb\_spr3}}{A_{brg}} = 60.7\ \frac{kip}{ft}$	Stiffness of spring 3 type (red)



Shear near edge bearing in refined model, Load case: Excavator Longitudinal Max Shear

Demands:

$IM := 1.33$

Excavator Moment Demand:

$M_{ex\_L} := 28.9\ kip \cdot ft$

$M_{ex\_T} := 24.7\ kip \cdot ft$

Bulldozer Moment Demand:

$M_{bd\_L} := 22.6\ kip \cdot ft$

$M_{bd\_T} := 20.0\ kip \cdot ft$

Average shear along the width of the track (By inspection longitudinal Excavator load case controls):

$$V_{ex\_L} := \frac{4.8 \cdot kip + 2 \cdot (6.2\ kip + 7.4\ kip + 9.1\ kip + 9.1\ kip) + 9.1\ kip}{10} = 7.75\ kip$$

Base the maximum shear on the

$C_{MPF} := 1.0$

$M_{LL\_IM} := C_{MPF} \cdot IM \cdot \max(M_{ex\_L}, M_{ex\_T}, M_{bd\_L}, M_{bd\_T}) = 38.44\ kip \cdot ft$

$V_{LL\_IM} := C_{MPF} \cdot IM \cdot V_{ex\_L} = 10.31\ kip$

+Dead Load Demand:

$w_{DC} := d \cdot E \cdot \gamma_c = 0.175$ ***klf***

$V_{slab} := d \cdot E \cdot \gamma_c \cdot (0.5 \cdot S) = 2.479$ ***kip***

$V_{hnch} := 0.5 \; d_{hnch} \cdot E \cdot \gamma_c \cdot L_{hnch} = 0.008$ ***kip***

$V_{end} := d_{hnch} \cdot E \cdot \gamma_c \cdot d_{cl\_brg} = 0.025$ ***kip***

$V_{DC} := V_{slab} + V_{hnch} + V_{end} = 2.513$ ***kip***

$M_{DC} := V_{slab} \cdot \left(\frac{S}{4}\right) + V_{hnch} \cdot \left(\frac{L_{hnch}}{3} + d_{cl\_brg}\right) + V_{end} \cdot \left(\frac{d_{cl\_brg}}{2}\right) = 17.572$ ***kip·ft***

+Water Demand:

$h_{w\_ser} := 4.5$ ***ft***

$h_{w\_str} := 5.75$ ***ft***

$w_{w\_ser} := h_{w\_ser} \cdot E \cdot \gamma_w = 0.281$ ***klf***

$w_{w\_str} := h_{w\_str} \cdot E \cdot \gamma_w = 0.359$ ***klf***

$M_{WA\_ser} := \frac{w_{w\_ser} \cdot S^2}{8} = 28.178$ ***kip·ft***

$M_{WA\_str} := \frac{w_{w\_str} \cdot S^2}{8} = 36.005$ ***kip·ft***

$V_{WA\_str} := \frac{w_{w\_str} \cdot S}{2} = 5.083$ ***kip***

Load Combinations:

$M_{sA} := M_{LL\_IM} + M_{DC} = 56 \ kip \cdot ft$

$M_{sB} := M_{WA\_ser} + M_{DC} = 45.7 \ kip \cdot ft$

$M_{uA} := 1.75 \cdot M_{LL\_IM} + 1.25 \cdot M_{DC} = 89.2 \ kip \cdot ft$

$M_{uB} := 1.0 \cdot M_{WA\_str} + 1.25 \cdot M_{DC} = 58 \ kip \cdot ft$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 21.2 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 8.2 \ kip$

$N_u := 0 \ kip$

$M_s := \max\left(M_{sA}, M_{sB}\right) = 56.009 \ kip \cdot ft$

$M_u := \max\left(M_{uA}, M_{uB}\right) = 89.23 \ kip \cdot ft$

$V_u := \max\left(V_{uA}, V_{uB}\right) = 21.179 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
9s @ 6":

$b_{sz} := 9$ — Bar size

$n_b := 1$ — Number of bars per bundle

$s := 6\ in$

$A_s := \frac{n_b\ A_{bar}(b_{sz})}{s} \cdot b = 2\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_c := 2\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_c + 0.5\ d_{ba}(b_{sz})) = 11.375\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 2.35\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{\langle f_y - 60\ ksi \rangle}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{\langle f_y - 75\ ksi \rangle}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ \langle \varepsilon_t - \varepsilon_{cl} \rangle}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 102\ kip \cdot ft$$

$$\phi_f \cdot M_n = 91.79\ kip \cdot ft$$

$$M_u = 89.23\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}\langle M_u \rangle}{\phi_f \cdot M_n} = 0.972$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.167\ ft \quad b = 1\ ft \qquad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.80$ Yield:Ultimate Ratio (A706, Gr.80)

$S_c := \frac{d^2 \cdot b}{6} = 392\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 22\ kip \cdot ft$

$M_u = 89.2\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 22\ kip \cdot ft$

$\phi_f \cdot M_n = 92\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.244$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7) - Negative Flexure:

$s_1 := 6 \cdot in$ Spacing of flexure steel

$M_s = 56.009\ kip \cdot ft$
$d_s = 11.375\ in$

$b = 12\ in$
$n = 7$
$d_c := d - d_s = 2.625\ in$
$h := d = 1.167\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ \left(h - d_c\right)} = 1.33$$

$\gamma_e := 1$ Assume Exposure Class 1, low visibility

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$
$b_o := -n \cdot A_s$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 4.116\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 1017\ in^4$$

$$f_{ss} := \mathrm{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 33.595\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 10.42\ in$$

$$DC_{CrC} := \frac{s_1}{s_{max}} = 0.576$$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 21.179\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

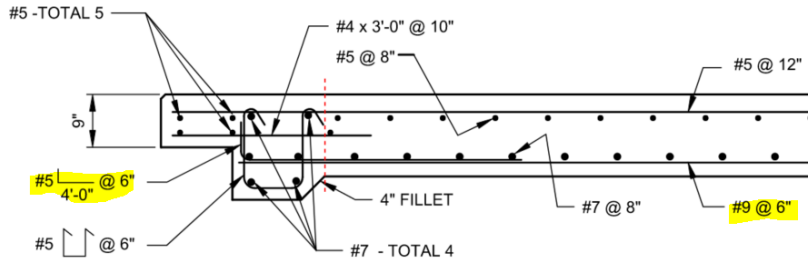
$f_y = 60\ ksi$ $A_s = 2\ in^2$ $d_s = 11.375\ in$

$d_{v1} := 0.72 \cdot (d) = 10.08\ in$

$d_{v2} := 0.9 \cdot (d_s) = 10.24\ in$

$d_v := \max(d_{v1}, d_{v2}) = 10.24\ in$

Effective Longitudinal Steel:



$s_{l\_v} := 5\ in$

$A_{l\_v} := A_{bar}(5) = 0.31\ in^2$ Hooked number #5 bars

$l_{av} := 13.5\ in$ Available Development Length

$l_{dl\_9} := 2.55\ ft$ #9 Development Length

$$A_{s\_Veff} := \left(\frac{A_{l\_v}}{s_{l\_v}} + \frac{A_s}{s} \cdot \left(\frac{l_{av}}{l_{dl\_9}}\right)\right) \cdot b = 2.509\ in^2$$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5\ ksi$

$b_v := b = 12\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$a_g := 1\ in$

Table B5.2-2—Values of θ and β for Sections with Less than Minimum Transverse Reinforcement

s_{xe}, in.	$\varepsilon_x \times 1{,}000$								
	≤–0.20	≤–0.10	≤–0.05	≤0	≤0.125	≤0.25	≤0.50	≤0.75	≤1.00
≤5	25.4 6.36	25.5 6.06	25.9 5.56	26.4 5.15	27.7 4.41	28.9 3.91	30.9 3.26	32.4 2.86	33.7 2.58
≤10	27.6 5.78	27.6 5.78	28.3 5.38	29.3 4.89	31.6 4.05	33.5 3.52	36.3 2.88	38.4 2.50	40.1 2.23

Assumed max aggregate size

$$s_{xe} := d_v \cdot \frac{1.38\ in}{a_g + 0.63\ in} = 8.667\ in$$

$M_{u\_v} := V_u \cdot d_v = 18.068\ kip \cdot ft$

$$\frac{\frac{M_{u\_v}}{d_v} + 0.5 \cdot V_u \cdot \cot(\theta)}{E_s \cdot A_{s\_Veff}} \cdot 1000 = 0.437$$

$\theta := 36.3\ deg$

$$\frac{\frac{M_{u\_v}}{d_v} + 0.5 \cdot V_u \cdot \cot(\theta)}{E_s \cdot A_{s\_Veff}} \cdot 1000 = 0.489$$

$\beta := 2.88$

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 25\ kip$ AASHTO 2017, (5.7.3.3-3)

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 138\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 22\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 22.5\ kip$

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.941$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

The span is simply supported, the longitudinal reinforcement equation at the end is modified according to 5.7.3.5-2

Shear/Torsion Component:

$V_u = 21.179\ kip$ $V_s = 0\ kip$ $V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 32\ kip$$

Capacity Check:

$A_{s\_Veff} = 2.509\ in^2$ $f_y = 60\ ksi$

$C := A_{s\_Veff} \cdot f_y = 151\ kip$

$\frac{D_V}{C} = 0.213$ <1, OK

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Project: San Dieguito DT
Project #: 5600400.003A
By: JRM
Date: Nov-24

Reinforcing Development (AASHTO 2017, 5.10.8.2.1a)

Bar Location: #9 Main Bars

Bar Size	#9		
A_{bar}	1	in^2	Area of Bar
d_b	1.13	in	Diameter of Bar
N_{bundle}	1		Number of Bars in Bundle
A_{total}	1	in^2	Total Bundle Area
$d_{b,eq}$	1.13	in	Equivalent Diameter
f_y	60	ksi	Rebar Yield Stress
f'_c	5	ksi	Concrete Ultimate Stress
l_{db} (ft)	**6.05**	ft	Basic Development Length
λ	**1.0**		Concrete Density Factor (5.4.2.8)
λ_{rl}	**1.0**		Reinforcement Location factor
λ_{cf}	**1.0**		Coating Factor
λ_{rc}	**0.40**		Confinement Factor
l_d	**2.42**	ft	Modified Development Length
c_b	4.56	in	<- Note this is the average cover withing the fillet
k_{tr}	0.00		Transverse Reinforcement Index (0 is conservative)

$$l_{db} = \frac{2.4 * d_b * f_y}{\sqrt{f'_c}}$$

$$\lambda_{rc} = \frac{d_b}{c_b + k_{tr}}$$

$$l_d = l_{db} * \frac{\lambda_{rl} * \lambda_{cf} * \lambda_{rc}}{\lambda}$$

$$k_{tr} = \frac{40 * A_{tr}}{s * n}$$

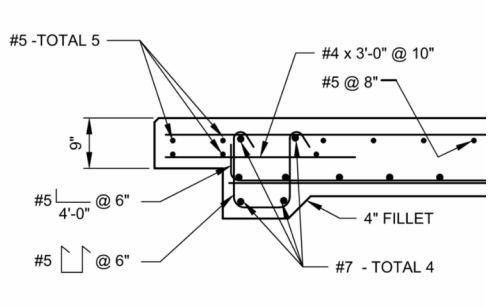
PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

5.4 Diaphragms

End Diaphragm Check

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)



Section:

$d := 18\ in$ Slab depth

$b := 11.5\ in$ Section width

$s_{brg} := 5\ ft$ Max bearing spacing

Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

$\gamma_w := 62.4\ pcf$

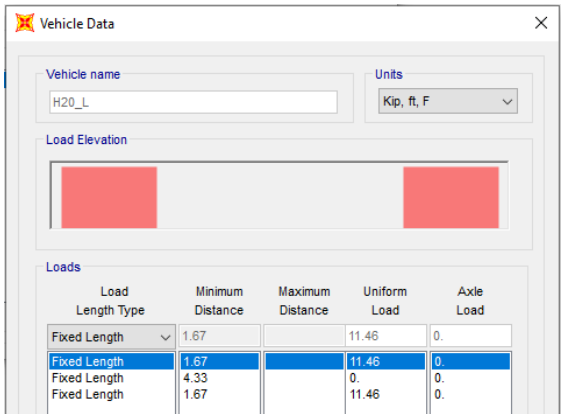
$\gamma_s := 125\ pcf$

SAP2000 Model:

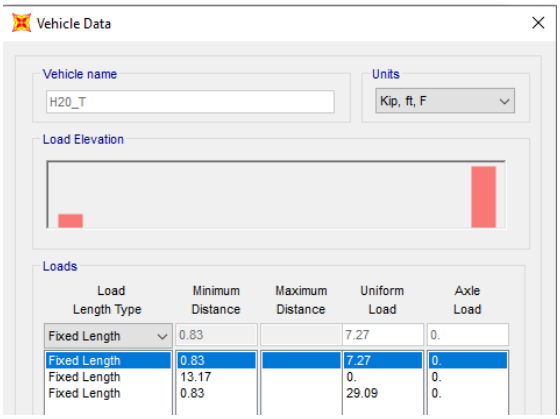


Moving Loads:

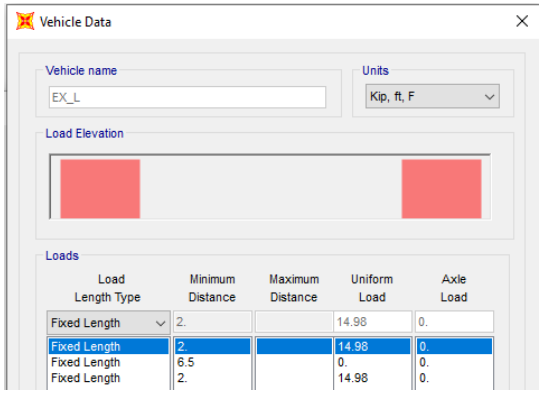
H20 - Longitudinal Load Case:



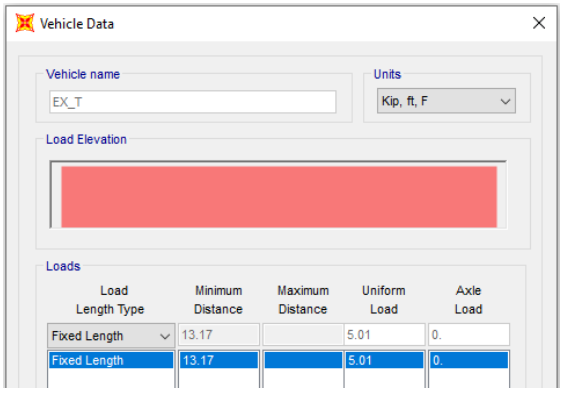
H20 - Transverse Load Case:



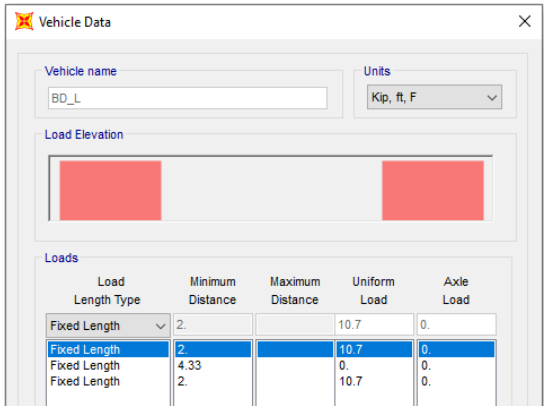
Excavator - Longitudinal Load Case:



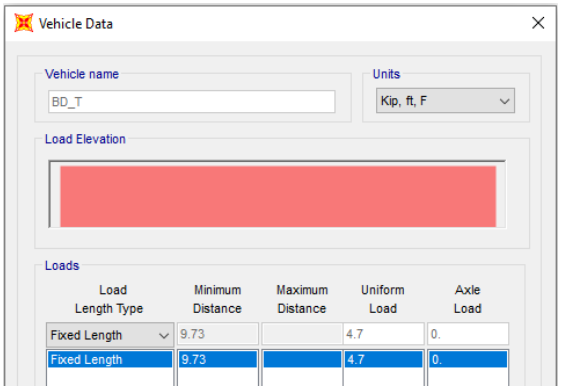
Excavator - Transverse Load Case:



Bulldozer - Longitudinal Load Case:



Bulldozer - Transverse Load Case:



the calculation for the patch load magnitudes is located at the end of this section

Slab Demands:

+Live Load Demand:

$M_{LL\_IM\_p} := 33.1\ kip \cdot ft$ Max moment at mid-span of slab

$M_{LL\_IM\_n} := 17.7\ kip \cdot ft$ Max moment at mid-span of slab

$V_{H20\_IM} := 34.4\ kip$ Max shear

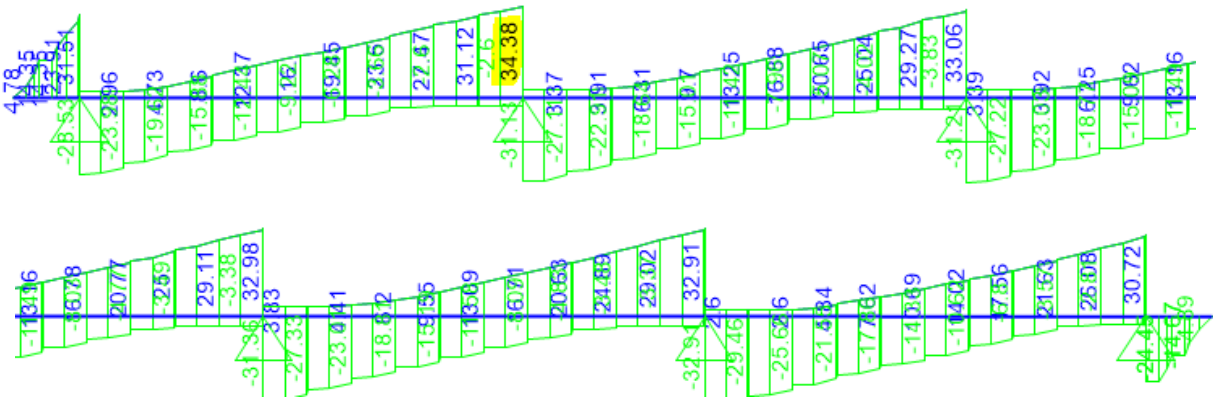
$M_p := 1.0$ Multiple presence factor (1 per design criteria report)

$M_{LL\_IM\_p} := M_p \cdot M_{LL\_IM\_p} = 33.1\ kip \cdot ft$

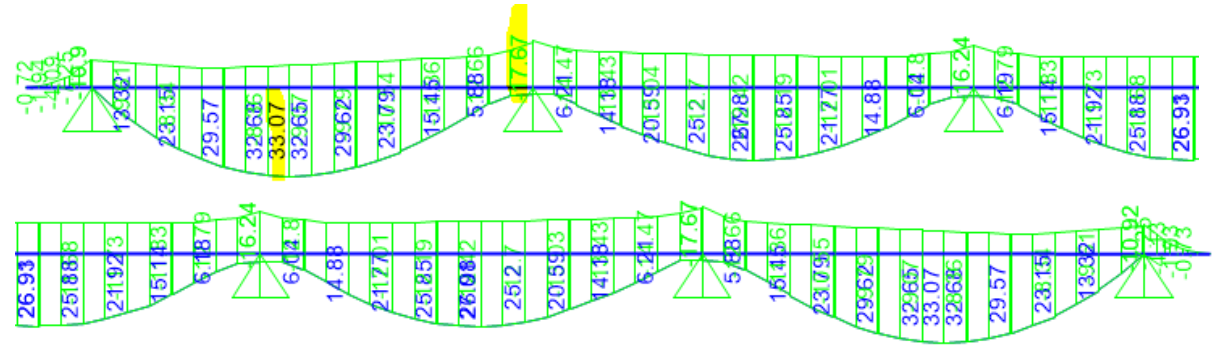
$M_{LL\_IM\_n} := M_p \cdot M_{LL\_IM\_n} = 17.7\ kip \cdot ft$

$V_{LL\_IM} := M_p \cdot \max\left(V_{H20\_IM}\right) = 34.4\ kip$

Shear Diagram from SAP2000:

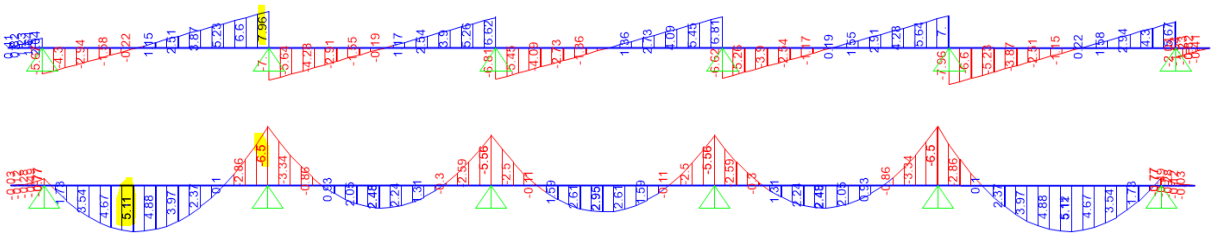


Moment Diagram from SAP2000:



+Dead Load Demand:

$w_{DC} := 2.725\ \textbf{klf}$



$V_{DC} := 7.95\ \textbf{kip}$

$M_{DC\_p} := 5.11\ \textbf{kip} \cdot \textbf{ft}$

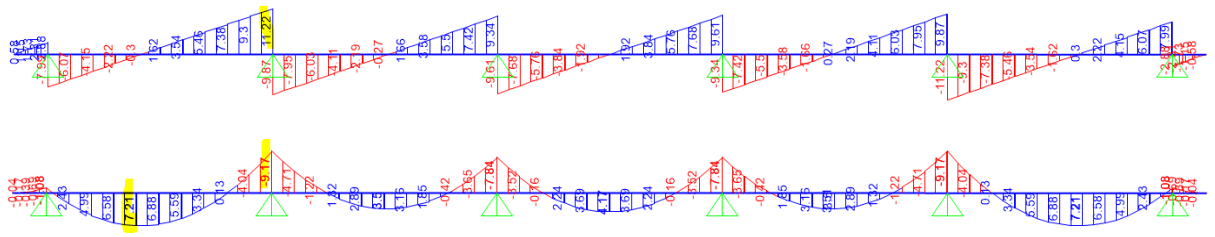
$M_{DC\_n} := 6.5\ \textbf{kip} \cdot \textbf{ft}$

+Water Demand:

$h_{w\_ser} := 3.7\ \textbf{ft}$

$h_{w\_str} := 5.3\ \textbf{ft}$

$w_{w\_ser} := 3.617\ \textbf{klf}$



$V_{WA\_ser} := 11.22\ \textbf{kip}$

$M_{WA\_ser\_p} := 7.21\ \textbf{kip} \cdot \textbf{ft}$

$M_{WA\_ser\_n} := 9.17\ \textbf{kip} \cdot \textbf{ft}$

$$V_{WA\_str} := \frac{h_{w\_str}}{h_{w\_ser}} \cdot V_{WA\_ser} = 16.072\ \textbf{kip}$$

$$M_{WA\_str\_p} := \frac{h_{w\_str}}{h_{w\_ser}} \cdot M_{WA\_ser\_p} = 10.328\ \textbf{kip} \cdot \textbf{ft}$$

$$M_{WA\_str\_n} := \frac{h_{w\_str}}{h_{w\_ser}} \cdot M_{WA\_ser\_n} = 13.135\ \textbf{kip} \cdot \textbf{ft}$$

Load Combinations:

$M_{sA\_p} := M_{LL\_IM\_p} + M_{DC\_p} = 38.2\ kip \cdot ft$

$M_{sB\_p} := M_{WA\_ser\_p} + M_{DC\_p} = 12.3\ kip \cdot ft$

$M_{sA\_n} := M_{LL\_IM\_n} + M_{DC\_n} = 24.2\ kip \cdot ft$

$M_{sB\_n} := M_{WA\_ser\_n} + M_{DC\_n} = 15.7\ kip \cdot ft$

$M_{uA\_p} := 1.75 \cdot M_{LL\_IM\_p} + 1.25 \cdot M_{DC\_p} = 64.3\ kip \cdot ft$

$M_{uB\_p} := 1.0 \cdot M_{WA\_str\_p} + 1.25 \cdot M_{DC\_p} = 16.7\ kip \cdot ft$

$M_{uA\_n} := 1.75 \cdot M_{LL\_IM\_n} + 1.25 \cdot M_{DC\_n} = 39.1\ kip \cdot ft$

$M_{uB\_n} := 1.0 \cdot M_{WA\_str\_n} + 1.25 \cdot M_{DC\_n} = 21.3\ kip \cdot ft$

$N_u := 0\ kip$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 70.1\ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 26\ kip$

$M_{u\_p} := \max\left(M_{uA\_p}, M_{uB\_p}\right) = 64.3\ kip \cdot ft$

$M_{s\_p} := \max\left(M_{sA\_p}, M_{sB\_p}\right) = 38.2\ kip \cdot ft$

$M_{u\_n} := \max\left(M_{uA\_n}, M_{uB\_n}\right) = 39.1\ kip \cdot ft$

$M_{s\_n} := \max\left(M_{sA\_n}, M_{sB\_n}\right) = 24.2\ kip \cdot ft$

$V_u := \max\left(V_{uA}, V_{uB}\right) = 70.1\ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
(2) #7s:

$b_{sz} := 7$ — Bar size

$n_{bar} := 2$ — Number of bars

$A_s := n_{bar} \cdot A_{bar}\left(b_{sz}\right) = 1.2\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 2\ in + d_{bn}(5) = 2.625\ in$ — Cover on longitudinal reinforcement

$d_s := d - \left(d_{c1} + 0.5\ d_{ba}\left(b_{sz}\right)\right) = 14.875\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 1.84\ in$$ AASHTO 2012, 5.7.3.1.1-4

$$\varepsilon_t := \left(d_s - c\right)\ \frac{0.003}{c} = 0.02123$$

$$f_{s1} := min\left(f_y, E_s \cdot \varepsilon_t\right) = 60\ ksi$$

$$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 1.84\ in$$

$$\varepsilon_t := \left(d_s - c\right)\ \frac{0.003}{c} = 0.021$$

$$f_{s2} := min\left(f_y, E_s \cdot \varepsilon_t\right) = 60\ ksi$$

$$f_s := f_{s2}$$

$a := \beta_1 \cdot c = 1.47\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 85\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_{u\_p})}{\phi_f \cdot M_n} = 0.842$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.5\ ft \qquad b = 0.958\ ft \qquad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 621\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 33\ kip \cdot ft$

$M_{u\_p} = 64.3\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_{u\_p} \right), M_{cr} \right) = 33\ kip \cdot ft$

$\phi_f \cdot M_n = 76\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.437$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7):

$s_1 := 9\ in$ Spacing of flexure steel

$M_{s\_p} = 38.21\ kip \cdot ft$
$d_s = 14.875\ in$
$b = 11.5\ in$
$n = 7$
$d_c := d - d_s = 3.125\ in$
$h := d = 1.5\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.3$$

$\gamma_e := 1$ Assume Exposure Class 2, corrosion potential

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$$a_o := \frac{-b}{2}$$
$b_o := -n \cdot A_s$ $A_s = 1.2\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 3.988\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 1239\ in^4$$

$$f_{ss} := \operatorname{abs}\left(n \cdot \frac{M_{s\_p} \cdot \left(d_s - y\right)}{I_{eff}}\right) = 28.208\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 12.837\ in$$

$$DC_{CrC} := \frac{s_1}{s_{max}} = 0.701$$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 70.138\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

$A_t := A_{bar}(5) = 0.31\ in^2$ Nominal Area of Shear Reinforcement

$s := 6\ in$ Stirrup spacing at section

$Legs := 2$ Number of stirrup legs

$A_v := A_t \cdot Legs = 0.62\ in^2$ Area of steel per stirrup

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 1.2\ in^2$ $d_s = 14.875\ in$

$d_{v1} := 0.72 \cdot (d) = 12.96\ in$

$d_{v2} := 0.9 \cdot (d_s) = 13.39\ in$

$d_v := \max(d_{v1}, d_{v2}) = 13.39\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5$ ***ksi***

$b_v := b = 11.5$ ***in***

$\theta := 45$ ***deg***

$\beta := 2.0$

$V_s := A_v \cdot f_y \cdot d_v \cdot \frac{\cot(\theta)}{s} = 83$ ***kip*** AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 22$ ***kip*** AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 173$ ***kip***

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 94$ ***kip***

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 94.3$ ***kip***

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.744$ <1, OK

+Longitudinal Reinforcement Calculation Over Supports:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_u := \max\left(V_u \cdot d_v, M_{u\_n}\right) = 78.247 \ kip \cdot ft$

$\phi_f = 0.9$

$D_M := \frac{\text{abs}\left(M_u\right)}{\phi_f \cdot d_v} = 78 \ kip$

Shear/Torsion Component:

$V_u = 70.138 \ kip \qquad V_s = 83 \ kip \qquad V_p := 0 \ kip$

$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 77.9 \ kip$

$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 39 \ kip$

Capacity Check:

$A_s = 1.2 \ in^2 \qquad f_y = 60 \ ksi$

$C := A_s \cdot f_y = 72 \ kip$

$\frac{D_V}{C} = 0.541$ <1, OK

Patch Loading for Diaphragm Model:

Max Reactions From Span SAP2000 Model:

V_{H20_L}	38.2	kip
V_{H20_T}	30.3	kip
V_{Ex_L}	59.9	kip
V_{Ex_T}	65.9	kip
V_{Bd_L}	42.8	kip
V_{Bd_T}	45.7	kip

Wheel/Track Width:

$W_{wheel,H20}$	1.67	ft
$W_{wheel,Ex}$	2.00	ft
$W_{wheel,bd}$	2.00	ft

Wheel/Track Length

$L_{wheel,H20}$	0.83	ft
$L_{track,Ex}$	13.17	ft
$L_{track,bd}$	9.73	ft

Patch Load

w_{H20_L}	11.46	klf	$0.5*V_{H20\_L}/W_{wheel,H20}$
$w_{H20\_T\_front}$	7.27	klf	$8/40*V_{H20\_T}/L_{wheel,H20}$
$w_{H20\_T\_rear}$	29.09	klf	$32/40*V_{H20\_T}/L_{wheel,H20}$
w_{Ex_L}	14.98	klf	$0.5*V_{Ex\_L}/W_{wheel,Ex}$
w_{Ex_T}	5.01	klf	$V_{Ex\_T}/L_{wheel,Ex}$
w_{Bd_L}	10.70	klf	$0.5*V_{Bd\_L}/W_{wheel,Bd}$
w_{Bd_T}	4.70	klf	$V_{Bd\_T}/L_{wheel,Bd}$

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6 Substructure Design

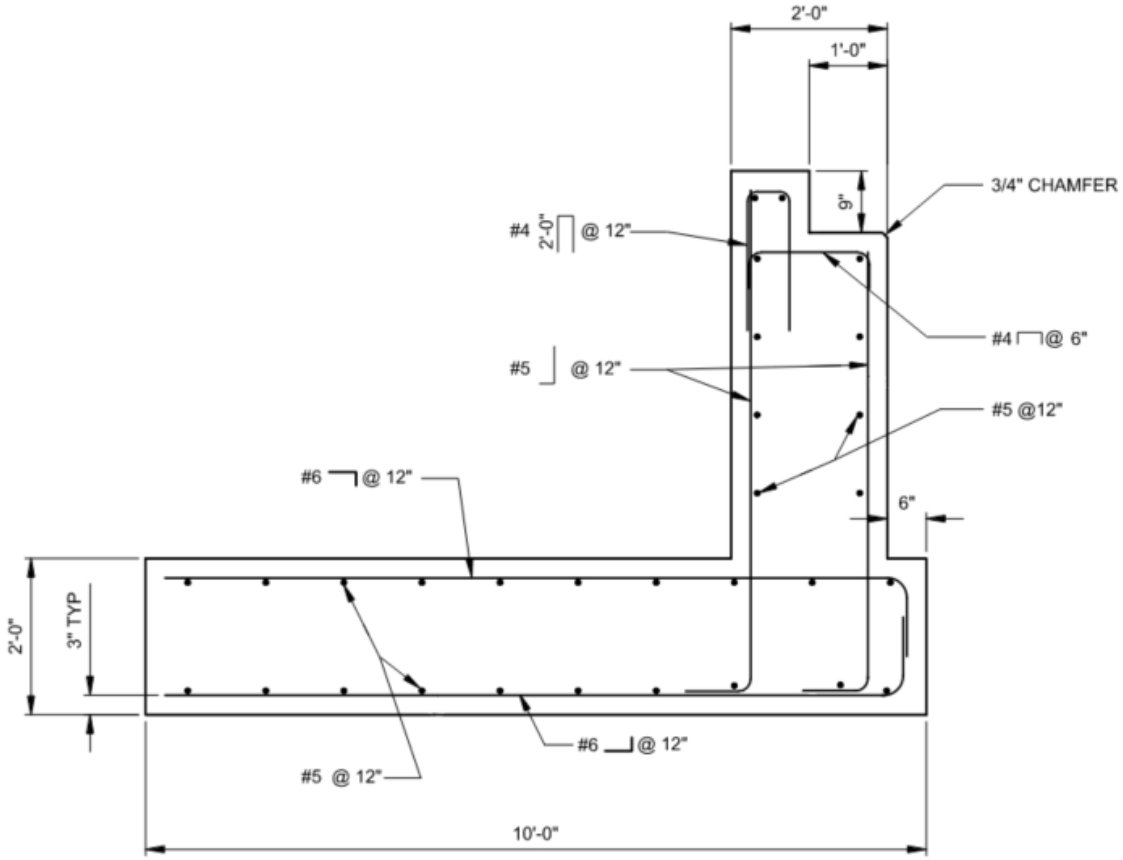
PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.1 Footing Sections

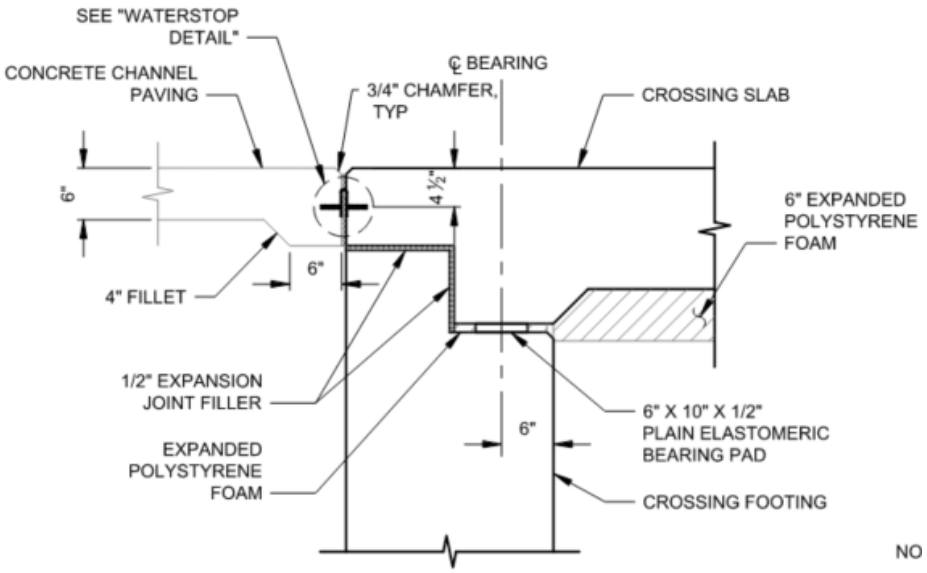
770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Footing Sections

Originator:JRM
Date: 11/7/2024



CROSSING FOOTING DETAIL



SLAB BEARING DETAIL

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.2 Substructure Loads

Substructure Loads

γ_s	85	pcf	Backfill unit weight
ϕ_f	30	deg	Backfill friction angle
k_a	0.33		Active earth pressure coefficent
k_{AE}	0.63		Seismic active earth pressure coefficent

μ	0.3		Footing to soil friction coefficient
σ_a	3	ksf	Allowable bearing pressure
$\sigma_{a,t}$	4	ksf	Allowable bearing pressure (transient loads)
$p_{passive}$	250	psf/ft	Allowable passive pressure (2500 psf/ft max)

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.3 Footing Design

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

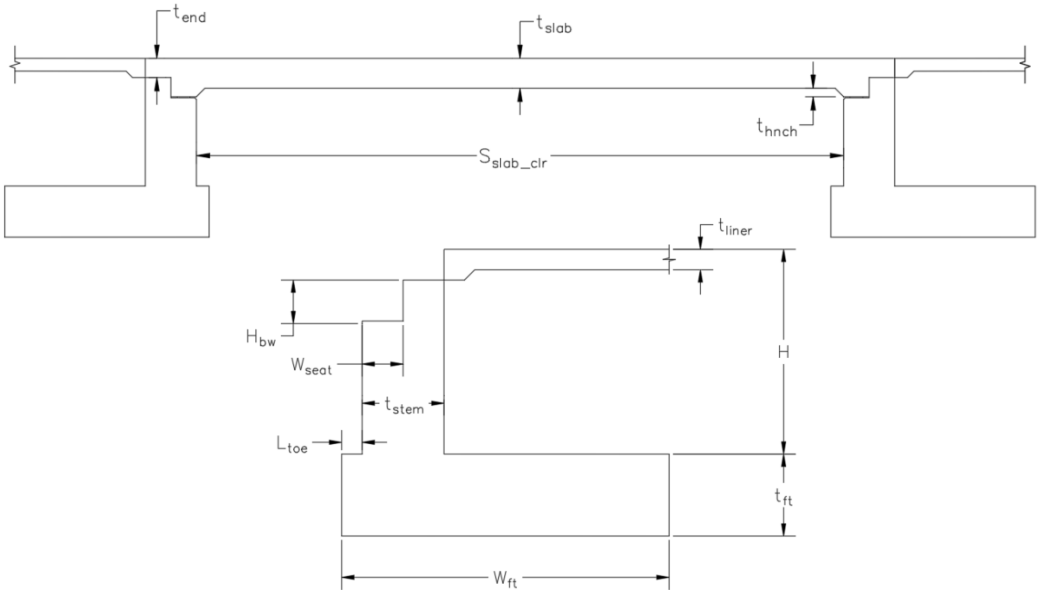
6.3.1 External Stability

Wall Global Stability Check

Typical Footing Height

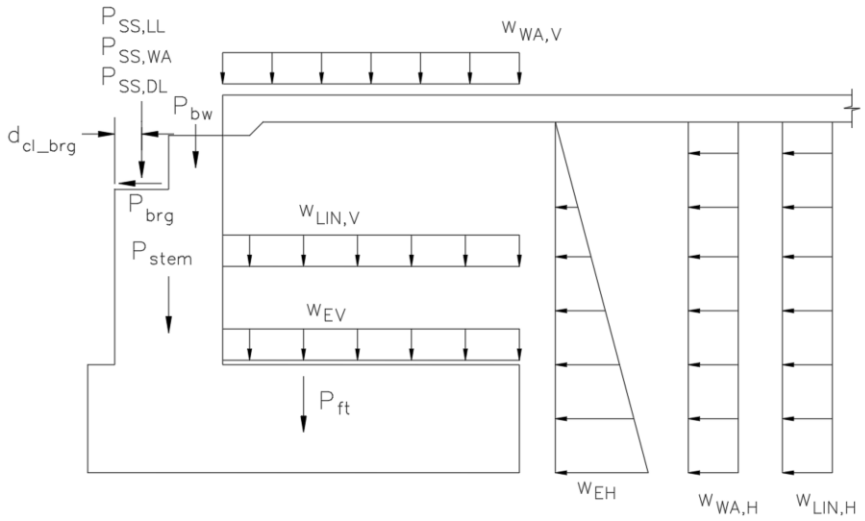
Crossing Slab Geometry:

$S_{slab\_clr} := 27.33\ ft$	Clear slab span
$t_{slab} := 14\ in$	Minimum slab depth
$t_{hnch} := 4\ in$	Depth of haunch
$t_{end} := 9\ in$	Depth slab extension



Foundation Wall Geometry:

$W_{seat} := 12\ in$	Seat width
$t_{ft} := 24\ in$	Footing thickness
$t_{stem} := 24\ in$	Stem thickness
$H := 7.75\ ft$	Wall height
$H_{bw} := t_{slab} + t_{hnch} - t_{end} = 9\ in$	Backwall height
$W_{ft} := 10\ ft$	Length of footing
$t_{liner} := 6\ in$	Liner thickness
$d_{cl\_brg} := 0.5\ ft$	Distance to centerline of bearing
$L_{toe} := 0.5\ ft$	Length of footing toe
$t_{bw} := t_{stem} - W_{seat} = 1\ ft$	Backwall thickness
$e_{brg} := 0.5 \cdot W_{ft} - d_{cl\_brg} - L_{toe} = 4\ ft$	Bearing load eccentricity from footing center



Demand:

Crossing Slab Dead Loads:

$\gamma_{c\_slab} := 150\ pcf$ Crossing slab concrete unit weight

Cross sectional area of crossing slab:

$A_{slab} := S_{slab\_clr} \cdot t_{slab} + 2\ \left(0.5 \cdot t_{hnch}{}^2 + t_{end} \cdot t_{bw} + W_{seat} \cdot \left(t_{hnch} + t_{slab}\right)\right) = 36.496\ ft^2$

$P_{SS\_DL} := \gamma_{c\_slab} \cdot \left(0.5 \cdot A_{slab}\right) = 2.737\ klf$ Tributary slab weight

$M_{SS\_DL} := P_{SS\_DL} \cdot e_{brg} = 10.949\ \frac{kip \cdot ft}{ft}$ Moment about center of footing

Crossing Slab Water Loads:

$\gamma_w := 62.4\ pcf$ Water unit weight

$h_{w\_ser} := 3.7\ ft$ Water depth service loading

$p_{WA\_ser} := \gamma_w \cdot h_{w\_ser} = 0.231\ ksf$ Pressure due to service water level

Tributary slab water loading:

$L_{slab\_trib} := 0.5\ S_{slab\_clr} + W_{seat} + t_{bw} = 15.665\ ft$

$P_{SS\_WA\_ser} := p_{WA\_ser} \cdot L_{slab\_trib} = 3.617\ klf$

Moments about center of footing

$M_{SS\_WA\_ser} := P_{SS\_WA\_ser} \cdot e_{brg} = 14.467\ \frac{kip \cdot ft}{ft}$

Crossing Slab Live Loads:

See calculations at the end of section for the calculation of the distributed live load

$P_{SS\_LL} := 3.53\ klf$ — Live load distributed load

$M_{SS\_LL} := P_{SS\_LL} \cdot e_{brg} = 14.12\ \frac{kip \cdot ft}{ft}$ — Live load Moment

Wall Dead Load:

$\gamma_c := 150\ pcf$ — Typical concrete unit weight

$P_{bw} := \gamma_c \cdot (t_{bw}) \cdot (H_{bw}) = 0.113\ klf$ — Backwall load

$e_{bw} := 0.5\ W_{ft} - (W_{seat} + 0.5\ t_{bw} + L_{toe}) = 3\ ft$ — Backwall eccentricity

$P_{stem} := \gamma_c \cdot (t_{stem})\ (H - (t_{slab} + t_{hnch}) - t_{ft}) = 1.275\ klf$ — Stem load

$e_{stem} := 0.5\ W_{ft} - (0.5\ t_{stem} + L_{toe}) = 3.5\ ft$ — Stem eccentricity

$P_{ft} := \gamma_c \cdot (t_{ft})\ (W_{ft}) = 3\ klf$ — Footing load

$e_{ft} := 0.5\ W_{ft} - 0.5\ W_{ft} = 0\ ft$ — Footing eccentricity

$P_{DC} := P_{bw} + P_{stem} + P_{ft} = 4.388\ klf$ — Dead load

$M_{DC} := P_{bw} \cdot e_{bw} + P_{stem} \cdot e_{stem} + P_{ft} \cdot e_{ft} = 4.8\ \frac{kip \cdot ft}{ft}$ — Dead moment

$e_{DC} := \frac{M_{DC}}{P_{DC}} = 1.094\ ft$ — Dead load eccentricity

Soil Loading:

$\gamma_s := 85\ pcf$ Unit weight of soil

$k_a := 0.33$ Active coefficient of soil

$L_{heel} := W_{ft} - t_{stem} - L_{toe} = 7.5\ ft$ Length of heel

$p_{EV} := \left(H - t_{liner} - t_{ft}\right) \cdot \gamma_s = 0.446\ ksf$ Vertical soil pressure on footing

$P_{EV\_heel} := L_{heel} \cdot p_{EV} = 3.347\ klf$ Vertical soil load on heel

$e_{EV\_heel} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Eccentricity of vert heel soil load

$P_{EV\_toe} := L_{toe} \cdot p_{EV} = 0.223\ klf$

$e_{EV\_toe} := 0.5\ W_{ft} - \left(0.5\ L_{toe}\right) = 4.75\ ft$

$M_{EV} := P_{EV\_heel} \cdot e_{EV\_heel} + P_{EV\_toe} \cdot e_{EV\_toe} = -3.124\ \frac{kip \cdot ft}{ft}$ Moment of Vert soil load on wall

$P_{EV} := P_{EV\_heel} + P_{EV\_toe} = 3.57\ klf$ Vertical soil load

$e_{EV} := \frac{M_{EV}}{P_{EV}} = -0.875\ ft$ Eccentricity of vertical soil load on heel

$p_{EH} := \left(H - t_{liner}\right) \cdot k_a \cdot \gamma_s = 0.203\ ksf$ Maximum hrz soil pressure

$P_{EH} := 0.5 \cdot \left(H - t_{liner}\right) \cdot p_{EH} = 0.737\ klf$ Horizontal soil load on wall

$e_{EH} := 0.333\ \left(H - t_{liner}\right) = 2.414\ ft$ Eccentricity of hrz soil load

$M_{EH} := P_{EH} \cdot e_{EH} = 1.78\ \frac{kip \cdot ft}{ft}$ Moment of hrz soil load on wall

Liner Surcharge:

$p_{LIN\_V} := \gamma_c \cdot t_{liner} = 0.075\ ksf$ Liner vertical surcharge pressure

$P_{LIN\_V} := p_{LIN\_V} \cdot L_{heel} = 0.563\ klf$ Liner vertical surcharge load

$e_{LIN\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Liner vertical surcharge eccentricity

$M_{LIN\_V} := P_{LIN\_V} \cdot e_{LIN\_V} = -0.703\ \frac{kip \cdot ft}{ft}$ Moment of liner vertical surcharge

$p_{LIN\_H} := \gamma_c \cdot t_{liner} \cdot k_a = 0.025\ ksf$ Liner hrz. surcharge pressure

$P_{LIN\_H} := p_{LIN\_H} \cdot \left(H - t_{liner}\right) = 0.179\ klf$ Liner horizontal surcharge load

$e_{LIN\_H} := 0.5\ \left(H - t_{liner}\right) = 3.625\ ft$ Liner hrz. surcharge eccentricity

$M_{LIN\_H} := P_{LIN\_H} \cdot e_{LIN\_H} = 0.65\ \frac{kip \cdot ft}{ft}$ Moment of liner hrz. surcharge

Water Surcharge:

$p_{WA\_V\_ser} := \gamma_w \cdot h_{w\_ser} = 0.231$ **ksf** — Pressure from service water level

$P_{WA\_V\_ser} := L_{heel} \cdot p_{WA\_V\_ser} = 1.732$ **klf** — Load due to service water level

$e_{WA\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25$ **ft** — Water load eccentricity

$M_{WA\_V\_ser} := P_{WA\_V\_ser} \cdot e_{WA\_V} = -2.165\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service water load

$p_{WA\_H\_ser} := \gamma_w \cdot h_{w\_ser} \cdot k_a = 0.076$ **ksf** — Hrz pressure from service water level

$P_{WA\_H\_ser} := \left(H - t_{liner}\right) \cdot p_{WA\_H\_ser} = 0.552$ **klf** — Hrz load due to service water level

$e_{WA\_H} := 0.5\ \left(H - t_{liner}\right) = 3.625$ **ft** — Hrz water load eccentricity

$M_{WA\_H\_ser} := P_{WA\_H\_ser} \cdot e_{WA\_H} = 2.002\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service hrz water load

Transverse Bearing Load:

$\mu := 0.2$ — Coefficient of friction between concrete and neoprene

$P_{SS\_DL} = 2.737$ **klf**

$P_{brg\_H} := \mu \cdot P_{SS\_DL} = 0.547$ **klf**

$e_{brg\_H} := H - t_{slab} - t_{hnch} = 6.25$ **ft**

$M_{brg\_H} := P_{brg\_H} \cdot e_{brg\_H} = 3.422\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$

Load Factors

	Combination	Initial 1	Initial 2	Permanent	Service IA	Service IB	Strength IA-a	Strength IA-b	Strength IA-c	Strength IB-a	Strength IB-a	Strength IB-c
	Description	Foundation + Backfill	Permanent - Liner	Permanent All	Vehicular	Water	Vehicular Max All	Vehicular Max Lateral	Vehicular Max Vertical	Water Max All	Water Max Lateral	Water Max Vertical
Vertical Loads	DC_{ss}	0.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	LL_{ss}	0.00	0.00	0.00	1.00	0.00	1.75	0.00	1.75	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
	DC_{wall}	1.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	EV	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
	$ES_{WA,V}$	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.35	1.00	1.35
	$ES_{liner,V}$	0.00	0.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
Lateral Loads	EH	1.00	1.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	LS	0.00	0.00	0.00	1.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.50	1.50	0.75
	$ES_{liner,H}$	0.00	0.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	Bearing	0	0	0	1.00	1.00	1.25	1.25	1.25	1.25	1.25	1.25

Factored Demand

Load Direction	Load	Force	Arm	Initial 1		Initial 2		Permanent		Service IA		Service IB	
				Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	2.74	-4.00	0.00	0.00	2.74	-10.95	2.74	-10.95	2.74	-10.95	2.74	-10.95
	LL_{ss}	3.53	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	3.53	-14.12	0.00	0.00
	WA_{ss}	3.62	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.62	-14.47
	DC_{wall}	4.39	-1.09	4.39	-4.80	4.39	-4.80	4.39	-4.80	4.39	-4.80	4.39	-4.80
	EV	3.57	0.88	3.57	3.12	3.57	3.12	3.57	3.12	3.57	3.12	3.57	3.12
	WA_V	1.73	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	2.16
	$ES_{liner,V}$	0.56	1.25	0.00	0.00	0.00	0.00	0.56	0.70	0.56	0.70	0.56	0.70
			Sum:	7.96	-1.68	10.70	-12.63	11.26	-11.92	14.79	-26.04	16.61	-24.23
Lateral Loads	EH	0.74	2.42	0.74	-1.78	0.74	-1.78	0.74	-1.78	0.74	-1.78	0.74	-1.78
	LS	0.00	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.55	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-2.00
	$ES_{liner,H}$	0.18	3.63	0.00	0.00	0.00	0.00	0.18	-0.65	0.18	-0.65	0.18	-0.65
	Bearing	0.55	6.25	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-3.42	0.55	-3.42
			Sum:	0.74	-1.78	0.74	-1.78	0.92	-2.43	1.46	-5.85	2.02	-7.86

Factored Demand

Load Direction	Load	Strength IA-a		Strength IA-b		Strength IA-c		Strength IB-a		Strength IB-b		Strength IB-c	
		Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	3.42	-13.69	2.46	-9.86	3.42	-13.69	3.42	-13.69	2.46	-9.86	3.42	-13.69
	LL_{ss}	6.18	-24.71	0.00	0.00	6.18	-24.71	0.00	0.00	0.00	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	0.00	0.00	5.18	-20.73	5.18	-20.73	5.18	-20.73
	DC_{wall}	5.48	-6.00	3.95	-4.32	5.48	-6.00	5.48	-6.00	3.95	-4.32	5.48	-6.00
	EV	4.82	4.22	3.57	3.12	4.82	4.22	4.82	4.22	3.57	3.12	4.82	4.22
	WA_V	0.00	0.00	0.00	0.00	0.00	0.00	3.35	4.19	2.48	3.10	3.35	4.19
	$ES_{liner,V}$	0.76	0.95	0.56	0.70	0.76	0.95	0.76	0.95	0.56	0.70	0.76	0.95
Sum:		20.66	-39.23	10.55	-10.35	20.66	-39.23	23.01	-31.06	18.21	-27.97	23.01	-31.06
Lateral Loads	EH	1.11	-2.67	1.11	-2.67	0.55	-1.34	1.11	-2.67	1.11	-2.67	0.55	-1.34
	LS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	0.00	0.00	1.19	-4.30	1.19	-4.30	0.59	-2.15
	$ES_{liner,H}$	0.27	-0.98	0.27	-0.98	0.13	-0.49	0.27	-0.98	0.27	-0.98	0.13	-0.49
	Bearing	0.68	-4.28	0.68	-4.28	0.68	-4.28	0.68	-4.28	0.68	-4.28	0.68	-4.28
Sum:		2.06	-7.93	2.06	-7.93	1.37	-6.10	3.25	-12.23	3.25	-12.23	1.97	-8.25

External Stability Spreadsheet Verification:

Service IB - Water Loading

$$P_{serIB\_V} := P_{SS\_DL} + P_{SS\_WA\_ser} + P_{DC} + P_{EV} + P_{LIN\_V} + P_{WA\_V\_ser} = 16.61 \ klf$$

$$M_{serIB\_V} := M_{SS\_DL} + M_{SS\_WA\_ser} + M_{DC} + M_{EV} + M_{LIN\_V} + M_{WA\_V\_ser} = 24.22 \ \frac{kip \cdot ft}{ft}$$

$$P_{serIB\_H} := P_{EH} + P_{LIN\_H} + P_{WA\_H\_ser} + P_{brg\_H} = 2.02 \ klf$$

$$M_{serIB\_H} := M_{EH} + M_{LIN\_H} + M_{WA\_H\_ser} + M_{brg\_H} = 7.85 \ \frac{kip \cdot ft}{ft}$$

$$M_{serIB} := M_{serIB\_V} + M_{serIB\_H} = 32.08 \ \frac{kip \cdot ft}{ft}$$

Eccentricity Check (AASHTO 11.6.3.3)

Load Combination	ΣV (kip)	ΣM (kip-ft)	e (ft)	Limit (ft)	Check	DCR
Initial 1	8.0	-3.46	-0.43	3.33	OK	0.13
Initial 2	10.7	-14.41	-1.35	3.33	OK	0.40
Permanent	11.3	-14.36	-1.28	3.33	OK	0.38
Service IA	14.8	-31.90	-2.16	3.33	OK	0.65
Service IB	16.6	-32.08	-1.93	3.33	OK	**0.58**
Strength IA-a	20.7	-47.16	-2.28	3.33	OK	0.68
Strength IA-b	10.5	-18.27	-1.73	3.33	OK	0.52
Strength IA-c	20.7	-45.33	-2.19	3.33	OK	0.66
Strength IB-a	23.0	-43.29	-1.88	3.33	OK	0.56
Strength IB-b	18.2	-40.20	-2.21	3.33	OK	0.66
Strength IB-c	23.0	-39.31	-1.71	3.33	OK	0.51

$$e := \frac{M_{serIB}}{P_{serIB\_V}} = 1.932 \ ft$$ Total eccentricity

$$e_{max} := \frac{W_{ft}}{3} = 3.333 \ ft$$ Maximum eccentricity

$$DCR_{ecc} := \frac{e}{e_{max}} = 0.58$$ <1, OK

Bearing Check (AASHTO 11.6.3.2)

Check allowable bearing pressure of 3 ksf according to geotechnical report. Note that since it is an allowable capacity it will be compared to unfactored loading (service).

Load Combination	e (ft)	B' (ft)	ΣV (kip)	σ (ksf)	q_a (ksf)	Check	DCR
Initial 1	-0.43	9.13	8.0	0.87	3.00	OK	0.29
Initial 2	-1.35	7.31	10.7	1.46	3.00	OK	0.49
Permanent	-1.28	7.45	11.3	1.51	3.00	OK	0.50
Service IA	-2.16	5.69	14.8	2.60	3.00	OK	0.87
Service IB	-1.93	6.14	16.6	2.71	3.00	OK	**0.90**

$B'_{serIB} := W_{ft} - 2 \cdot e = 6.1364\ ft$ Effective bearing width

$\sigma_{serIB} := \frac{P_{serIB\_V}}{B'_{serIB}} = 2.7061\ ksf$ Bearing stress

$q_a := 3\ ksf$ Factored bearing resistance

$DCR_{bearing} := \frac{\sigma_{serIB}}{q_a} = 0.902$ <1, OK

Sliding Check (AASHTO 11.6.3.6 & 10.6.3.4)

Conservatively ignore passive resistance

μ =	0.3	Friction Coefficient
ϕ_τ =	0.80	Resistance Factor for Shear Resistance Between Soil and Foundation
γ =	0 pcf	Passive Earth Pressure <-Ignore
ϕ_{ep} =	0	Passive Earth Pressure Component of Sliding Resistance

Load Combination	ΣH (kips)	ΣV (kip)	$\phi\tau R_\tau$ (kip)	$\phi_{ep}R_{ep}$ (kip)	R_R (kip)	Check	DCR
Service IA	1.46	14.8	3.55	0.00	3.5	OK	0.41
Service IB	2.02	16.6	3.99	0.00	4.0	OK	**0.51**
Strength IA-a	2.06	20.7	4.96	0.00	5.0	OK	0.42
Strength IA-b	2.06	10.5	2.53	0.00	2.5	OK	0.81
Strength IA-c	1.37	20.7	4.96	0.00	5.0	OK	0.28
Strength IB-a	3.25	23.0	5.52	0.00	5.5	OK	0.59
Strength IB-b	3.25	18.2	4.37	0.00	4.4	OK	0.74
Strength IB-c	1.97	23.0	5.52	0.00	5.5	OK	0.36

$\mu := 0.3$ From preliminary foundation report

$\phi_T := 0.8$ AASHTO Table 10.5.5.2.2-1 CIP Concrete on cohesionless soil

$R_{r\_slide} := \phi_T \cdot P_{serIB\_V} \cdot \mu \cdot 1\ ft = 3.985\ kip$

$P_u := P_{serIB\_H} \cdot 1\ ft = 2.016\ kip$

$DCR_{sliding} := \frac{P_u}{R_{r\_slide}} = 0.506$ <1, OK

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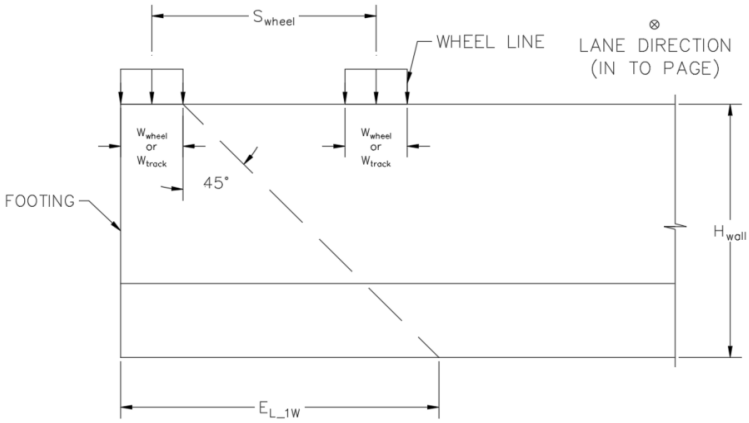
Project: Shea Properties
Project #: 24002328
By: JRM
Date: Nov-24

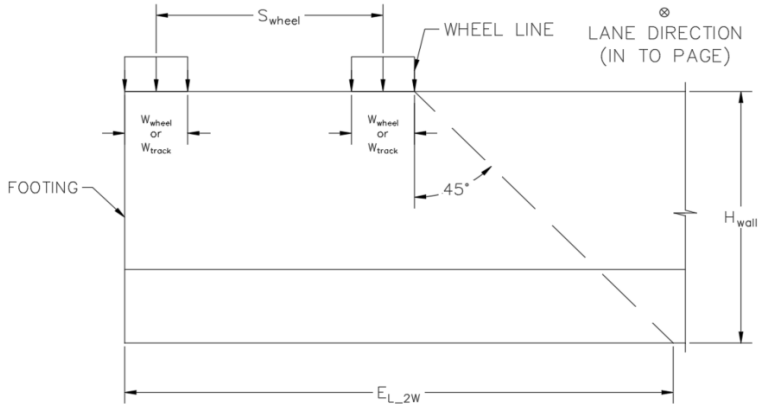
Live Load Bearing Distribution - Typical Footing Depth

H_{wall}	7.75	ft	Wall Height
V_{H20_L}	38.2	kip	Max H-20 live load reaction from Longitudinal slab sap model
V_{H20_T}	30.3	kip	Max H-20 live load reaction from Transverse slab sap model
V_{Ex_L}	59.9	kip	Max Excavator live load reaction from Longitudinal slab sap model
V_{Ex_T}	65.9	kip	Max Excavator live load reaction from Transverse slab sap model
V_{Bd_L}	42.8	kip	Max Bulldozer live load reaction from Longitudinal slab sap model
V_{Bd_T}	45.7	kip	Max Bulldozer live load reaction from Transverse slab sap model
$S_{wheel,H20}$	6.00	ft	Transverse H-20 wheel spacing
$S_{wheel,Ex}$	8.50	ft	Transverse Excavator track spacing
$S_{wheel,bd}$	6.33	ft	Transverse Bulldozer track spacing
$W_{wheel,H20}$	20.00	in	Width of H-20 wheel
$W_{wheel,Ex}$	24.00	in	Width of Excavator track
$W_{wheel,bd}$	24.00	in	Width of Bulldozer track
$L_{wheel,H20}$	10.00	in	Length of H-20 wheel
$L_{track,Ex}$	158.00	in	Length of Excavator track
$L_{track,bd}$	116.70	in	Length of Bulldozer track

Live Load Bearing Distribution - Longitudinal Distribution



Longitudinal Single Wheel Distribution Sketch



Longitudinal 2-Wheel Distribution Sketch

$E_{H20\_L\_1W}$	9.42	ft	H20 longitudinal distribution Length for 1 wheel
$E_{H20\_L\_2W}$	15.42	ft	H20 longitudinal distribution Length for 2 wheel
$w_{LL\_H20\_L}$	2.48	kip/ft	$Max(V_{H20\_L}/(2*E_{H20\_L\_1W}),V_{H20\_L}/(E_{H20\_L\_2W}))$
$E_{Ex\_L\_1W}$	9.75	ft	Excavator longitudinal distribution Length for 1 Track
$E_{Ex\_L\_2W}$	18.25	ft	Excavator longitudinal distribution Length for 2Track
$w_{LL\_Ex\_L}$	3.28	kip/ft	$Max(V_{EX\_L}/(2*E_{EX\_L\_1W}),V_{H20\_L}/(E_{EX\_L\_2W}))$
$E_{Bd\_L\_1W}$	9.75	ft	Bulldozer longitudinal distribution Length for 1 Track
$E_{Bd\_L\_2W}$	16.08	ft	Bulldozer longitudinal distribution Length for 2Track
$w_{LL\_Bd\_L}$	2.66	kip/ft	$Max(V_{BD\_L}/(2*E_{BD\_L\_1W}),V_{H20\_L}/(E_{BD\_L\_2W}))$

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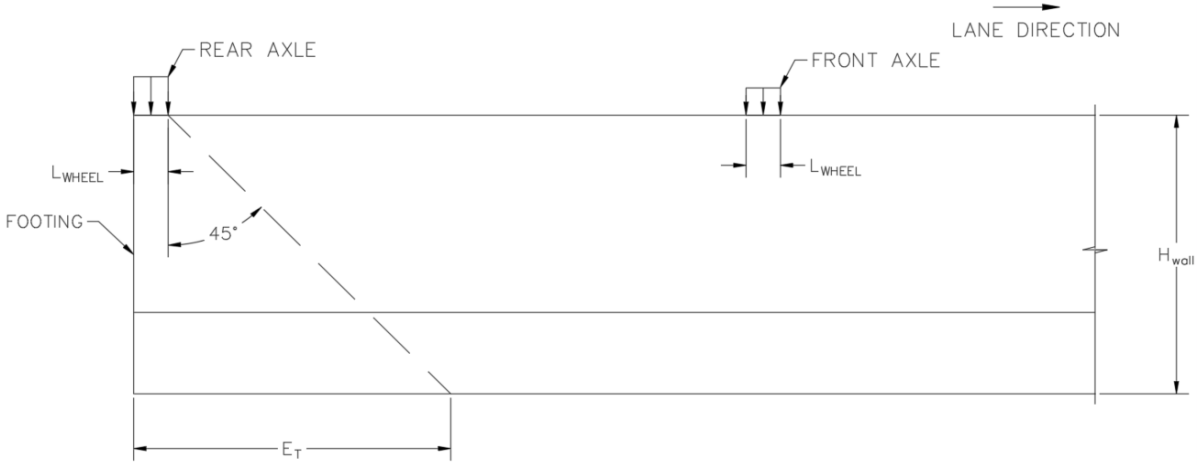
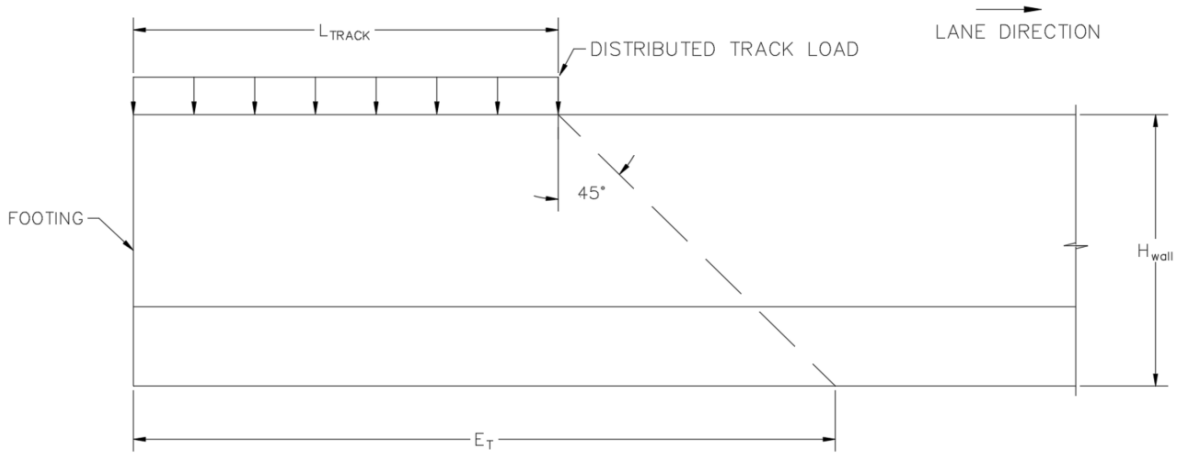
Live Load Bearing Distribution - Transverse Distribution



Transverse H20 Distribution Sketch



Transverse Excavator/Bulldozer Distribution Sketch

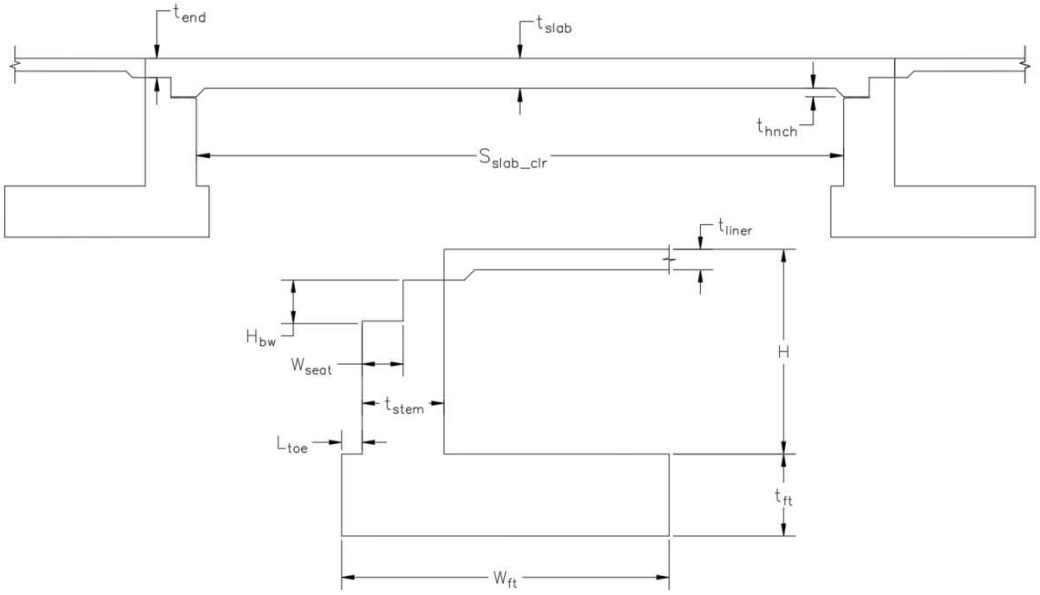
E_{H20_T}	8.58	ft	H20 Transverse distribution length
$w_{LL\_H20\_T}$	3.53	kip/ft	V_{H20_T}/E_{H20_T}
E_{Ex_T}	20.92	ft	Excavator Transverse distribution Length
$w_{LL\_Ex\_T}$	3.15	kip/ft	V_{EX_T}/E_{EX_T}
E_{Bd_T}	17.48	ft	Bulldozer Transverse distribution Length
$w_{LL\_Bd\_T}$	2.62	kip/ft	V_{BD_T}/E_{BD_T}
w_{LL}	**3.53**	kip/ft	Maximum live load distributed load

Wall Global Stability Check

Maximum Footing Height

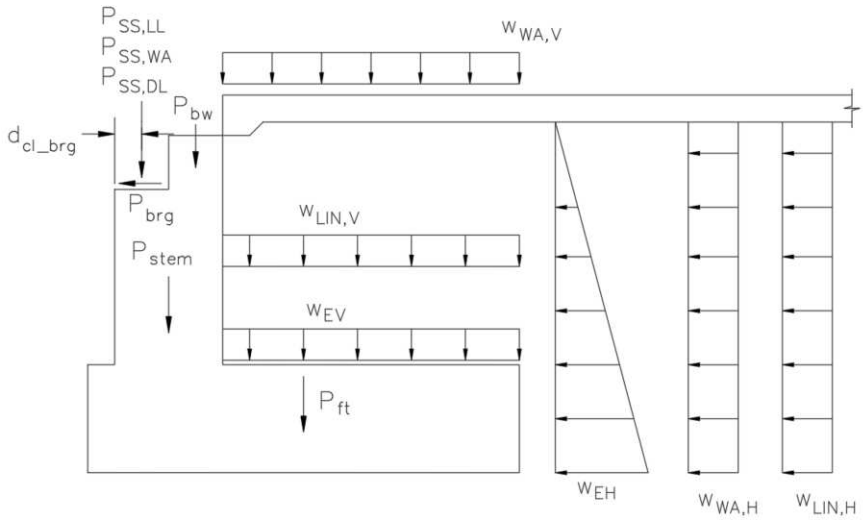
Crossing Slab Geometry:

$S_{slab\_clr} := 27.33\ ft$	Clear slab span
$t_{slab} := 14\ in$	Minimum slab depth
$t_{hnch} := 4\ in$	Depth of haunch
$t_{end} := 9\ in$	Depth slab extension



Foundation Wall Geometry:

$W_{seat} := 12\ in$	Seat width
$t_{ft} := 24\ in$	Footing thickness
$t_{stem} := 24\ in$	Stem thickness
$H := 9.25\ ft$	Wall height
$H_{bw} := t_{slab} + t_{hnch} - t_{end} = 9\ in$	Backwall height
$W_{ft} := 10\ ft$	Length of footing
$t_{liner} := 6\ in$	Liner thickness
$d_{cl\_brg} := 0.5\ ft$	Distance to centerline of bearing
$L_{toe} := 0.5\ ft$	Length of footing toe
$t_{bw} := t_{stem} - W_{seat} = 1\ ft$	Backwall thickness
$e_{brg} := 0.5 \cdot W_{ft} - d_{cl\_brg} - L_{toe} = 4\ ft$	Bearing load eccentricity from footing center



Demand:

Crossing Slab Dead Loads:

$\gamma_{c\_slab} := 150\ pcf$ Crossing slab concrete unit weight

Cross sectional area of crossing slab:

$A_{slab} := S_{slab\_clr} \cdot t_{slab} + 2\ \left(0.5 \cdot t_{hnch}{}^2 + t_{end} \cdot t_{bw} + W_{seat} \cdot \left(t_{hnch} + t_{slab}\right)\right) = 36.496\ ft^2$

$P_{SS\_DL} := \gamma_{c\_slab} \cdot \left(0.5 \cdot A_{slab}\right) = 2.737\ klf$ Tributary slab weight

$M_{SS\_DL} := P_{SS\_DL} \cdot e_{brg} = 10.949\ \frac{kip \cdot ft}{ft}$ Moment about center of footing

Crossing Slab Water Loads:

$\gamma_w := 62.4\ pcf$ Water unit weight

$h_{w\_ser} := 2.2\ ft$ Water depth service loading

$p_{WA\_ser} := \gamma_w \cdot h_{w\_ser} = 0.137\ ksf$ Pressure due to service water level

Tributary slab water loading:

$L_{slab\_trib} := 0.5\ S_{slab\_clr} + W_{seat} + t_{bw} = 15.665\ ft$

$P_{SS\_WA\_ser} := p_{WA\_ser} \cdot L_{slab\_trib} = 2.15\ klf$

Moments about center of footing

$M_{SS\_WA\_ser} := P_{SS\_WA\_ser} \cdot e_{brg} = 8.602\ \frac{kip \cdot ft}{ft}$

Crossing Slab Live Loads:

See calculations at the end of section for the calculation of the distributed live load

$P_{SS\_LL} := 3.03\ klf$ — Live load distributed load

$M_{SS\_LL} := P_{SS\_LL} \cdot e_{brg} = 12.12\ \frac{kip \cdot ft}{ft}$ — Live load Moment

Wall Dead Load:

$\gamma_c := 150\ pcf$ — Typical concrete unit weight

$P_{bw} := \gamma_c \cdot (t_{bw}) \cdot (H_{bw}) = 0.113\ klf$ — Backwall load

$e_{bw} := 0.5\ W_{ft} - (W_{seat} + 0.5\ t_{bw} + L_{toe}) = 3\ ft$ — Backwall eccentricity

$P_{stem} := \gamma_c \cdot (t_{stem})\ (H - (t_{slab} + t_{hnch}) - t_{ft}) = 1.725\ klf$ — Stem load

$e_{stem} := 0.5\ W_{ft} - (0.5\ t_{stem} + L_{toe}) = 3.5\ ft$ — Stem eccentricity

$P_{ft} := \gamma_c \cdot (t_{ft})\ (W_{ft}) = 3\ klf$ — Footing load

$e_{ft} := 0.5\ W_{ft} - 0.5\ W_{ft} = 0\ ft$ — Footing eccentricity

$P_{DC} := P_{bw} + P_{stem} + P_{ft} = 4.838\ klf$ — Dead load

$M_{DC} := P_{bw} \cdot e_{bw} + P_{stem} \cdot e_{stem} + P_{ft} \cdot e_{ft} = 6.375\ \frac{kip \cdot ft}{ft}$ — Dead moment

$e_{DC} := \frac{M_{DC}}{P_{DC}} = 1.318\ ft$ — Dead load eccentricity

Soil Loading:

$\gamma_s := 85\ pcf$ Unit weight of soil

$k_a := 0.33$ Active coefficient of soil

$L_{heel} := W_{ft} - t_{stem} - L_{toe} = 7.5\ ft$ Length of heel

$p_{EV} := \left(H - t_{liner} - t_{ft}\right) \cdot \gamma_s = 0.574\ ksf$ Vertical soil pressure on footing

$P_{EV\_heel} := L_{heel} \cdot p_{EV} = 4.303\ klf$ Vertical soil load on heel

$e_{EV\_heel} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Eccentricity of vert heel soil load

$P_{EV\_toe} := L_{toe} \cdot p_{EV} = 0.287\ klf$

$e_{EV\_toe} := 0.5\ W_{ft} - \left(0.5\ L_{toe}\right) = 4.75\ ft$

$M_{EV} := P_{EV\_heel} \cdot e_{EV\_heel} + P_{EV\_toe} \cdot e_{EV\_toe} = -4.016\ \frac{kip \cdot ft}{ft}$ Moment of Vert soil load on wall

$P_{EV} := P_{EV\_heel} + P_{EV\_toe} = 4.59\ klf$ Vertical soil load

$e_{EV} := \frac{M_{EV}}{P_{EV}} = -0.875\ ft$ Eccentricity of vertical soil load on heel

$p_{EH} := \left(H - t_{liner}\right) \cdot k_a \cdot \gamma_s = 0.245\ ksf$ Maximum hrz soil pressure

$P_{EH} := 0.5 \cdot \left(H - t_{liner}\right) \cdot p_{EH} = 1.074\ klf$ Horizontal soil load on wall

$e_{EH} := 0.333\ \left(H - t_{liner}\right) = 2.914\ ft$ Eccentricity of hrz soil load

$M_{EH} := P_{EH} \cdot e_{EH} = 3.129\ \frac{kip \cdot ft}{ft}$ Moment of hrz soil load on wall

Liner Surcharge:

$p_{LIN\_V} := \gamma_c \cdot t_{liner} = 0.075\ ksf$ Liner vertical surcharge pressure

$P_{LIN\_V} := p_{LIN\_V} \cdot L_{heel} = 0.563\ klf$ Liner vertical surcharge load

$e_{LIN\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Liner vertical surcharge eccentricity

$M_{LIN\_V} := P_{LIN\_V} \cdot e_{LIN\_V} = -0.703\ \frac{kip \cdot ft}{ft}$ Moment of liner vertical surcharge

$p_{LIN\_H} := \gamma_c \cdot t_{liner} \cdot k_a = 0.025\ ksf$ Liner hrz. surcharge pressure

$P_{LIN\_H} := p_{LIN\_H} \cdot \left(H - t_{liner}\right) = 0.217\ klf$ Liner horizontal surcharge load

$e_{LIN\_H} := 0.5\ \left(H - t_{liner}\right) = 4.375\ ft$ Liner hrz. surcharge eccentricity

$M_{LIN\_H} := P_{LIN\_H} \cdot e_{LIN\_H} = 0.947\ \frac{kip \cdot ft}{ft}$ Moment of liner hrz. surcharge

Water Surcharge:

$p_{WA\_V\_ser} := \gamma_w \cdot h_{w\_ser} = 0.137$ **ksf** — Pressure from service water level

$P_{WA\_V\_ser} := L_{heel} \cdot p_{WA\_V\_ser} = 1.03$ **klf** — Load due to service water level

$e_{WA\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25$ **ft** — Water load eccentricity

$M_{WA\_V\_ser} := P_{WA\_V\_ser} \cdot e_{WA\_V} = -1.287\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service water load

$p_{WA\_H\_ser} := \gamma_w \cdot h_{w\_ser} \cdot k_a = 0.045$ **ksf** — Hrz pressure from service water level

$P_{WA\_H\_ser} := \left(H - t_{liner}\right) \cdot p_{WA\_H\_ser} = 0.396$ **klf** — Hrz load due to service water level

$e_{WA\_H} := 0.5\ \left(H - t_{liner}\right) = 4.375$ **ft** — Hrz water load eccentricity

$M_{WA\_H\_ser} := P_{WA\_H\_ser} \cdot e_{WA\_H} = 1.734\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service hrz water load

Transverse Bearing Load:

$\mu := 0.2$ — Coefficient of friction between concrete and neoprene

$P_{SS\_DL} = 2.737$ **klf**

$P_{brg\_H} := \mu \cdot P_{SS\_DL} = 0.547$ **klf**

$e_{brg\_H} := H - t_{slab} - t_{hnch} = 7.75$ **ft**

$M_{brg\_H} := P_{brg\_H} \cdot e_{brg\_H} = 4.243\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$

Load Factors

	Combination	Initial 1	Initial 2	Permanent	Service IA	Service IB	Strength IA-a	Strength IA-b	Strength IA-c	Strength IB-a	Strength IB-a	Strength IB-c
	Description	Foundation + Backfill	Permanent - Liner	Permanent All	Vehicular	Water	Vehicular Max All	Vehicular Max Lateral	Vehicular Max Vertical	Water Max All	Water Max Lateral	Water Max Vertical
Vertical Loads	DC_{ss}	0.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	LL_{ss}	0.00	0.00	0.00	1.00	0.00	1.75	0.00	1.75	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
	DC_{wall}	1.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	EV	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
	$ES_{WA,V}$	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.35	1.00	1.35
	$ES_{liner,V}$	0.00	0.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
Lateral Loads	EH	1.00	1.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	LS	0.00	0.00	0.00	1.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.50	1.50	0.75
	$ES_{liner,H}$	0.00	0.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	Bearing	0	0	0	1.00	1.00	1.25	1.25	1.25	1.25	1.25	1.25

Factored Demand

Load Direction	Load	Force	Arm	Initial 1		Initial 2		Permanent		Service IA		Service IB	
				Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	2.74	-4.00	0.00	0.00	2.74	-10.95	2.74	-10.95	2.74	-10.95	2.74	-10.95
	LL_{ss}	3.03	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	3.03	-12.13	0.00	0.00
	WA_{ss}	2.15	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	-8.60
	DC_{wall}	4.84	-1.32	4.84	-6.38	4.84	-6.38	4.84	-6.38	4.84	-6.38	4.84	-6.38
	EV	4.59	0.88	4.59	4.02	4.59	4.02	4.59	4.02	4.59	4.02	4.59	4.02
	WA_V	1.03	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	1.29
	$ES_{liner,V}$	0.56	1.25	0.00	0.00	0.00	0.00	0.56	0.70	0.56	0.70	0.56	0.70
			Sum:	9.43	-2.36	12.17	-13.31	12.73	-12.61	15.76	-24.74	15.91	-19.92
Lateral Loads	EH	1.07	2.92	1.07	-3.13	1.07	-3.13	1.07	-3.13	1.07	-3.13	1.07	-3.13
	LS	0.00	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.40	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	-1.73
	$ES_{liner,H}$	0.22	4.38	0.00	0.00	0.00	0.00	0.22	-0.95	0.22	-0.95	0.22	-0.95
	Bearing	0.55	7.75	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-4.24	0.55	-4.24
			Sum:	1.07	-3.13	1.07	-3.13	1.29	-4.08	1.84	-8.32	2.23	-10.06

Factored Demand

Load Direction	Load	Strength IA-a		Strength IA-b		Strength IA-c		Strength IB-a		Strength IB-b		Strength IB-c	
		Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	3.42	-13.69	2.46	-9.86	3.42	-13.69	3.42	-13.69	2.46	-9.86	3.42	-13.69
	LL_{ss}	5.31	-21.23	0.00	0.00	5.31	-21.23	0.00	0.00	0.00	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	0.00	0.00	3.71	-14.86	3.71	-14.86	3.71	-14.86
	DC_{wall}	6.05	-7.97	4.35	-5.74	6.05	-7.97	6.05	-7.97	4.35	-5.74	6.05	-7.97
	EV	6.20	5.42	4.59	4.02	6.20	5.42	6.20	5.42	4.59	4.02	6.20	5.42
	WA_V	0.00	0.00	0.00	0.00	0.00	0.00	2.40	3.00	1.78	2.22	2.40	3.00
	$ES_{liner,V}$	0.76	0.95	0.56	0.70	0.76	0.95	0.76	0.95	0.56	0.70	0.76	0.95
Sum:		21.73	-36.52	11.97	-10.87	21.73	-36.52	22.54	-27.14	17.46	-23.51	22.54	-27.14
Lateral Loads	EH	1.61	-4.70	1.61	-4.70	0.81	-2.35	1.61	-4.70	1.61	-4.70	0.81	-2.35
	LS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	0.00	0.00	1.03	-4.49	1.03	-4.49	0.51	-2.25
	$ES_{liner,H}$	0.32	-1.42	0.32	-1.42	0.16	-0.71	0.32	-1.42	0.32	-1.42	0.16	-0.71
	Bearing	0.68	-5.30	0.68	-5.30	0.68	-5.30	0.68	-5.30	0.68	-5.30	0.68	-5.30
Sum:		2.62	-11.42	2.62	-11.42	1.65	-8.36	3.65	-15.92	3.65	-15.92	2.17	-10.61

External Stability Spreadsheet Verification:

Service IB - Water Loading

$$P_{serIB\_V} := P_{SS\_DL} + P_{SS\_WA\_ser} + P_{DC} + P_{EV} + P_{LIN\_V} + P_{WA\_V\_ser} = 15.91 \ klf$$

$$M_{serIB\_V} := M_{SS\_DL} + M_{SS\_WA\_ser} + M_{DC} + M_{EV} + M_{LIN\_V} + M_{WA\_V\_ser} = 19.92 \ \frac{kip \cdot ft}{ft}$$

$$P_{serIB\_H} := P_{EH} + P_{LIN\_H} + P_{WA\_H\_ser} + P_{brg\_H} = 2.23 \ klf$$

$$M_{serIB\_H} := M_{EH} + M_{LIN\_H} + M_{WA\_H\_ser} + M_{brg\_H} = 10.05 \ \frac{kip \cdot ft}{ft}$$

$$M_{serIB} := M_{serIB\_V} + M_{serIB\_H} = 29.97 \ \frac{kip \cdot ft}{ft}$$

Eccentricity Check (AASHTO 11.6.3.3)

Load Combination	ΣV (kip)	ΣM (kip-ft)	e (ft)	Limit (ft)	Check	DCR
Initial 1	9.4	-5.49	-0.58	3.33	OK	0.17
Initial 2	12.2	-16.44	-1.35	3.33	OK	0.41
Permanent	12.7	-16.68	-1.31	3.33	OK	0.39
Service IA	15.8	-33.06	-2.10	3.33	OK	0.63
Service IB	15.9	-29.98	-1.88	3.33	OK	**0.57**
Strength IA-a	21.7	-47.94	-2.21	3.33	OK	0.66
Strength IA-b	12.0	-22.30	-1.86	3.33	OK	0.56
Strength IA-c	21.7	-44.88	-2.07	3.33	OK	0.62
Strength IB-a	22.5	-43.06	-1.91	3.33	OK	0.57
Strength IB-b	17.5	-39.43	-2.26	3.33	OK	0.68
Strength IB-c	22.5	-37.75	-1.67	3.33	OK	0.50

$$e := \frac{M_{serIB}}{P_{serIB\_V}} = 1.884 \ ft$$ Total eccentricity

$$e_{max} := \frac{W_{ft}}{3} = 3.333 \ ft$$ Maximum eccentricity

$$DCR_{ecc} := \frac{e}{e_{max}} = 0.565$$ <1, OK

Bearing Check (AASHTO 11.6.3.2)

Check allowable bearing pressure of 3 ksf according to geotechnical report. Note that since it is an allowable capacity it will be compared to unfactored loading (service).

Load Combination	e (ft)	B' (ft)	ΣV (kip)	σ (ksf)	q_a (ksf)	Check	DCR
Initial 1	-0.58	8.84	9.4	1.07	3.00	OK	0.36
Initial 2	-1.35	7.30	12.2	1.67	3.00	OK	0.56
Permanent	-1.31	7.38	12.7	1.73	3.00	OK	0.58
Service IA	-2.10	5.80	15.8	2.72	3.00	OK	0.91
Service IB	-1.88	6.23	15.9	2.55	3.00	OK	**0.85**

$B'_{serIB} := W_{ft} - 2 \cdot e = 6.2316\ ft$ Effective bearing width

$\sigma_{serIB} := \frac{P_{serIB\_V}}{B'_{serIB}} = 2.5527\ ksf$ Bearing stress

$q_a := 3\ ksf$ Factored bearing resistance

$DCR_{bearing} := \frac{\sigma_{serIB}}{q_a} = 0.851$ <1, OK

Sliding Check (AASHTO 11.6.3.6 & 10.6.3.4)

Conservatively ignore passive resistance

μ =	0.3	Friction Coefficient
ϕ_τ =	0.80	Resistance Factor for Shear Resistance Between Soil and Foundation
γ =	0 pcf	Passive Earth Pressure <-Ignore
ϕ_{ep} =	0	Passive Earth Pressure Component of Sliding Resistance

Load Combination	ΣH (kips)	ΣV (kip)	$\phi_\tau R_\tau$ (kip)	$\phi ep R_{ep}$ (kip)	R_R (kip)	Check	DCR
Service IA	1.84	15.8	3.78	0.00	3.8	OK	0.49
Service IB	2.23	15.9	3.82	0.00	3.8	OK	**0.59**
Strength IA-a	2.62	21.7	5.22	0.00	5.2	OK	0.50
Strength IA-b	2.62	12.0	2.87	0.00	2.9	OK	0.91
Strength IA-c	1.65	21.7	5.22	0.00	5.2	OK	0.32
Strength IB-a	3.65	22.5	5.41	0.00	5.4	OK	0.67
Strength IB-b	3.65	17.5	4.19	0.00	4.2	OK	0.87
Strength IB-c	2.17	22.5	5.41	0.00	5.4	OK	0.40

$\mu := 0.3$ From preliminary foundation report

$\phi_T := 0.8$ AASHTO Table 10.5.5.2.2-1 CIP Concrete on cohesionless soil

$R_{r\_slide} := \phi_T \cdot P_{serIB\_V} \cdot \mu \cdot 1\ ft = 3.818\ kip$

$P_u := P_{serIB\_H} \cdot 1\ ft = 2.234\ kip$

$DCR_{sliding} := \frac{P_u}{R_{r\_slide}} = 0.585$ <1, OK

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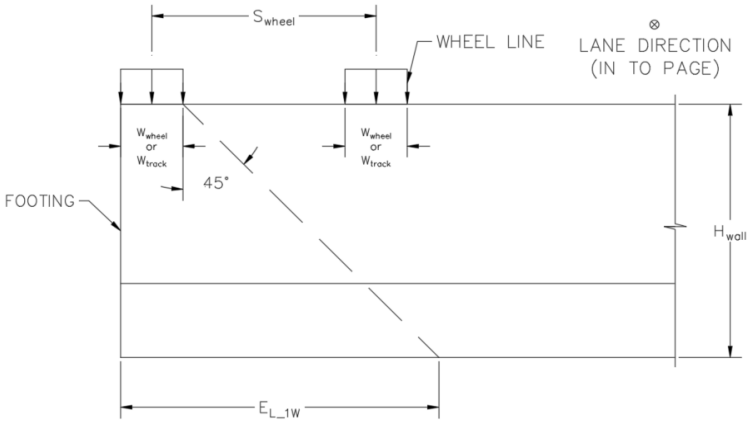
Project: Shea Properties
Project #: 24002328
By: JRM
Date: Nov-24

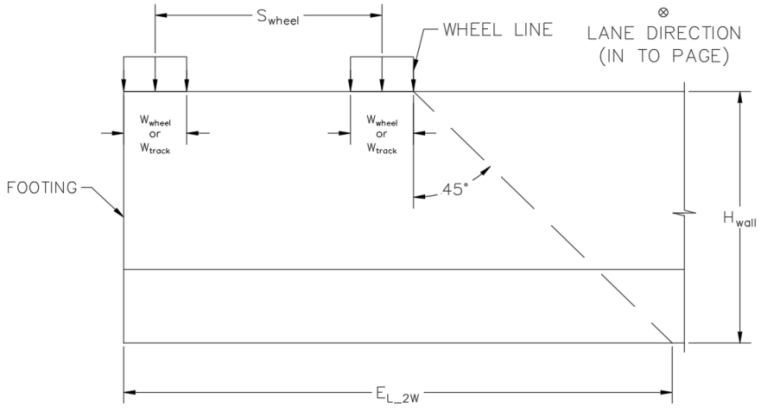
Live Load Bearing Distribution - Maximum Footing Depth

H_{wall}	9.25	ft	Wall Height
V_{H20_L}	38.2	kip	Max H-20 live load reaction from Longitudinal slab sap model
V_{H20_T}	30.3	kip	Max H-20 live load reaction from Transverse slab sap model
V_{Ex_L}	59.9	kip	Max Excavator live load reaction from Longitudinal slab sap model
V_{Ex_T}	65.9	kip	Max Excavator live load reaction from Transverse slab sap model
V_{Bd_L}	42.8	kip	Max Bulldozer live load reaction from Longitudinal slab sap model
V_{Bd_T}	45.7	kip	Max Bulldozer live load reaction from Transverse slab sap model
$S_{wheel,H20}$	6.0	ft	Transverse H-20 wheel spacing
$S_{wheel,Ex}$	8.5	ft	Transverse Excavator track spacing
$S_{wheel,bd}$	6.3	ft	Transverse Bulldozer track spacing
$W_{wheel,H20}$	20.0	in	Width of H-20 wheel
$W_{wheel,Ex}$	24.0	in	Width of Excavator track
$W_{wheel,bd}$	24.0	in	Width of Bulldozer track
$L_{wheel,H20}$	10.0	in	Length of H-20 wheel
$L_{track,Ex}$	158.0	in	Length of Excavator track
$L_{track,bd}$	116.7	in	Length of Bulldozer track

Live Load Bearing Distribution - Longitudinal Distribution - Deep Footing



Longitudinal Single Wheel Distribution Sketch



Longitudinal 2-Wheel Distribution Sketch

$E_{H20\_L\_1W}$	10.92	ft	H20 longitudinal distribution Length for 1 wheel
$E_{H20\_L\_2W}$	16.92	ft	H20 longitudinal distribution Length for 2 wheel
$w_{LL\_H20\_L}$	2.26	kip/ft	$Max(V_{H20\_L}/(2*E_{H20\_L\_1W}),V_{H20\_L}/(E_{H20\_L\_2W}))$
$E_{Ex\_L\_1W}$	11.25	ft	Excavator longitudinal distribution Length for 1 Track
$E_{Ex\_L\_2W}$	19.75	ft	Excavator longitudinal distribution Length for 2Track
$w_{LL\_Ex\_L}$	3.03	kip/ft	$Max(V_{EX\_L}/(2*E_{EX\_L\_1W}),V_{H20\_L}/(E_{EX\_L\_2W}))$
$E_{Bd\_L\_1W}$	11.25	ft	Bulldozer longitudinal distribution Length for 1 Track
$E_{Bd\_L\_2W}$	17.58	ft	Bulldozer longitudinal distribution Length for 2Track
$w_{LL\_Bd\_L}$	2.43	kip/ft	$Max(V_{BD\_L}/(2*E_{BD\_L\_1W}),V_{H20\_L}/(E_{BD\_L\_2W}))$

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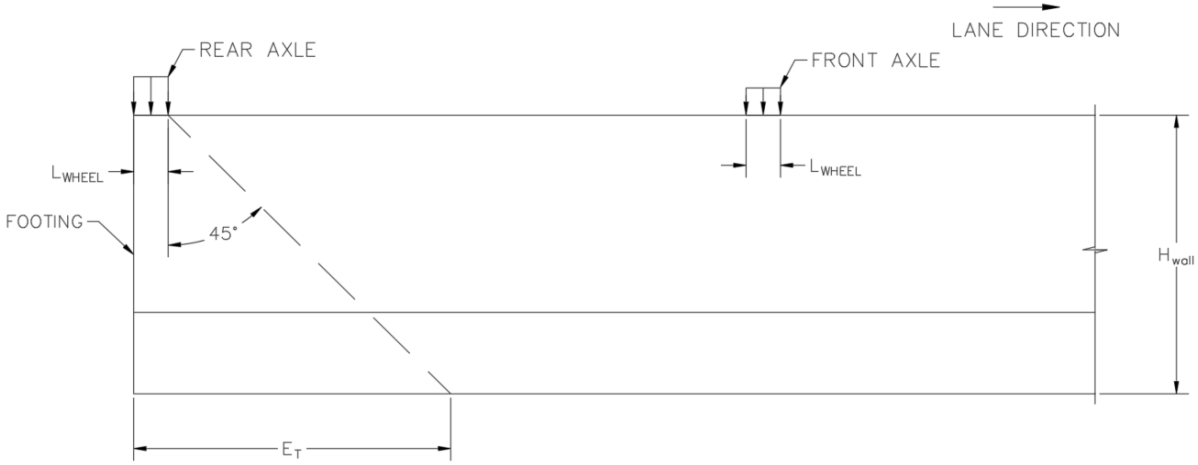
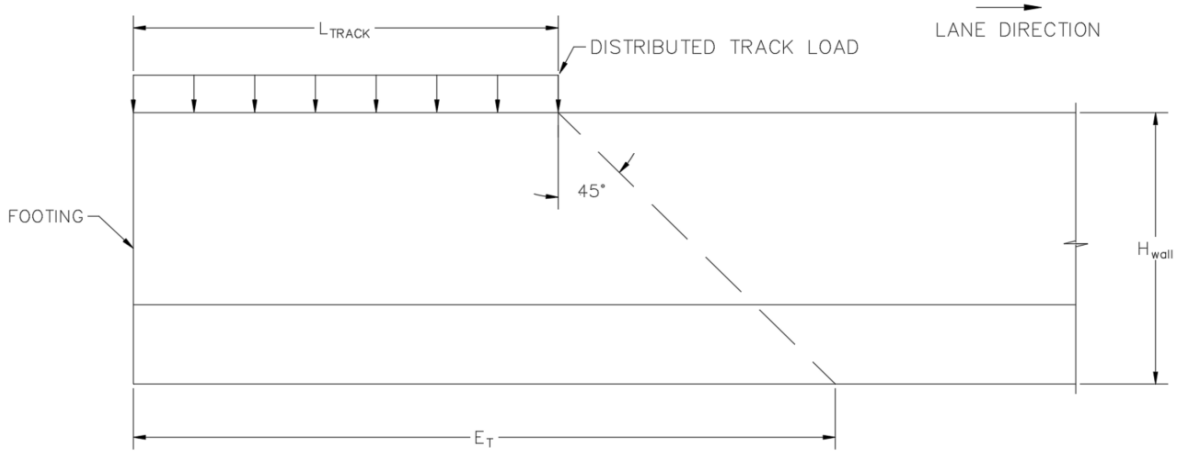
Date: Nov-24

Live Load Bearing Distribution - Transverse Distribution - Deep Footing



Transverse H20 Distribution Sketch



Transverse Excavator/Bulldozer Distribution Sketch

E_{H20_T}	10.08	ft	H20 Transverse distribution length
$w_{LL\_H20\_T}$	3.01	kip/ft	V_{H20_T}/E_{H20_T}
E_{Ex_T}	22.42	ft	Excavator Transverse distribution Length
$w_{LL\_Ex\_T}$	2.94	kip/ft	V_{EX_T}/E_{EX_T}
E_{Bd_T}	18.98	ft	Bulldozer Transverse distribution Length
$w_{LL\_Bd\_T}$	2.41	kip/ft	V_{BD_T}/E_{BD_T}
w_{LL}	**3.03**	kip/ft	Maximum live load distributed load

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PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.3.2 Stem and Footing Design

Stem Structural Check

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Section:

$b := 1\ ft$ Footing strip width

$d := 24\ in$ Footing depth

Material Properties:

$f'_c := 3.6\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 3457\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 8$

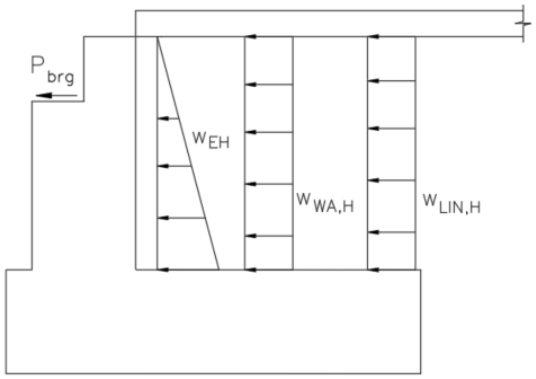
Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

Footing Demands:



Factored Demand													
Load Direction	Load	Force	Arm	Initial 1		Initial 2		Permanent		Service IA		Service IB	
				Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Lateral Loads	EH	1.07	2.25	1.07	-2.42	1.07	-2.42	1.07	-2.42	1.07	-2.42	1.07	-2.42
	WA_H	0.40	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	-1.34
	$ES_{liner,H}$	0.22	3.38	0.00	0.00	0.00	0.00	0.22	-0.73	0.22	-0.73	0.22	-0.73
	Bearing	0.55	5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-3.15	0.55	-3.15
			Sum:	1.07	-2.42	1.07	-2.42	1.29	-3.15	1.84	-6.30	2.23	-7.63

Factored Demand													
Load Direction	Load	Strength IA-a		Strength IA-b		Strength IA-c		Strength IB-a		Strength IB-b		Strength IB-c	
		Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Lateral Loads	EH	1.61	-3.62	1.61	-3.62	0.81	-1.81	1.61	-3.62	1.61	-3.62	0.81	-1.81
	WA_H	0.00	0.00	0.00	0.00	0.00	0.00	1.03	-3.47	1.03	-3.47	0.51	-1.73
	$ES_{liner,H}$	0.32	-1.10	0.32	-1.10	0.16	-0.55	0.32	-1.10	0.32	-1.10	0.16	-0.55
	Bearing	0.68	-3.94	0.68	-3.94	0.68	-3.94	0.68	-3.94	0.68	-3.94	0.68	-3.94
	Sum:	2.62	-8.66	2.62	-8.66	1.65	-6.30	3.65	-12.12	3.65	-12.12	2.17	-8.03

Load Combination	V_u (kip)	M_u (kip-ft)
Initial 1	1.1	2.42
Initial 2	1.1	2.42
Permanent	1.3	3.15
Service IA	1.8	6.30
Service IB	2.2	**7.63**
Strength IA-a	2.6	8.66
Strength IA-b	2.6	8.66
Strength IA-c	1.7	6.30
Strength IB-a	**3.6**	**12.12**
Strength IB-b	**3.6**	**12.12**
Strength IB-c	2.2	8.03

$M_u := 12.12 \ kip \cdot ft$

$M_s := 7.63 \ kip \cdot ft$

$V_u := 3.6 \ kip$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#5s @ 12":

$b_{sz} := 5$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.31\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.655\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.6\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.10098$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.6\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.101$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.51\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 32\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.426$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 2\ ft$ $b = 1\ ft$ $f'_c = 3.6\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 1152\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.455\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 52\ kip \cdot ft$

$M_u = 12.1\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 16\ kip \cdot ft$

$\phi_f \cdot M_n = 28\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.566$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7):

$s_1 := s = 12\ in$ Spacing of flexure steel

$M_s = 7.63\ kip \cdot ft$
$d_s = 20.655\ in$
$b = 12\ in$
$n = 8$
$d_c := d - d_s = 3.345\ in$
$h := d = 2\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.231$$

$\gamma_e := 1$ Assume Exposure Class 1, low visibility

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$
$b_o := -n \cdot A_s$ $A_s = 0.31\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 2.723\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 878\ in^4$$

$$f_{ss} := \operatorname{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 14.957\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 31.319\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.383$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 3.6\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 0.31\ in^2$ $d_s = 20.655\ in$

$d_{v1} := 0.72 \cdot (d) = 17.28\ in$

$d_{v2} := 0.9 \cdot (d_s) = 18.59\ in$

$d_v := \max(d_{v1}, d_{v2}) = 18.59\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6\ ksi$
$b_v := b = 12\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27\ kip$ AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 181\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 24\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 24.1\ kip$

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.15$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_u = 12.12\ kip \cdot ft \qquad d_v = 18.59\ in \qquad \phi_f = 0.9$

$$D_M := \frac{\text{abs}\left(M_u\right)}{\phi_f \cdot d_v} = 9\ kip$$

Shear/Torsion Component:

$V_u = 3.6\ kip \qquad V_s = 0\ kip \qquad V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 4\ kip$$

Capacity Check:

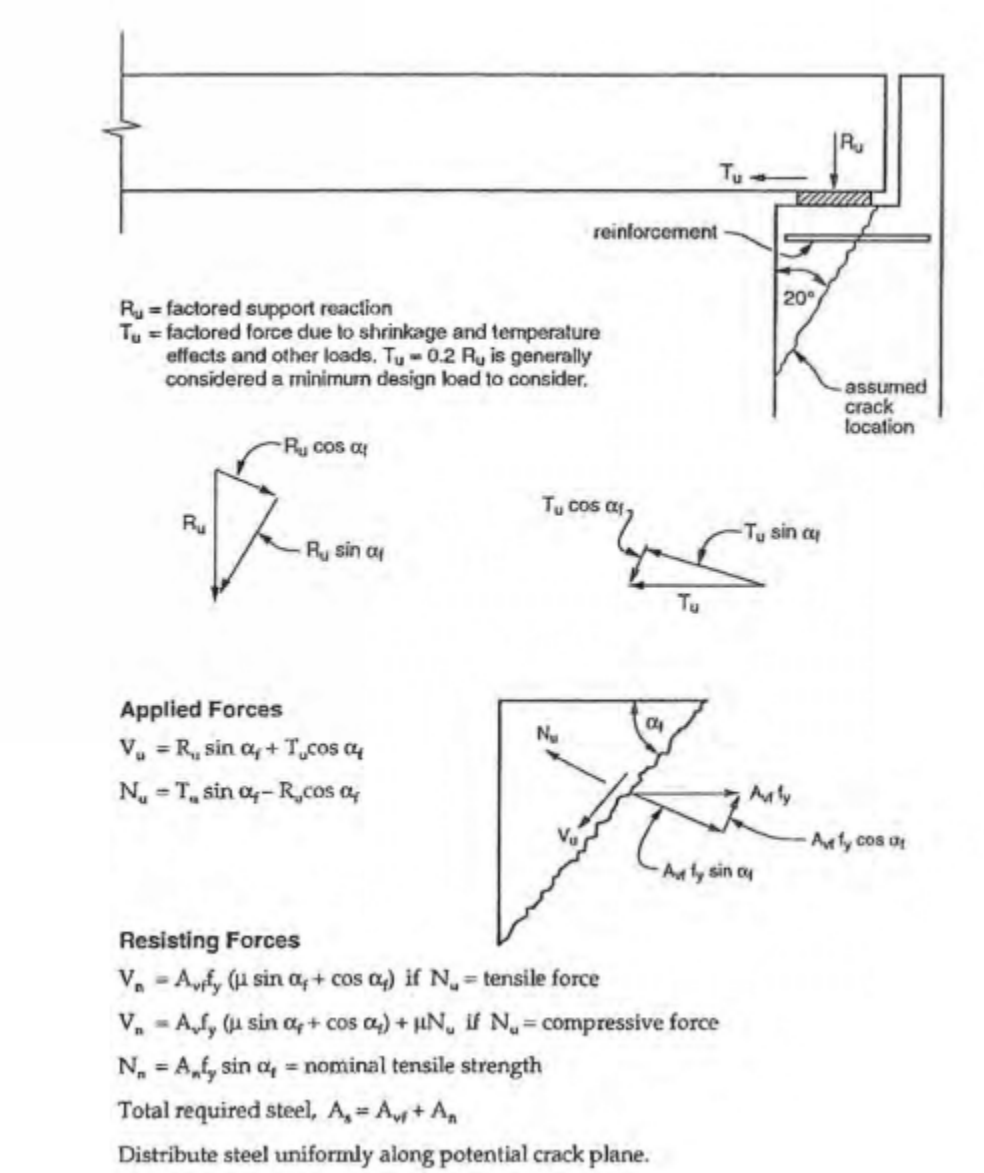
$A_s = 0.31\ in^2 \qquad f_y = 60\ ksi$

$$C := A_s \cdot f_y = 19\ kip$$

$$\frac{D_M + D_V}{C} = 0.68$$ <1, OK

Stem Longitudinal Top Reinforcement (BDP 1994, 2-143)

Check the longitudinal reinforcement underneath the bearings.



$R_u := 67.25\ \textit{kip}$

$R_{perm\_fact} := 13.2\ \textit{kip}$

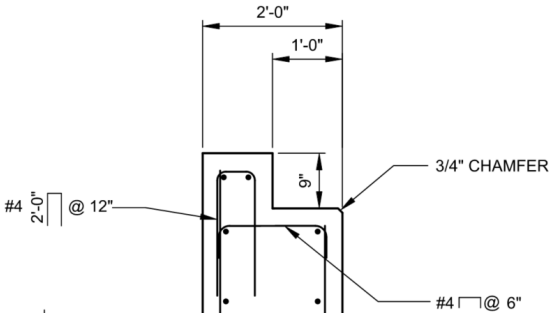
$T_u := 0.2\ \left(R_{perm\_fact}\right) = 2.64\ \textit{kip}$

$\alpha_f := 70\ \textit{deg}$

$V_u := R_u \cdot \sin\left(\alpha_f\right) + T_u \cdot \cos\left(\alpha_f\right) = 64.097\ \textit{kip}$ Shear load along failure plane

$N_u := T_u \cdot \sin\left(\alpha_f\right) - R_u \cdot \cos\left(\alpha_f\right) = -20.52\ \textit{kip}$ Load perpendicular to failure plane (Negative = Compression)

There are #4 @ 6" along the seat, assume a minimum of three fall within failure plane under the 10" long bearing pad



$A_s := 3 \cdot A_{bar}(4) = 0.6\ in^2$

$f_y := 60\ ksi$

$\mu := 1.4$ AASHTO 2017, 5.7.4.4. Monolithically placed concrete

$\phi_v := 0.9$

$l_{d\_avail} := 6\ in$

$l_{dh} := 0.67\ ft$

$A_{s\_eff} := A_s \cdot \frac{l_{d\_avail}}{l_{dh}} = 0.448\ in^2$

$$A_v := \frac{\frac{V_u}{\phi_v} - \max(-\mu \cdot N_u, 0)}{f_y \cdot (\mu \cdot \sin(\alpha_f) + \cos(\alpha_f))} = 0.427\ in^2$$

$$A_n := \max\left(\frac{N_u}{\phi_v\ f_y \cdot \sin(\alpha_f)}, 0\ in^2\right) = 0\ in^2$$

$A_{s\_req} := A_v + A_n = 0.43\ in^2$

$\frac{A_{s\_req}}{A_{s\_eff}} = 0.95$ <1 OK

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San Diego, CA 92101

Project: Shea Properties
Project #: 24002328
By: JM
Date: Nov-24

Hooked Reinforcing Development (AASHTO 2017, 5.10.8.2.4)

Bar Location: #5 Stem Bars

Bar Size	#5		
A_{bar}	0.31	in^2	Area of Bar
d_b	0.63	in	Diameter of Bar
N_{bundle}	1		Number of Bars in Bundle
A_{total}	0.31	in^2	Total Bundle Area
$d_{b,eq}$	0.63	in	Equivalent Diameter
f_y	60	ksi	Rebar Yield Stress
f'_c	3.6		Concrete Ultimate Stress
l_{hb} (ft)	**1.04**	ft	Basic Development Length
λ	**1.0**		Light Weight Aggregate Factor (1 or 1.3)
λ_{cw}	**1.0**		Coating Factor (1 or 1.2)
λ_{rc}	**0.8**		Confinement Factor (1 or 0.8)
λ_{er}	**1.0**		Excess Reinforcement Factor
l_d	**0.83**	ft	Modified Development Length

$$l_{db} = \frac{38 * d_b}{60} * \frac{f_y}{\sqrt{f'_c}}$$

$$l_d = \frac{l_{hb} * \lambda_{cw} * \lambda_{rc}}{\lambda}$$

Note: the excess reinforcement factor (λ_{er}) can be appied on a case by case basis. Development length can still not be less than $8d_b$ or 6"

Footing Structural Check

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Section:

$b := 1\ ft$ Footing strip width

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$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 3457\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 8$

Resistance Factors:

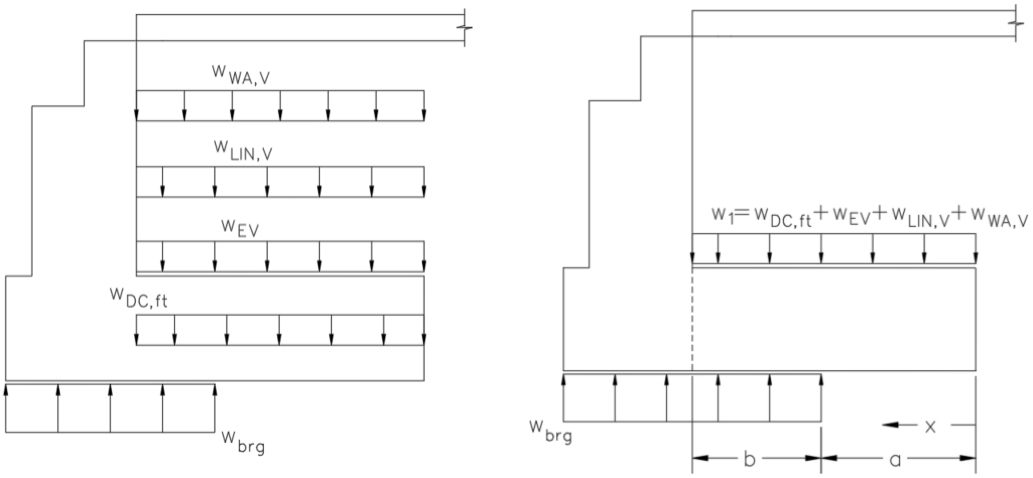
$\phi_f := 0.9$

$\phi_c := 0.75$

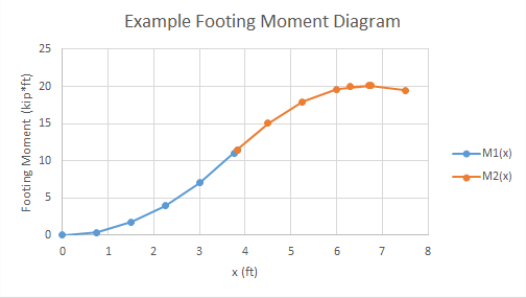
$\phi_v := 0.9$

Footing Demands:

By inspection the max footing depth will control.



Factored Demand															
Load	Dist Load	Initial 1 Force	Initial 2 Force	Permanent Force	Service IA Force	Service IB Force	Strength IA-a Force	Strength IA-b Force	Strength IA-c Force	Strength IB-a Force	Strength IB-b Force	Strength IB-c Force	Extreme I Force	Extreme I Force
	klf	klf	kip	klf	klf	klf	klf	klf	klf	klf	klf	klf	klf	klf
DC_{ft}	0.30	0.30	0.30	0.30	0.30	0.30	0.38	0.27	0.38	0.38	0.27	0.38	0.30	0.30
EV	0.57	0.57	0.57	0.57	0.57	0.57	0.77	0.57	0.77	0.77	0.57	0.77	0.57	0.57
WA_v	0.14	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.32	0.24	0.32	0.24	0.24
$ES_{liner,V}$	0.08	0.00	0.00	0.08	0.08	0.08	0.10	0.08	0.10	0.10	0.08	0.10	0.08	0.08
	Sum:	0.87	0.87	0.95	0.95	1.09	1.25	0.92	1.25	1.57	1.16	1.57	1.19	1.19



$$M_1(x) = \frac{w_1 * x^2}{2}$$

$$M_2(x) = w_1 * a * (x - 0.5a) + \frac{w_2 * (x-a)^2}{2}$$

$$x_{M2max} = \frac{a * w_2 - a * w_1}{w_2}$$

$$w_2 = w_1 + w_{brg}$$

Load Combination	b ft	a ft	w_{brg} klf	$w_{ft} = w_1$ klf	w_2 klf	M_{stem} kip*ft	M_{1max} kip*ft	$x_{M2,max}$ ft	M_{2max} kip*ft	$V_{u,max}$ kip	$M_{u,max}$ kip*ft
Initial 1	6.34	1.16	-1.07	0.87	-0.19	3.16	0.59	6.43	3.27	1.02	3.27
Initial 2	4.80	2.70	-1.67	0.87	-0.79	5.39	3.19	5.68	6.71	2.36	6.71
Permanent	4.88	2.62	-1.73	0.95	-0.78	6.16	3.26	5.83	7.25	2.49	7.25
Service IA	3.30	4.20	-2.72	0.95	-1.77	11.86	8.35	6.45	12.83	3.98	12.83
Service IB	3.73	3.77	-2.55	1.09	-1.47	12.78	7.71	6.56	13.42	4.09	**13.42**
Strength IA-a	3.09	4.41	-3.89	1.25	-2.64	16.63	12.17	6.50	17.94	5.52	17.94
Strength IA-b	3.77	3.73	-1.91	0.92	-0.99	12.25	6.38	7.19	12.30	3.42	12.30
Strength IA-c	3.37	4.13	-3.70	1.25	-2.45	14.16	10.67	6.24	16.11	5.17	16.11
Strength IB-a	3.68	3.82	-3.65	1.57	-2.08	19.49	11.47	6.71	20.14	**6.00**	**20.14**
Strength IB-b	2.98	4.52	-3.18	1.16	-2.03	18.33	11.78	7.09	18.50	5.22	18.50
Strength IB-c	4.15	3.35	-3.39	1.57	-1.82	14.99	8.81	6.24	16.43	5.26	16.43

$M_u := 20.14\ kip \cdot ft$ Maximum factored footing moment

$M_s := 13.42\ kip \cdot ft$ Maximum service footing moment

$V_u := 6\ kip$ Maximum factored footing shear

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#6s @ 12":

$b_{sz} := 6$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.44\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.56\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.85\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.06992$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.85\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.07$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.72\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 44\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.504$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 2\ ft \qquad b = 1\ ft \qquad f'_c = 3.6\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 1152\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.455\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 52\ kip \cdot ft$

$M_u = 20.1\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 27\ kip \cdot ft$

$\phi_f \cdot M_n = 40\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.67$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7):

$s_1 := s = 12\ in$ Spacing of flexure steel

$M_s = 13.42\ kip \cdot ft$
$d_s = 20.56\ in$
$b = 12\ in$
$n = 8$
$d_c := d - d_s = 3.44\ in$
$h := d = 2\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.239$$

$\gamma_e := 1$ Assume Exposure Class 1, low visibility

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$
$b_o := -n \cdot A_s$ $A_s = 0.44\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 3.192\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 1192\ in^4$$

$$f_{ss} := \text{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 18.773\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 23.214\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.517$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 6$ *kip* Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60$ *ksi* $A_s = 0.44$ *in*^{2} $d_s = 20.56$ *in*

$d_{v1} := 0.72 \cdot (d) = 17.28$ *in*

$d_{v2} := 0.9 \cdot (d_s) = 18.5$ *in*

$d_v := \max(d_{v1}, d_{v2}) = 18.5$ *in*

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6$ *ksi*
$b_v := b = 12$ *in*

$\theta := 45$ *deg*

$\beta := 2.0$

$V_s := 0$ *kip* AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27$ *kip* AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 180$ *kip*

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 24$ *kip*

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 24$ *kip*

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.25$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_u = 20.14\ kip \cdot ft \qquad d_v = 18.5\ in \qquad \phi_f = 0.9$

$D_M := \frac{\text{abs}(M_u)}{\phi_f \cdot d_v} = 15\ kip$

Shear/Torsion Component:

$V_u = 6\ kip \qquad V_s = 0\ kip \qquad V_p := 0\ kip$

$V_s := min\left(\frac{\text{abs}(V_u)}{\phi_v}, V_s\right) = 0\ kip$

$D_V := \cot(\theta) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 7\ kip$

Capacity Check:

$A_s = 0.44\ in^2 \qquad f_y = 60\ ksi$

$C := A_s \cdot f_y = 26\ kip$

$\frac{D_M + D_V}{C} = 0.8$ <1, OK

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San Diego, CA 92101

Project: Shea Properties
Project #: 24002328
By: JM
Date: Nov-24

Hooked Reinforcing Development (AASHTO 2017, 5.10.8.2.4)

Bar Location: #6 Footing Bars

Bar Size	#6		
A_{bar}	0.44	in^2	Area of Bar
d_b	0.75	in	Diameter of Bar
N_{bundle}	1		Number of Bars in Bundle
A_{total}	0.44	in^2	Total Bundle Area
$d_{b,eq}$	0.75	in	Equivalent Diameter
f_y	60	ksi	Rebar Yield Stress
f'_c	3.6		Concrete Ultimate Stress
l_{hb} (ft)	**1.25**	ft	Basic Development Length
λ	**1.0**		Light Weight Aggregate Factor (1 or 1.3)
λ_{cw}	**1.0**		Coating Factor (1 or 1.2)
λ_{rc}	**0.8**		Confinement Factor (1 or 0.8)
λ_{er}	**1.0**		Excess Reinforcement Factor
l_d	**1.00**	ft	Modified Development Length

$$l_{db} = \frac{38 * d_b}{60} * \frac{f_y}{\sqrt{f'_c}}$$

$$l_d = \frac{l_{hb} * \lambda_{cw} * \lambda_{rc}}{\lambda}$$

Note: the excess reinforcement factor (λ_{er}) can be appied on a case by case basis. Development length can still not be less than $8d_b$ or 6"

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.4 Bearing Design

ELASTOMERIC BEARING PAD DESIGN RC STRUCTURE

	Width	Length	Area
Trial Pad =	6.0	10.0	60.0
Shape Factor =	3.75		

Number of Pads =	1		
Contributory length RC =	14.2		
D.L. Reaction - Service Load =	13.20	13.20	
L.L. Reaction - Service Load =	29.00	29.00	<- Peak bearing reaction from diaphragm model
Temperature Rise and Fall =	35	*deg*	excluding impact
Temperature Movement =	0.054	in	
P/S Shortening & Shrinkage =	0.00	in	
Concrete Shrinkage =	0.01	in	
Σ=	0.062	in	
Minimum Thickness of Pad =	0.12		
Try Pad =	0.5	OK	

Steel Reinforced

From Figure 4B Compute the Compressive Strain

Compressive Strain =	6.95%	extrapolate figure		
Initial Thickness =	0.4653	in	OK	
Final Thickness After Creep =	0.4566	in		

Calculate the Maximum Shear Force at Slippage

Fsmax =	2.64	allowable		
Actual Design Shear Force =	1.26	Kips	< Fsmax	OK

Max Pad Thickness =	2.00	OK	
Compressive Stress =	703	< 800	OK
Compressive Stress D.L. =	220	> 200	OK

Diaphragm Live Load Reactions

H20 - Longitudinal



H20 - Transverse



Excavator - Longitudinal



Excavator - Transverse



Bulldozer - Longitudinal



Bulldozer - Transverse



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BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

7 Seismic Design

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

7.1 Seismic Parameters

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Seismic Parameters

Originator:JRM
Date: 11/7/2024

From the Geotechnical Report dated 11/7/2024:

DESIGN PARAMETER	RECOMMENDED VALUE
Site Class	D
S_s (g)	2.138
S_1 (g)	0.866
F_a	1.0
F_v	N/A*
S_{MS} (g)	2.138
S_{M1} (g)	N/A
S_{DS} (g)	1.425
S_{D1} (g)	N/A
PGA_M (g)	1.062

DRAFT

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

7.2 Structural Period

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770 First Avenue, Suite 400
San Diego, CA 92101

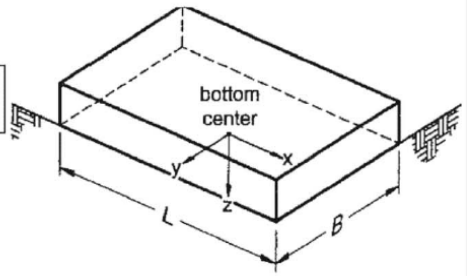
Project: Shea Properties
Project #: 24002328
By: JRM
Date: Feb-25

Structure Period Calculation

Determine structure stiffness according to ASCE 41-17 Section 8.4.2.3 (Method 1). Assume only one footing is effective under seismic loading

v_{s0}	400	ft/s2	Shear wave velocity
γ	85	pcf	Soil unit weight
g	32.17	ft/s^2	Acceleration of gravity
G_0	422.8	ksf	Initial shear modulus (ASCE 41-17, EQ8-4)
v	0.3	Poison's ratio	
S_s	2.138	g	See Geotechnical Investigation Report
F_a	1		See Geotechnical Investigation Report
S_{xs}	2.138	Fa*Ss	
G_0/G	0.1		Effective shear modulus ratio (ASCE 41-17, Table 8-2)
G	42.27541	ksf	Effective shear modulus

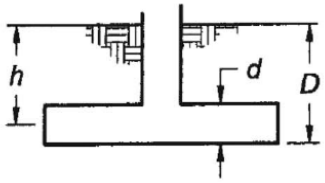
$$G_0 = \frac{\gamma * v_{s0}^2}{g}$$

Degree of Freedom	Stiffness of Foundation at Surface	Note
Translation along x-axis	$K_{x,sur} = \frac{GB}{2-\nu}\left[3.4\left(\frac{L}{B}\right)^{0.65} + 1.2\right]$	
Translation along y-axis	$K_{y,sur} = \frac{GB}{2-\nu}\left[3.4\left(\frac{L}{B}\right)^{0.65} + 0.4\frac{L}{B} + 0.8\right]$	
Translation along z-axis	$K_{z,sur} = \frac{GB}{1-\nu}\left[1.55\left(\frac{L}{B}\right)^{0.75} + 0.8\right]$	
Rocking about x-axis	$K_{xx,sur} = \frac{GB^3}{1-\nu}\left[0.4\left(\frac{L}{B}\right) + 0.1\right]$	

B	10	ft	Footing width
L	203	ft	Footing length
D	7.75	ft	Footing depth
d	2	ft	Footing thickness
h	6.75	ft	

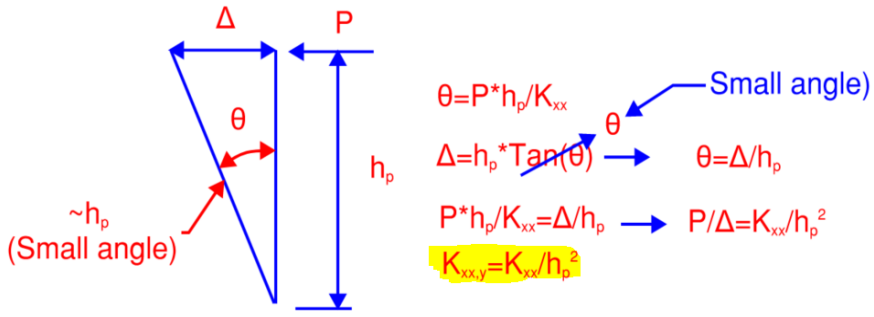
K_y	8.20E+03	kip/ft	Translational stiffness
K_{xx}	4.96E+05	kip*ft/rad	Rocking stiffness

Degree of Freedom	Correction Factor for Embedment
Translation along *x*-axis	$\beta_x = \left(1+0.21\sqrt{\frac{D}{B}}\right)\cdot\left[1+1.6\left(\frac{hd(B+L)}{BL^2}\right)^{0.4}\right]$
Translation along *y*-axis	$\beta_y = \left(1+0.21\sqrt{\frac{D}{L}}\right)\cdot\left[1+1.6\left(\frac{hd(B+L)}{LB^2}\right)^{0.4}\right]$
Translation along *z*-axis	$\beta_z = \left[1+\frac{1}{21}\frac{D}{B}\left(2+2.6\frac{B}{L}\right)\right]\cdot\left[1+0.32\left(\frac{d(B+L)}{BL}\right)^{2/3}\right]$
Rocking about *x*-axis	$\beta_{xx} = 1+2.5\frac{d}{B}\left[1+\frac{2d}{B}\left(\frac{d}{D}\right)^{-0.2}\sqrt{\frac{B}{L}}\right]$



d = height of effective

β_y	1.803		Embedment correction factor (Translation)
β_{xx}	1.558		Embedment correction factor (Rotation)
$K_{y,mod}$	1.48E+04	kip/ft	$\beta_y * K_y$
$K_{xx,mod}$	7.74E+05	kip*ft/rad	$\beta_{xx} * K_{xx}$



h_p	6.625	ft	Distance from btm of footing to center of backwall
$K_{xx,y}$	1.76E+04	kip/ft	$(K_{xx,mod}/h_p^2)$
K	8.04E+03	kip/ft	$1/(1/K_{y,mod}+1/K_{xx,y})$
w_{slab}	5.48	kip*ft	Slab weight per foot
W	1111.63	kip	Slab seismic
T	**0.41**	sec	$2\pi*(W/(g*K))^{0.5}$
	Less than 0.5 sec, OK		

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PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

7.3 Slab Seismic Design

Slab Seismic Design

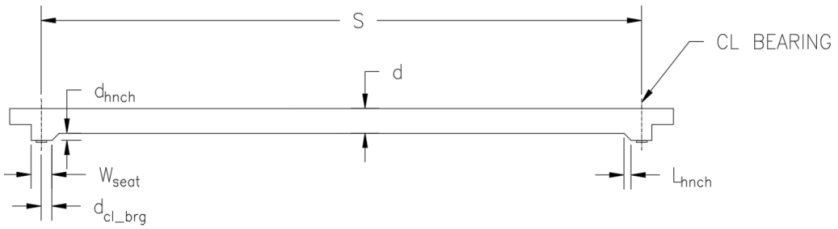
According Caltrans SDC 2.0 section Article 7.2.2 where peak ground accelerations greater than or equal to 0.6g the superstructure shall be design for vertical ground excitation. According to this article these superstructures shall be designed for a uniform load equal to 25% of the superstructes dead load upward or downward. By inspection the strength load case will control for the downward verticle load. This section checks the top mat of reinforcing to resist this upward seismic force.

Section:

$S := 28\ ft + 4\ in = 28.33\ ft$ Span length

$d := 14\ in$ Slab depth

$b := 1\ ft$ Equivalent strip width



Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_c := \max\left(145\ pcf + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$ Concrete modulus of elasticity

$E_s := 29000\ ksi$ Steel modulus of elasticity

Vertical Earthquake Load:

$a_v := 0.25$ Vertical excition coefficent

$w_{EQ\_v} := a_v \cdot d \cdot b \cdot \gamma_c = 0.044\ klf$ Load due to vertical siesmic load

$M_{EQ\_v} := \frac{w_{EQ\_v} \cdot S^2}{8} = 4.39\ kip \cdot ft$ Moment due to vertical siesmic load

Resistance Factors:

$\phi_f := 1$ SDC 2.0, 3.6

+Flexural Calculations:

Longitudinal Reinforcement:

#5s @ 12":

$b_{sz} := 5$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.31\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 10.655\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.46\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.06712$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.46\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.067$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.36\ in$ — Depth of equivalent stress block.

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$\phi_f = 1$

$M_{EQ\_v} = 4.39\ \boldsymbol{kip \cdot ft}$

$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 16\ \boldsymbol{kip \cdot ft}$

$DC_{M3} := \frac{\mathrm{abs}\left(M_{EQ\_v}\right)}{\phi_f \cdot M_n} = 0.27$ <1, OK

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

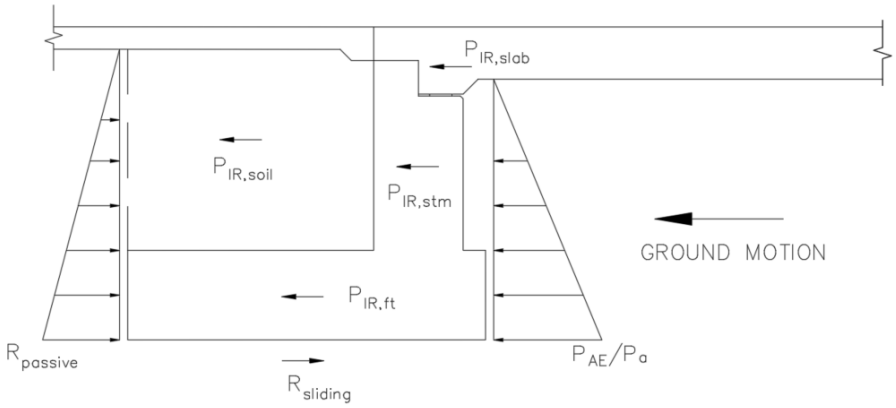
7.4 Footing Seismic Design

Footing Seismic Design

In a seismic event it is anticipated that the joint between the crossing slab and the footing it is moving towards will close transfering the inertial force from the crossing slab to the footing. This section will check the footings capacity to resist this inertial load

Section:

$S_{slab\_clr} := 27.33\ ft$	Clear slab span
$H_{wall} := 9.25\ ft$	Max wall height
$t_{stem} := 2\ ft$	Stem thickness
$t_{ft} := 2\ ft$	Footing thickness
$t_{hnch} := 4\ in$	Haunch thickness
$t_{end} := 9\ in$	Depth slab extension
$\gamma_c := 150\ pcf$	Concrete unit weight
$\gamma_s := 85\ pcf$	Soil unit weight
$L_{toe} := 0.5\ ft$	Length of toe
$W_{ft} := 10\ ft$	Width of footing
$W_{seat} := 1\ ft$	Seat width
$t_{liner} := 6\ in$	Liner thickness
$t_{slab} := 14\ in$	Slab thickness
$b := 1\ ft$	Equivalent strip width
$t_{bw} := 1\ ft$	Backwall thickness
$H_{bw} := 9\ in$	Backwall height
$PGA := 1.062$	Peak ground acceleration



External Stability Checks

The following section will check the external stability of the footing (sliding and bearing checks) to resist the inertial loads of the slab in addition to the the inetials of the footing and the surrounding retained soils.

Vertical Dead Load:

$t_{ft} := 2\ ft$ — Footing thickness

$L_{heel} := W_{ft} - L_{toe} - t_{stem} = 7.5\ ft$ — Heel Length

$d_{cl\_brg} := 0.5\ ft$ — Distance to centerline of bearing

Cross sectional area of crossing slab:

$A_{slab} := S_{slab\_clr} \cdot t_{slab} + 2\ \left(0.5 \cdot t_{hnch}{}^2 + t_{end} \cdot t_{bw} + W_{seat} \cdot \left(t_{hnch} + t_{slab}\right)\right) = 36.496\ ft^2$

$e_{brg} := 0.5 \cdot W_{ft} - d_{cl\_brg} - L_{toe} = 4\ ft$ — Bearing eccentricity

$P_{DL\_slab} := \gamma_c \cdot \left(0.5 \cdot A_{slab}\right) \cdot b = 2.737\ kip$ — Slab weight

$M_{DL\_slab} := P_{DL\_slab} \cdot e_{brg} = 10.949\ kip \cdot ft$ — Moment due to slab

$P_{DL\_bw} := \gamma_c \cdot \left(t_{bw}\right) \cdot \left(H_{bw}\right) \cdot b = 0.113\ kip$ — Backwall load

$e_{DL\_bw} := 0.5\ W_{ft} - \left(W_{seat} + 0.5\ t_{bw} + L_{toe}\right) = 3\ ft$ — Backwall eccentricity

$M_{DL\_bw} := P_{DL\_bw} \cdot e_{DL\_bw} = 0.338\ kip \cdot ft$ — Moment due to backwall

$P_{DL\_stm} := \gamma_c \cdot t_{stem}\ \left(H_{wall} - \left(t_{slab} + t_{hnch}\right) - t_{ft}\right) \cdot b = 1.725\ kip$ — Stem load

$e_{DL\_stm} := 0.5\ W_{ft} - \left(0.5\ t_{stem} + L_{toe}\right) = 3.5\ ft$ — Stem eccentricity

$M_{DL\_stm} := P_{DL\_stm} \cdot e_{DL\_stm} = 6.038\ kip \cdot ft$ — Moment due to stem

$P_{DL\_ft} := \gamma_c \cdot \left(t_{ft}\right)\ \left(W_{ft}\right) \cdot b = 3\ ft \cdot klf$ — Footing load

$e_{DL\_ft} := 0.5\ W_{ft} - 0.5\ W_{ft} = 0\ ft$ — Footing eccentricity

$P_{DC} := P_{DL\_slab} + P_{DL\_bw} + P_{DL\_stm} + P_{DL\_ft} = 7.575\ kip$ — Dead load

$M_{DC} := M_{DL\_slab} + M_{DL\_bw} + M_{DL\_stm} = 17.324\ kip \cdot ft$ — Moment due to dead load

Liner Surcharge:

$t_{liner} = 6\ in$

$\gamma_c = 150\ pcf$

$P_{ES} := \gamma_c \cdot t_{liner} \cdot b \cdot L_{heel} = 0.563\ kip$

$e_{ES} := 0.5\ L_{heel} - 0.5\ W_{ft} = -1.25\ ft$

$M_{ES} := P_{ES} \cdot e_{ES} = -0.703\ kip \cdot ft$

Vertical Soil Load:

$\gamma_s = 85\ pcf$ Unit weight of soil

$L_{heel} := W_{ft} - t_{stem} - L_{toe} = 7.5\ ft$ Length of heel

$p_{EV} := \left(H_{wall} - t_{liner} - t_{ft}\right) \cdot \gamma_s = 0.574\ ksf$ Vertical soil pressure on footing

$P_{EV\_heel} := L_{heel} \cdot p_{EV} \cdot b = 4.303\ kip$ Vertical soil load on heel

$e_{EV\_heel} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Eccentricity of vert heel soil load

$P_{EV\_toe} := L_{toe} \cdot p_{EV} \cdot b = 0.287\ kip$

$e_{EV\_toe} := 0.5\ W_{ft} - \left(0.5\ L_{toe}\right) = 4.75\ ft$

$M_{EV} := P_{EV\_heel} \cdot e_{EV\_heel} + P_{EV\_toe} \cdot e_{EV\_toe} = -4.016\ kip \cdot ft$ Moment of Vert soil load on wall

$P_{EV} := P_{EV\_heel} + P_{EV\_toe} = 4.59\ kip$ Vertical soil load

$e_{EV} := \frac{M_{EV}}{P_{EV}} = -0.875\ ft$ Eccentricity of vertical soil load

$P_{perm} := P_{DC} + P_{ES} + P_{EV} = 12.73\ kip$

$M_{perm} := M_{EV} + M_{DC} + M_{ES} = 12.6\ kip \cdot ft$

Horizontal Inertial Load:

$PGA = 1.062$ Peak ground acceleration

$k_h := 0.5 \cdot PGA = 0.531$ Caltrans STP 11.29

Backwall inertial loads:

$P_{IR\_bw} := -k_h \cdot P_{DL\_bw} = -0.06$ *kip*

$e_{IR\_bw} := H_{wall} - t_{liner} - 0.5 \cdot H_{bw} = 8.375$ *ft*

$M_{IR\_bw} := P_{IR\_bw} \cdot e_{IR\_bw} = -0.5$ *kip·ft*

Stem inertial loads:

$P_{IR\_stm} := -k_h \cdot P_{DL\_stm} = -0.916$ *kip*

$e_{IR\_stm} := 0.5 \left(H_{wall} - t_{ft} - H_{bw}\right) + t_{ft} = 5.25$ *ft*

$M_{IR\_stm} := P_{IR\_stm} \cdot e_{IR\_stm} = -4.809$ *kip·ft*

Footing inertial loads:

$P_{IR\_ft} := -k_h \cdot P_{DL\_ft} = -1.593$ *kip*

$e_{IR\_ft} := 0.5 \cdot t_{ft} = 1$ *ft*

$M_{IR\_ft} := P_{IR\_ft} \cdot e_{IR\_ft} = -1.593$ *kip·ft*

Soil inertial loads:

$P_{IR\_soil} := -k_h \cdot P_{EV} = -2.437$ *kip*

$e_{IR\_soil} := e_{IR\_stm}$

$M_{IR\_soil} := P_{IR\_soil} \cdot e_{IR\_soil}$

Slab inertial loads:

$P_{IR\_slab} := -2 \cdot P_{DL\_slab} \cdot PGA = -5.814$ *kip*

$e_{IR\_slab} := e_{IR\_bw} = 8.375$ *ft*

$M_{IR\_slab} := P_{IR\_slab} \cdot e_{IR\_slab} = -48.691$ *kip·ft*

$P_{IR} := P_{IR\_slab} + P_{IR\_stm} + P_{IR\_ft} + P_{IR\_soil} + P_{IR\_bw} = -10.82$ *kip*

$M_{IR} := M_{IR\_slab} + M_{IR\_stm} + M_{IR\_ft} + M_{IR\_soil} + M_{IR\_bw} = -68.39$ *kip·ft*

Active Earth Load:

$\gamma_s := 85\ pcf$ Unit weight of soil

$k_a := 0.33$ Active coefficient of soil

$t_{slab} := 14\ in$ Liner thickness

$p_a := -\left(H_{wall} - t_{slab}\right) \cdot k_a \cdot \gamma_s = -0.227\ ksf$ Maximum hrz soil pressure

$P_a := 0.5 \cdot \left(H_{wall} - t_{slab}\right) \cdot p_a \cdot b = -0.916\ kip$ Active soil load on wall

$e_a := \frac{H_{wall} - t_{slab}}{3} = 2.694\ ft$ Eccentricity of active earth pressure

$M_a := P_a \cdot e_a = -2.469\ kip \cdot ft$ Active soil moment

Seismic Active Earth Load:

$\gamma_s = 85\ pcf$ Unit weight of soil

$k_{AE} := 0.63$ Seismic active coefficient of soil

$t_{slab} = 14\ in$ Liner thickness

$p_{AE} := -\left(H_{wall} - t_{slab}\right) \cdot k_{AE} \cdot \gamma_s = -0.433\ ksf$ Maximum hrz soil pressure

$P_{AE} := 0.5 \cdot \left(H_{wall} - t_{slab}\right) \cdot p_{AE} \cdot b = -1.749\ kip$ Seisimc soil load

$e_{AE} := e_a = 2.694\ ft$ Eccentricity of Seisimc soil load

$M_{AE} := P_{AE} \cdot e_{AE} = -4.714\ kip \cdot ft$ Seisimc soil moment

Passive Resistance:

$p_{pas} := 250\ \frac{psf}{ft}$

$p_{pas\_mx} := min\left(p_{pas} \cdot \left(H_{wall} - t_{liner}\right), 2500\ psf\right) = 2.188\ ksf$

$R_{passive} := 0.5\ p_{pas\_mx} \cdot \left(H_{wall} - t_{liner}\right) \cdot b = 9.57\ kip$ Passive soil resistance

$e_{pas} := \frac{H_{wall} - t_{liner}}{3} = 2.917\ ft$ Passive resistance eccentricity

$M_{pas} := R_{passive} \cdot e_{pas} = 27.913\ kip \cdot ft$ Passive soil moment

Bearing Check:

According to Caltrans STP 11.29:

$M_{EQ1} := M_{IR} + 0.5\ M_{AE} = -70.746\ kip \cdot ft$

$M_{EQ2} := 0.5\ M_{IR} + M_{AE} = -38.908\ kip \cdot ft$

$M_{EQ3} := M_{IR} + M_a = -70.858\ kip \cdot ft$

$M_{EQ} := min\left(M_{EQ1}, M_{EQ2}, M_{EQ3}\right) = -70.858\ kip \cdot ft$

$M_{EX} := M_{perm} + M_{pas} + M_{EQ} = -30.34\ kip \cdot ft$ Combined seismic moment

$P_{perm} = 12.727\ kip$ Permenant vertical load

$e := \frac{M_{EX}}{P_{perm}} = -2.384\ ft$ Combined seismic eccentricity

$B' := W_{ft} - \left|2 \cdot e\right| = 5.232\ ft$ Effective footing width

$\sigma_{EX} := \frac{P_{perm}}{B' \cdot b} = 2.432\ ksf$ Seismic bearing pressure

$\sigma_{a\_tran} := 4\ ksf$ Allowable bearing pressure for transient loading

$DCR := \frac{\sigma_{EX}}{\sigma_{a\_tran}} = 0.608$ <1, OK

Sliding Check:

Friction Resistance:

$P_{perm} = 12.73$ ***kip***

$\mu_s := 0.3$ Coefficent of friction

$R_{sliding} := \mu_s \cdot P_{perm} = 3.82$ ***kip*** Sliding resistance

Sliding Demand:

$P_{IR} = -10.82$ ***kip*** $P_a = -0.916$ ***kip*** $P_{AE} = -1.749$ ***kip***

According to Caltrans STP 11.29:

$P_{seis\_1} := P_{IR} + 0.5 \cdot P_{AE} = -11.69$ ***kip***

$P_{seis\_2} := 0.5 \cdot P_{IR} + P_{AE} = -7.16$ ***kip***

$P_{seis\_3} := P_{IR} + P_a = -11.74$ ***kip***

$P_{seis} := min\left(P_{seis\_1}, P_{seis\_2}, P_{seis\_3}\right) = -11.74$ ***kip***

$$\frac{-P_{seis}}{R_{passive} + R_{sliding}} = 0.877$$ <1, OK

Stem Check

Check stem capacity to resist the slab inertial loads in addition to the stem inertia loads and active seismic soil loads.

Slab Inertial Load:

$P_{IR\_slab} = -5.814\ kip$ — Slab inertial load

$e_{IR\_slab} := H_{wall} - 9\ in - \frac{9\ in}{2} - t_{ft} = 6.125\ ft$ — Center of backwall to top of footing

$M_{IR\_slab} := P_{IR\_slab} \cdot e_{IR\_slab} = -35.61\ kip \cdot ft$ — Stem moment due to Slab inertial load

Stem Inertial Load:

$P_{IR\_stm} = -0.916\ kip$ — Stem inertial load

$e_{IR\_stm} := 0.5 \cdot \left(H_{wall} - t_{ft}\right) = 3.625\ ft$ — Stem inertial eccentricity

$M_{IR\_stm} := P_{IR\_stm} \cdot e_{IR\_stm} = -3.32\ kip \cdot ft$ — Stem inertial moment

Active Earth Load:

$\gamma_s = 85\ pcf$ — Unit weight of soil

$k_a = 0.33$ — Active coefficient of soil

$t_{slab} = 14\ in$ — Slab thickness

$p_a := \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot k_a \cdot \gamma_s = 0.171\ ksf$ — Maximum hrz soil pressure

$P_a := -0.5 \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot p_a \cdot b = -0.519\ kip$ — Horizontal soil load

$e_a := \frac{1}{3} \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) = 2.028\ ft$ — Eccentricity of soil load

$M_a := P_a \cdot e_a = -1.052\ kip \cdot ft$ — Moment due to soil load

Seismic Active Earth Load:

$k_{AE} = 0.63$ — Seismic active coefficient of soil

$p_{AE} := \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot k_{AE} \cdot \gamma_s = 0.326\ ksf$ — Maximum hrz soil pressure

$P_{AE} := -0.5 \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot p_{AE} \cdot b = -0.991\ kip$ — Horizontal soil load

$e_{AE} := \frac{1}{3} \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) = 2.028\ ft$ — Eccentricity of soil load

$M_{AE} := P_{AE} \cdot e_{AE} = -2.009\ kip \cdot ft$ — Moment due to soil load

Passive Resistance:

$p_{pas} := 250 \ \frac{psf}{ft}$

$p_{pas\_mx} := min\left(p_{pas} \cdot \left(H_{wall} - t_{liner} - t_{ft}\right), 2500 \ psf\right) = 1.69 \ ksf$ Maximum hrz soil pressure

$R_{passive} := 0.5 \ p_{pas\_mx} \cdot \left(H_{wall} - t_{liner} - t_{ft}\right) \cdot b = 5.7 \ kip$ Horizontal soil load

$e_{passive} := \frac{1}{3} \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) = 2.03 \ ft$ Eccentricity of soil load

$M_{passive} := R_{passive} \cdot e_{passive} = 11.55 \ kip \cdot ft$ Moment due to soil load

Stem Demand (Caltrans STP 11.29):

$V_{EQ\_1} := P_{IR\_slab} + P_{IR\_stm} + 0.5 \ P_{AE} + R_{passive} = -1.53 \ kip$

$M_{EQ\_1} := M_{IR\_slab} + M_{IR\_stm} + 0.5 \ M_{AE} + M_{passive} = -28.39 \ kip \cdot ft$

$V_{EQ\_2} := 0.5 \ P_{IR\_slab} + 0.5 \ P_{IR\_stm} + P_{AE} + R_{passive} = 1.34 \ kip$

$M_{EQ\_2} := 0.5 \ M_{IR\_slab} + 0.5 \ M_{IR\_stm} + M_{AE} + M_{passive} = -9.93 \ kip \cdot ft$

$V_{EQ\_3} := P_{IR\_slab} + P_{IR\_stm} + P_a + R_{passive} = -1.55 \ kip$

$M_{EQ\_3} := M_{IR\_slab} + M_{IR\_stm} + M_a + M_{passive} = -28.43 \ kip \cdot ft$

$V_{EQ\_stm} := \max\left(V_{EQ\_1}, V_{EQ\_3}, V_{EQ\_3}\right) = -1.53 \ kip$

$M_{EQ\_stm} := \max\left(M_{EQ\_1}, M_{EQ\_3}, M_{EQ\_3}\right) = -28.39 \ kip \cdot ft$

Stem Structural Check

Included in these calculations are checks for:

+Flexure
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Demand:

$V_{EQ\_stm} = -1.53\ kip$

$M_{EQ\_stm} = -28.39\ kip \cdot ft$

Section:

$b := 1\ ft$ Footing strip width

$d := 24\ in$ Footing depth

Material Properties:

$f'_c := 3.6\ ksi$ Nominal Concrete strength

$f'_{ce} := min\left(1.3 \cdot f'_c, 5\ ksi\right) = \left(4.68 \cdot 10^3\right)\ psi$ Expected Concrete strength
SDC 2.0, 3.3.6

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ AASHTO 2017, 5.6.2.2

$E_s := 29000\ ksi$ Steel modulus of elasticity

$f_y := 60\ ksi$ Nominal reinforcement yield stress

$f_{ye} := 68\ ksi$ Expected reinforcement yield stress
SDC 2.0, 3.3.3

Resistance Factors (SDC 2.0, 3.6):

$\phi_f := 1.0$

$\phi_v := 1.0$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#5s @ 12":

$b_{sz} := 5$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.31\ in^2$ — Area of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.655\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_{ye}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.68\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.08875$

$f_{s1} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_{ce} \cdot \beta_1 \cdot b} = 0.52\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.116$

$f_{s2} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.44\ in$ — Depth of equivalent stress block.

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 36\ kip \cdot ft$

$DC_{M3} := \frac{\text{abs}(M_{EQ\_stm})}{\phi_f \cdot M_n} = 0.791$ <1, OK

Maximum Shear:

Demands at Section:

$V_{EQ\_stm} = -1.53\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 0.31\ in^2$ $d_s = 20.655\ in$

$d_{v1} := 0.72 \cdot (d) = 17.28\ in$

$d_{v2} := 0.9 \cdot (d_s) = 18.59\ in$

$d_v := \max(d_{v1}, d_{v2}) = 18.59\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6\ ksi$

$b_v := b = 12\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27\ kip$ AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 201\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 27\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 26.7\ kip$

$DCR := \frac{\text{abs}(V_{EQ\_stm})}{\phi V_n} = 0.057$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_{EQ\_stm} = -28.386\ kip \cdot ft \quad d_v = 18.59\ in \quad \phi_f = 1$

$D_M := \frac{\text{abs}\left(M_{EQ\_stm}\right)}{\phi_f \cdot d_v} = 18\ kip$

Shear/Torsion Component:

$V_{EQ\_stm} = -1.53\ kip \quad V_s = 0\ kip \quad V_p := 0\ kip$

$V_s := min\left(\frac{\text{abs}\left(V_{EQ\_stm}\right)}{\phi_v}, V_s\right) = 0\ kip$

$D_V := \cot(\theta) \cdot \left(\left|\frac{V_{EQ\_stm}}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 2\ kip$

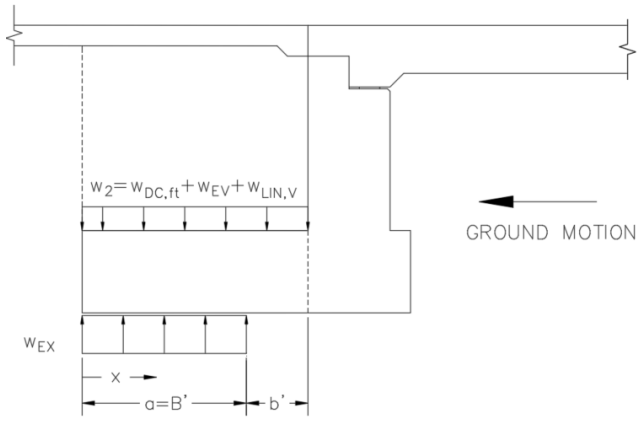
Capacity Check:

$A_s = 0.31\ in^2 \quad f_y = 60\ ksi$

$C := A_s \cdot f_{ye} = 21\ kip$

$\frac{D_M + D_V}{C} = 0.94$ <1, OK

Footing Check



$w_{EX} := -\sigma_{EX} \cdot b = -2.432$ ***klf***

$w_{DC\_ft} := \gamma_c \cdot t_{ft} \cdot b = 0.3$ ***klf***

$w_{EV} := \gamma_s \cdot \left(H_{wall} - t_{ft} - t_{liner}\right)\ b = 0.574$ ***klf***

$w_{LIN\_V} := \gamma_c \cdot t_{liner} \cdot b = 0.075$ ***klf***

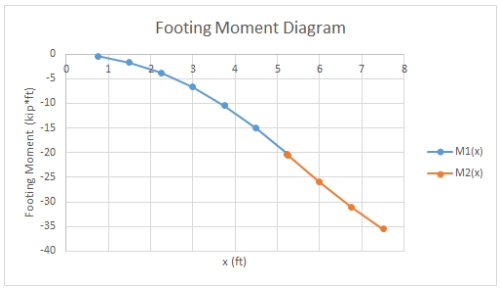
$w_2 := w_{DC\_ft} + w_{EV} + w_{LIN\_V} = 0.949$ ***klf***

$w_1 := w_2 + w_{EX} = -1.484$ ***klf***

$a := B' = 5.232$ ***ft***

$$M_1 = \frac{w_1 * x^2}{2}$$

$$M_2 = w_1 * a * (x - 0.5a) + \frac{w_2 * (x - a)^2}{2}$$



Max moment is at face of stem

$M_{EQ\_ft} := \frac{w_2 \cdot L_{heel}^{\ 2}}{2} + w_{EX} \cdot B' \cdot \left(L_{heel} - 0.5\ B'\right) = -35.5$ ***kip·ft***

$V_{EQ\_ft} := w_2 \cdot L_{heel} + w_{EX} \cdot B' = -5.6$ ***kip***

Footing Structural Check

Included in these calculations are checks for:

+Flexure
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Demand:

$V_{EQ\_ft} = -5.612\ kip$

$M_{EQ\_ft} = -35.47\ kip \cdot ft$

Section:

$b := 1\ ft$ Footing strip width

$d := 24\ in$ Footing depth

Material Properties:

$f'_c := 3.6\ ksi$ Nominal Concrete strength

$f'_{ce} := min\left(1.3 \cdot f'_c, 5\ ksi\right) = \left(4.68 \cdot 10^3\right)\ psi$ Expected Concrete strength
SDC 2.0, 3.3.6

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ AASHTO 2017, 5.6.2.2

$E_s := 29000\ ksi$ Steel modulus of elasticity

$f_y := 60\ ksi$ Nominal reinforcement yield stress

$f_{ye} := 68\ ksi$ Expected reinforcement yield stress
SDC 2.0, 3.3.3

Resistance Factors (SDC 2.0, 3.6):

$\phi_f := 1.0$

$\phi_v := 1.0$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#6s @ 12":

$b_{sz} := 6$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.44\ in^2$ — Area of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.56\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_{ye}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.96\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.06134$

$f_{s1} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_{ce} \cdot \beta_1 \cdot b} = 0.74\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.081$

$f_{s2} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.63\ in$ — Depth of equivalent stress block.

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 50\ kip \cdot ft$

$DC_{M3} := \frac{\text{abs}(M_{EQ\_ft})}{\phi_f \cdot M_n} = 0.703$ — <1, OK

Maximum Shear:

Demands at Section:

$V_{EQ\_ft} = -5.612$ ***kip*** Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60$ ***ksi*** $A_s = 0.44$ ***in***^{2} $d_s = 20.56$ ***in***

$d_{v1} := 0.72 \cdot (d) = 17.28$ ***in***

$d_{v2} := 0.9 \cdot (d_s) = 18.5$ ***in***

$d_v := \max(d_{v1}, d_{v2}) = 18.5$ ***in***

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6$ ***ksi***

$b_v := b = 12$ ***in***

$\theta := 45$ ***deg***

$\beta := 2.0$

$V_s := 0$ ***kip*** AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27$ ***kip*** AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 200$ ***kip***

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 27$ ***kip***

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 26.6$ ***kip***

$DCR := \frac{\text{abs}(V_{EQ\_ft})}{\phi V_n} = 0.211$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_{EQ\_ft} = -35.475\ kip \cdot ft \quad d_v = 18.5\ in \qquad \phi_f = 1$

$D_M := \frac{\text{abs}\left(M_{EQ\_ft}\right)}{\phi_f \cdot d_v} = 23\ kip$

Shear/Torsion Component:

$V_{EQ\_ft} = -5.612\ kip \quad V_s = 0\ kip \qquad V_p := 0\ kip$

$V_s := min\left(\frac{\text{abs}\left(V_{EQ\_ft}\right)}{\phi_v}, V_s\right) = 0\ kip$

$D_V := \cot(\theta) \cdot \left(\left|\frac{V_{EQ\_ft}}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 6\ kip$

Capacity Check:

$A_s = 0.44\ in^2 \qquad f_y = 60\ ksi$

$C := A_s \cdot f_{ye} = 30\ kip$

$\frac{D_M + D_V}{C} = 0.96$ <1, OK

Backwall Check

In a seismic event it is anticipated that the joint between the crossing slab will close transfering the inertial force from the crossing slab to one of the footings. This force will transfer to the footing through the backwall of the footing. This section will check that the backwall is capable transfering this load

Material Properties:

$f'_c := 3.6\ ksi$ — Nominal Concrete strength

$\gamma_c := 150\ pcf = 150\ pcf$ — Concrete modulus of elasticity

$f_y = (6 \cdot 10^4)\ psi$ — Reinforcing steel stress

Resistance Factors (Caltrans SDC 2.0, 3.6):

$\phi_f = 1$

$\phi_v := 1$

Demand:

$A_{slab} := 36.5\ ft^2$ — Slab cross section area (from footing design)

$P_{slab} := 2 \cdot P_{DL\_slab} = 5.474\ kip$

$PGA = 1.062$ — Peak ground acceleration

$P_{IR\_slab} := PGA \cdot P_{slab} = 5.814\ kip$ — Load due to vertical siesmic load

$P_{IR\_bw} := P_{IR\_slab} = 5.814\ kip$

Interface Shear (AASHTO 2017, 5.7.4):

Miminimum Area of Interface Shear Reinforcement (AASHTO 2017, 5.7.4.2)

$t_{bw} = 1\ ft$ $f_y = 60\ ksi$

$b = 1\ ft$

$A_{cv} := t_{bw} \cdot b = 1\ ft^2$

$$A_{vf\_min} := \frac{0.05 \cdot A_{cv} \cdot ksi}{f_y} = 0.12\ in^2$$

use (2) #4s @ 12"

$n := 2$

$s := 12\ in$

$b_{sz} := 4$

$$A_{vf} := \frac{n \cdot A_{bar}(b_{sz})}{s} \cdot b = 0.4\ in^2$$

Check Interface Shear (AASHTO 2017, 5.7.4.3)

Normal weight concrete placed monolithically:

$c := 0.4\ ksi$	Cohesion factor
$\mu := 1.4$	Friction factor
$K_1 := 0.25$	Fraction of concrete strength available
$K_2 := 1.5\ ksi$	Limiting interface shear resistance
$P_c := 0\ kip$	Compression on interface

$$V_{ni\_1} := c \cdot A_{cv} + \mu \cdot (A_{vf} \cdot f_y + P_c) = 91.2\ kip$$

$V_{ni\_2} := K_1 \cdot f'_c \cdot A_{cv} = 129.6\ kip$

$V_{ni\_3} := K_2 \cdot A_{cv} = 216\ kip$

$V_{ni} := min(V_{ni\_1}, V_{ni\_2}, V_{ni\_3}) = 91.2\ kip$

$$DCR := \frac{\phi_v \cdot P_{IR\_bw}}{V_{ni}} = 0.064$$ <1, OK

Mamco Inc dba

alabbasi CONSTRUCTION AND ENGINEERING
Lic. No. 883649

Shea San Jacinto – Casa Loma Barrel Shallow Foundation Work Plan

The Casa Loma Barrel No. 1 will have a shallow foundation constructed per the attached concept. Prior to excavation and construction, the existing line will be located. A vactor truck will slot trench and expose the top of the entire length of the pipeline within the work zone. The work zone will be cleared and grubbed and all vegetation removed and disposed of. The foundation will be constructed in three separate phases per the highlighted plan on the attachment. Each phase will follow the same sequence.

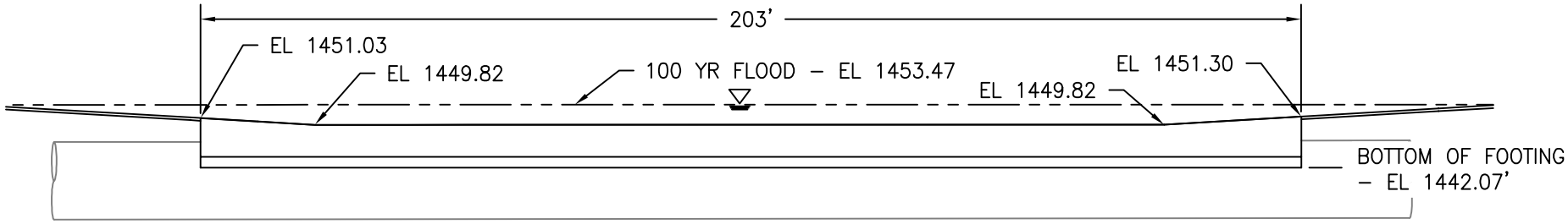
No more than one phase will be excavated to the bottom of the footing at a time. Both sides are to have the same sequence number completed prior to continuing to the next step. Concrete will be placed using a boom pump. No concrete trucks will be permitted to drive within the barrel protection zone.

1. The footings will be excavated from North and South concurrently with two Linkbelt 350x excavators. Excavators will be set away from the barrel and each will have a spotter for guidance. The entire footing will not be excavated all at one time on one side. Both sides will be excavated in equal lifts. The excavation will be 10’ wide and 7.75’ deep. Excavated materials will be spoiled behind the excavators and away from the barrel. Spoils will be pushed using a John Deere 644 wheel loader. The temporary excavation will be sloped 1.5:1.
2. The 10’ wide x 2’ high spread footing will be formed and poured first on both sides. The footing will have a 6” starter wall for the next pour.
3. The 5.75’ high footing wall will be formed and poured.

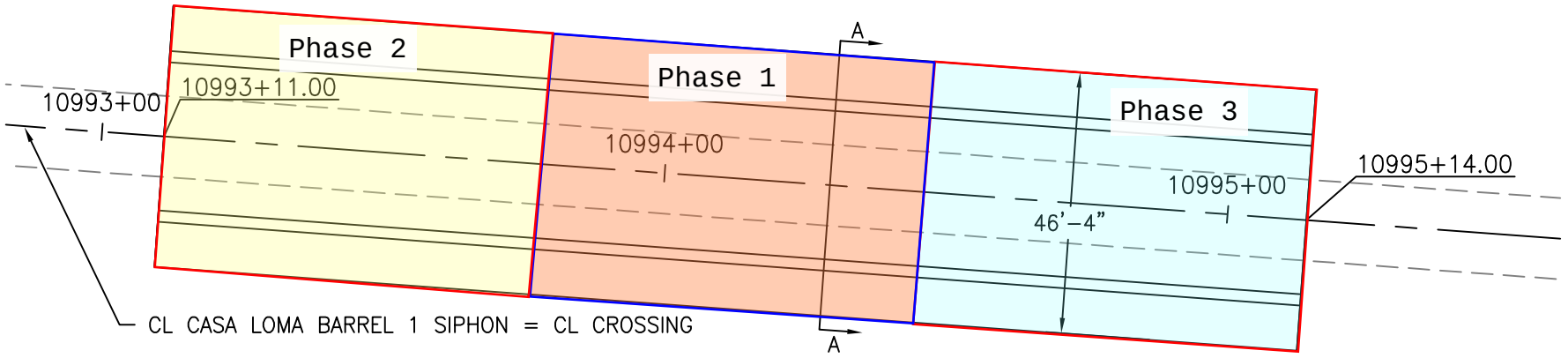
Once sufficient concrete strength has been reached for all footings, the footing will be backfilled with flowable fill to meet the unit weight and strength criteria in the Geotech report.

The top slab over the barrel will be graded using a John Deere 210LE skip loader after which 6” thick polystyrene foam boards will be placed. The top slab will be formed and poured.

ATTACHMENT 6 - PRELIMINARY FOUNDATION WORK PLAN



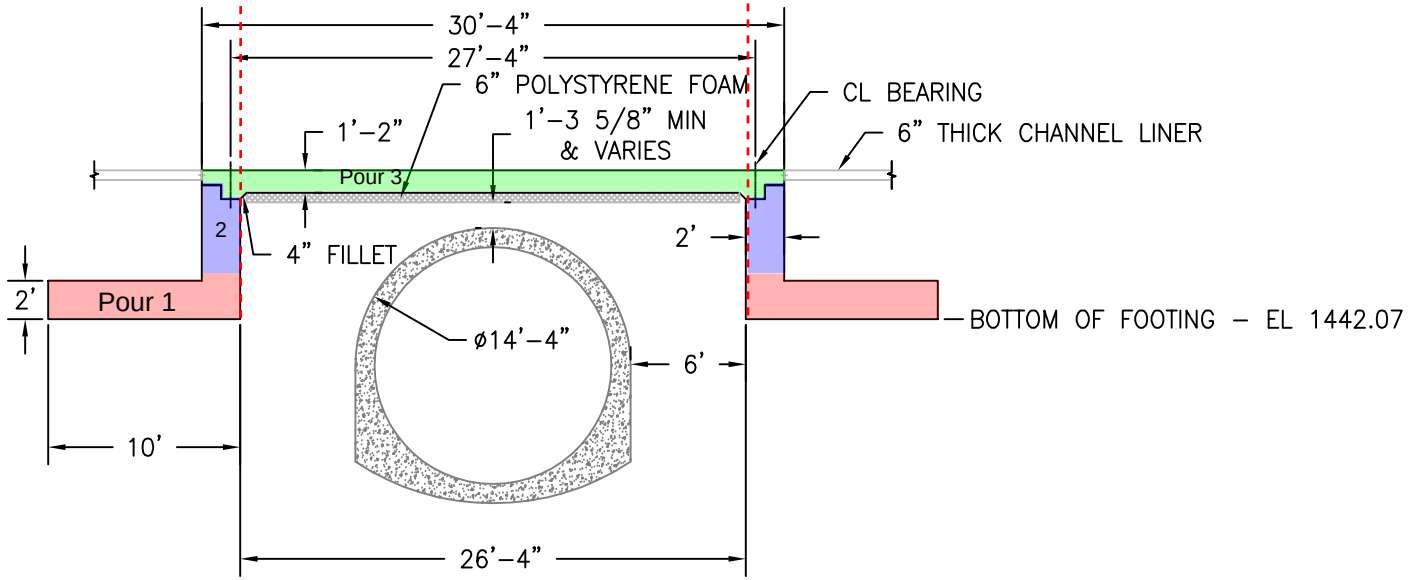
PROFILE – CONCEPT 1



Protected Zone

PLAN – CONCEPT 1

Protected Zone - No equipment heavier than John Deere 210LE Skip Loader to be used.



SECTION A–A – CONCEPT 1

February 13, 2025
Kleinfelder Project No.: 24002328.001A

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

SUBJECT: **DRAFT Geotechnical Investigation Report**
San Jacinto Line E Storm Drain
San Jacinto, California

Dear Mr. Hays:

Kleinfelder, Inc. (Kleinfelder) is pleased to present this DRAFT Geotechnical Investigation Report for the San Jacinto Line E Storm Drain project in San Jacinto, California. This report summarizes the findings of our investigation and presents geotechnical design parameters and recommendations for design and construction of the project.

We appreciate the opportunity to be of service on this project. If you have any questions, comments, or require additional information, please do not hesitate to contact the undersigned.

Sincerely,

KLEINFELDER, INC.

DRAFT

Hector Marquez, PE
Project Engineer

Eric W. Noel, PE, GE
Sr. Principal Geotechnical Engineer

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2280 Market Street, Suite 300, Riverside, CA 92501 p | 951.801.3681 f | 951.682.0192

DRAFT GEOTECHNICAL INVESTIGATION REPORT
SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

KLEINFELDER PROJECT NO. 24002328.001A

FEBRUARY 13, 2025

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ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

DRAFT GEOTECHNICAL INVESTIGATION REPORT
SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

Prepared by:

Hector Marquez, PE
Project Engineer

Reviewed by:

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February 13, 2025
Kleinfelder Project No. 24002328.001A

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4 Typical Engineered Fill Slope Detail

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A Field Exploration
B Laboratory Testing
C Surface Wave Measurements Report
D Liquefaction Analysis
E Numerical Analysis of Proposed Crossing

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1 INTRODUCTION

This report presents the results of our geotechnical investigation for the San Jacinto Line E Storm Drain project in San Jacinto, California. The project location is shown on Figure 1, Site Vicinity Map. The purpose of the investigation was to evaluate surface and subsurface conditions in the area of planned improvements and to provide geotechnical recommendations for earthwork, design and construction considerations.

The conclusions and recommendations presented in this report are based on subsurface conditions encountered at the locations of our field investigation, laboratory testing, and our evaluation of the data. The provisions and requirements outlined in the Limitations section of this report are also an integral part of the development of our conclusions and recommendations.

1.1 PROJECT DESCRIPTION

We understand that the project involves design of an approximate 3-mile storm drain channel to be constructed in the City of San Jacinto. The new storm drain channel will be constructed near the existing ground surface and the majority of the alignment will consist of an earthen channel with a 65-foot base width, heights up to 10 feet, side slopes inclined at 4:1 (Horizontal:Vertical), and several sloped rip-rap drops along the alignment. In addition, several 6 to 8-cell reinforced concrete box (RCB) culverts with cell widths up to 14 feet and cell heights up to 9 feet are planned at existing or proposed roadways along the alignment. Storm water flow is generally south to north and a training berm is proposed on the south end of the alignment. At the northern portion of the alignment the proposed earthen channel terminates at a proposed confluence basin and the remainder of the alignment converts to a concrete channel with a 145-foot base width, height up to 10 feet, and side slopes inclined at 1.5:1 (H:V).

At the northern end of the proposed concrete channel portion, the proposed alignment crosses an existing Metropolitan Water District (MWD) pipeline (Casa Loma Siphon No. 1). We understand this pipeline is an approximately 14.5-foot diameter reinforced concrete pipe. It is proposed to cross the MWD pipeline with a relieving slab (approximately 14-inch thick concrete slab overlying a 6-inch low density polystyrene foam) supported on shallow footings to minimize adding loads to the existing pipeline. Per MWD requirements, we understand the crossing structure is required when cover over their pipe is less than 4 feet. We understand the crossing structure slab will be approximately 203 feet long and 31 feet wide. Footings will be continuous, approximately 10 feet wide, and approximately 7 to 9 feet deep.

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1.2 PURPOSE AND SCOPE

The purpose of this study was to investigate and evaluate the surface and subsurface conditions along the proposed project alignment. Field explorations were performed along the alignment to identify potential geologic hazards and provide geotechnical recommendations for design and construction of the project.

The services performed as part of this investigation were provided in general accordance with our proposal dated June 28, 2023. Specifically, our scope of work includes the following:

- A description of the proposed project including a site vicinity map and a site plan showing the locations of the subsurface explorations;
- A discussion of historical and geologic research pertinent to the proposed project;
- A summary of the surficial and subsurface site conditions encountered during our field investigation;
- A discussion of geologic hazards;
- Analysis for liquefaction potential;
- Recommendations for seismic design parameters;
- Analysis for MWD pipeline settlement;
- Recommendations for design and construction of the proposed MWD pipeline crossing;
- Recommendations for site preparation, earthwork, temporary slope inclinations, fill placement, and compaction specifications;
- Recommendations for temporary shoring;
- Recommendations for subgrade preparation and support of storm drain channel;
- Recommendations for pavement structural sections;
- Preliminary evaluation of the corrosion potential of the on-site soils; and
- Appendices including logs of borings and CPTs, laboratory test results, and surface wave measurement results.

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2 BACKGROUND STUDIES

2.1 LITERATURE REVIEW

Geologic and geotechnical literature was reviewed including reports, maps, and other documents prepared by the California Geological Survey (CGS), the U.S. Geological Survey (USGS), and other agencies. We also reviewed maps and preliminary documents pertaining to previous investigations at the site prepared by Leighton and Associates, Schaefer Dixon Associates, and SoCalGeo.

These reports, maps and other documents are listed in Section 8, References. Pertinent findings and information contained within these maps and reports are discussed within the body of this report.

2.2 FIELD RECONNAISSANCE

A field reconnaissance of the site was performed prior to initiation of our subsurface investigation program and following our literature review. The purposes of the field reconnaissance were as follows:

- Visit and observe site conditions at proposed exploration locations;
- Evaluate equipment accessibility for field investigations;
- Document earth materials and geologic conditions present along the alignment and surrounding area; and
- Evaluate features identified during the literature review.

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3 FIELD INVESTIGATION

The field investigation activities for this project commenced with utility clearance for proposed boring and Cone Penetrometer Tests (CPT) explorations. Following utility clearance, the field investigation included drilling and sampling of 19 hollow-stem auger borings and performing 2 CPTs. Discussions of the field investigation program including utility clearances, exploration methods and sampling methods are provided below.

3.1 UTILITY CLEARANCES

Prior to beginning the field exploration program, Underground Service Alert (USA) was contacted to identify potential conflicts between the planned exploration locations and existing, documented, underground utilities. Ground penetrating radar was also performed for utility clearances at the exploration locations. Furthermore, the boring and CPT locations were hand augured generally to 5 feet below the existing ground surface before commencing work.

3.2 FIELD EXPLORATION

The subsurface exploration program included drilling 19 hollow-stem auger borings, performing 2 CPTs, and performing 2 seismic surface wave measurement arrays along the project alignment for geotechnical characterization purposes. The borings were drilled between September 26, 2023 and September 28, 2023. The CPTs were performed on October 11, 2023. The seismic surface wave measurement arrays were performed on September 23, 2024 and September 24, 2024.

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In general, the borings were located along the storm drain alignment, with adjustments made in the field as needed to avoid access or utility conflicts. The CPT locations and seismic surface wave measurement arrays were performed in the vicinity of the proposed MWD pipeline crossing. The approximate locations of the exploration locations are shown on Figure 2, Exploration Location Map.

3.3 SOIL BORINGS

For this project, 19 soil borings were drilled using truck-mounted hollow-stem auger drill rigs supplied by 2R Drilling of Chino, California. Hollow-Stem Auger (HSA) drill rigs were equipped with 8-inch outside diameter (O.D.) continuous flight, hollow-stem augers. The auger method was used following the general ASTM guidelines D1452 “Standard Practice for Soil

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Investigation and Sampling by Hollow-Stem Augers." The drilling equipment was selected based on anticipated subsurface conditions and vehicle access. The borings were drilled to a depth of approximately 20 feet below ground surface (bgs), with exception to the borings in the vicinity of the proposed MWD pipeline crossing (B-1 and B-2) and at the southern end of the concrete channel portion of the alignment (B-4), which were drilled to approximately 50 feet bgs. Four (4) of the 19 borings were converted to piezometers (Borings B-6, B-9, B-14, and B-15). The remainder of the borings were backfilled with excess soil cuttings upon completion.

Subsurface conditions encountered in the soil borings were logged by an experienced engineer or geologist, under the review and direction of a licensed Engineering Geologist or Geotechnical Engineer, who also performed the sampling described below. Soils were logged in general accordance with the Unified Soils Classification System. The boring logs are presented in Appendix A, Field Exploration.

3.4 SAMPLING METHODS FOR SOIL BORINGS

Disturbed and relatively undisturbed samples of the subsurface materials were obtained from the borings using Standard Penetration test (SPT) samplers and California-type (CAL) samplers, respectively. The SPT sampler has a 1.375-inch inside diameter and a 2.0-inch outside diameter. The CAL sampler has a 2.42-inch inside diameter and a 3.0-inch outside diameter. Samples were collected in accordance with the general guidelines of ASTM D1586 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils."

Samples were driven 18 inches into the soil using a 140-pound automatic hammer falling 30 inches. SPT and CAL samples were obtained at 5-foot intervals alternating between the SPT and the CAL until reaching the boring target depth. Large bulk samples were also obtained within the upper 5 feet from each boring.

The number of blows required to drive the samplers were recorded for each 6-inch penetration interval. The number of blows required to drive the samplers for the last 12 inches, or the interval achieved where higher resistance was encountered, is referred to as the blow count and is noted on the boring logs. The blow counts recorded on the boring logs are recorded in 6-inch intervals. Where the sample was driven less than 12 inches, the number of blows to drive the sample for each 6-inch segment, or portion thereof, is shown on the logs. For example, 50/4" indicates 50 blows to drive the sampler 4 inches to refusal. After the samplers were withdrawn from the test borings, select samples were carefully removed, sealed to reduce moisture loss, and transported to our laboratory for testing.

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3.5 CONE PENETRATION TESTING

Two CPTs were performed in the vicinity of the proposed MWD pipeline crossing because potentially liquefiable soils were anticipated. The CPTs were performed by Kehoe Testing & Engineering, Inc. of Huntington Beach, California using a 30-ton truck rig. The CPTs were advanced to a maximum depth of 100 ft bgs. Upon completion, the CPTs were backfilled with hydrated bentonite chips. The CPT visual plots and data are presented in Appendix A, Field Exploration.

3.6 SURFACE WAVE MEASUREMENT TESTING

Two seismic surface wave measurement arrays were performed in the vicinity of the proposed MWD pipeline crossing to determine shear (S) wave velocity profiles in support of the MWD pipeline settlement analysis. The surface wave measurements were performed by GEOVision of Corona, California. The approximate array locations are shown on Figure 2. A detailed report of the surface wave measurements is presented in Appendix C, Surface Wave Measurements Report.

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4 LABORATORY TESTING

4.1 GEOTECHNICAL TESTING

Laboratory testing was performed on samples obtained from the borings following field exploration. Laboratory tests were performed on drive and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Selected samples from the borings were tested to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with the emphasis on evaluating the density, plasticity, shear strength, and gradation of the soils encountered. Classifications made in the field were modified as appropriate, based on the laboratory test results. The description of the subsurface conditions and classifications presented in the boring logs reflect the changes made as a result of the laboratory tests.

The laboratory index tests, and engineering property tests performed included determination of in-situ moisture content and dry density, wash sieve, sieve & hydrometer analysis, Atterberg limits, direct shear, consolidation testing, expansion index, compaction curve testing, R-Value, and preliminary corrosivity testing including pH, minimum resistivity, sulfate content, and chloride content. Laboratory test results are presented in Appendix B, Laboratory Testing.

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5 SITE CONDITIONS

5.1 TOPOGRAPGHY AND DRAINAGE

The project is in the San Jacinto Valley in west Riverside County, about 4 miles northwest of the city of San Jacinto, California. The project site is in an area of farmland on the floodplain on the southwest side of the San Jacinto River, which is channelized in the northern San Jacinto Valley and which drains northwest before turning southwest toward Lake Elsinore. The site is on the west side of the valley below the granitic highlands of the Lakeview Mountains to the west and the San Jacinto Mountains to the east.

5.2 GEOLOGIC SETTING

California is divided into eleven natural geomorphic provinces that are recognized based on geology, landscape or landform, topographic relief, and climate. The project is in the Peninsular Ranges province which extends from the San Gabriel and San Bernardino mountains north of the site southward into lower California, and from the coast eastward to the Colorado Desert (Norris and Webb, 1990).

The Peninsular Ranges are a series of northwest-trending mountain ranges and valleys subparallel to major faults branching from the San Andreas fault system. The Peninsular Ranges are divided into three fault-bounded structural blocks comprised of mostly granitic rocks intruding sedimentary rocks and older metamorphic rocks (Norris and Webb, 1990). The project area is near the north end of the middle (Perris) block.

The north end of the Perris block is bounded by active faults: the Sierra Madre fault on the north, the Elsinore fault on the west, and the San Jacinto fault on the east. The site is in the San Jacinto fault zone (SJFZ) at the east edge of the Perris block.

The northwest-striking SJFZ is a major right-lateral strike-slip fault zone in southern California (Onderdonk et al., 2013). The San Jacinto Valley is a pull-apart basin bounded on the northeast by the Claremont strand of the SJFZ and on the southwestern margin of the valley by the Casa Loma fault strand, two of the many fault strands that make up the SJFZ. Northwest of the site, the Casa Loma fault bounds a 1.5-mile-wide extensional step-over at Mystic Lake (a sag pond), and to the southeast the Casa Loma fault is co-linear with the Clark fault, the primary strand of the central SJFZ (Rockwell et al., 2015). The Casa Loma fault intersects the proposed onsite

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and confluence basins at the north end of the alignment and the proposed Line E inlet at the south end (USGS, 2006).

The proposed alignment lies east of the Casa Loma fault (USGS, 2006), with the exception of the onsite basin, and is within the structural basin part of the San Jacinto Valley between the Casa Loma and Claremont faults. The thickness of valley sediments within the structural basin between the Casa Loma and Claremont faults may exceed 5000 feet, but valley sediments are much thinner west of the Casa Loma fault, reaching maximum depths of about 900 feet (DWR, 2013).

5.3 STATIGRAPHY

The proposed alignment occupies the floodplain of the San Jacinto River and is underlain by alluvium comprised of sandy fluvial deposits and silty to clayey overbank (flood) deposits. Geologic mapping by Morton et al. (2001) shows young alluvial deposits east of the Casa Loma fault scarp and slightly older deposits west of the scarp, which was a barrier to flood deposition. Radiocarbon dates from detrital charcoal samples collected near the alignment for studies of the Casa Loma fault (Schaefer Dixon, 1993; Givler et al., 2022) indicate the fault juxtaposes late Holocene deposits on the east against latest Pleistocene to early Holocene deposits on the west.

Following are brief descriptions of the soil units encountered in our borings. Detailed logs are presented in Appendix A.

5.3.1 Artificial Fill

Artificial fill is present locally along portions of the study area, generally beneath existing roads. The fill overlies native materials and generally consists of a thin veneer of locally-derived sandy silt and silty sand. The fill soils are considered undocumented and are not shown.

5.3.2 Young Alluvium (axial valley floor deposits [Qya])

Holocene-age sandy fluvial deposits and silty to clayey overbank (flood) deposits associated with the San Jacinto River (Morton et al., 2001). Alluvial soils were encountered in borings B-1 through B-19 and primarily consisted of fine silty sand and sandy silt, with lesser amounts of silt, sand, and clayey sand. Boreholes drilled farther from the river channel encountered slightly finer soils, consistent with floodplain deposition. Relative density ranges from predominantly loose to medium dense and stiff to very stiff.

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5.4 FAULTING AND SEISMICITY

5.4.1 Faulting

The project is in seismically active southern California. The project is within the zone of influence for several faults which are considered active or potentially active. An active fault is a fault that has experienced seismic activity during historic time (since roughly 1800) or exhibits evidence of surface displacement during Holocene time (Bryant and Hart, 2007; CGS, 2018). The definition of "potentially active" varies. A generally accepted definition of "potentially active" is a fault showing evidence of displacement that is older than 11,700 years (Holocene age) and younger than 2.6 million years (Pleistocene age). However, "potentially active" is no longer used as criteria for zoning by the California Geologic Survey (CGS). The terms "sufficiently active" and "well-defined" are now used by the CGS as criteria for zoning faults under the Alquist-Priolo (AP) Earthquake Fault Act. A "sufficiently active fault" is a fault that shows evidence of Holocene surface displacement along one or more of its segments and branches, while a "well-defined fault" is a fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The definition "inactive" generally implies that a fault has not been active since the beginning of the Pleistocene Epoch (older than 2.6 million years old).

The project site is east of and adjacent to the Casa Loma fault strand of the SJFZ, and the Casa Loma fault intersects the proposed onsite and confluence basins at the north end of the alignment and the proposed Line E inlet at the south end (USGS, 2006). The SJFZ has a geologic slip rate of 12-18 mm/year (Blisniuk et al. 2013; Rockwell et al. 2015). Paleoseismic data along the SJFZ indicate an average recurrence interval of surface-rupturing earthquakes of 185–254 years with moment magnitudes (Mw) ranging from 6.75 to 7.7 and per-event displacements of approximate 1.0 to 4.0 meters (Salisbury et al. 2012; Onderdonk et al. 2013; 2015; Rockwell et al. 2015).

5.4.2 Seismicity

The project is within the zone of influence for several faults which are considered active or potentially active and which are capable of producing seismic shaking at the site that could potentially be damaging to buildings and appurtenant structures. It is anticipated that the project site will periodically experience ground acceleration as the result of moderate to large magnitude earthquakes on faults outside the project area.

A number of earthquakes have occurred within the region of the site (approximately a 50-kilometer, or 31-mile, radius) during historic time (since 1800), including two earthquakes on

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the SJFZ (Table 1). The largest of these historic earthquakes was a Mw 6.8 event on the SJFZ centered only 8 miles from the project area which resulted in ground rupture near the proposed Line E inlet at the south end of the project alignment.

Table 1
Historic Earthquakes within 50 km of Site (>Mw 4.9)

Earthquake Name	Distance (miles)	Magnitude (Mw)	Date	Latitude	Longitude
San Jacinto	8	6.8	4/21/1918	33.750014	-116.883430
North San Jacinto Fault	18	6.3	7/22/1923	33.999690	-117.238216
Elsinore	25	6	5/15/1910	33.749453	-117.450194
Big Bear	26	6.4	6/28/1992	34.175257	-116.867476
North Palm Springs	27	5.6	7/8/1986	33.998575	-116.608877

5.5 GROUNDWATER

Information on groundwater presented in this report is based on information derived from our geotechnical investigation, review of recent data from temporary groundwater observation wells installed in the vicinity of the project (SoCalGeo, 2022), and review of observation well water levels in the database of the State of California Department of Water Resources (DWR, 2021).

Groundwater was encountered in several borings drilled during this investigation in the floodplain of the San Jacinto River (Appendix A). Groundwater was measured in the borings when first encountered and then measured again at the completion of the borehole. Groundwater was encountered in 12 of the 19 borings drilled at depths ranging from approximately 6 feet to 33 feet bgs, with shallow water (6 to 12 feet bgs) encountered near the San Jacinto Reservoir adjacent to the south end of the alignment. There are several ponds or retention basins in the site vicinity, including the San Jacinto Reservoir, which may contribute to shallow water conditions, together with agriculture irrigation. Kleinfelder borings B-6, B-9, B-14, and B-15 were converted to piezometers and groundwater readings were taken following the field exploration, as summarized in the table below.

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Table 2
Summary of Piezometer Groundwater Measurements

Date	Groundwater Depth (ft bgs)			
	B-6	B-9	B-14	B-15
Initial Drill Date	18.5 (9/27/2023)	17.5 (9/27/2023)	17.5 (9/26/2023)	18.5 (9/26/2023)
12/20/2023	7.5	14.8	15.8	16.0

We reviewed data from 16 temporary groundwater observation wells that were installed in the vicinity of the project as part of a proposed commercial/industrial development (SoCalGeo, 2022). The wells were installed at various depths, depending on the depth groundwater was encountered, and water level measurements were taken three times between January and March 2022. Groundwater levels in the wells were generally similar to the various depths groundwater was encountered during borehole drilling for the subject project, with the exception of four wells installed in and adjacent to the Casa Loma fault which did not encounter groundwater despite well depths of 61.5 to 66.5 feet bgs. The absence of groundwater along the Casa Loma fault may reflect the presence of recent, Holocene-age alluvium on the east side of the fault scarp but not on the west side (Morton et al., 2001).

There are several groundwater observation wells in the State database (DWR, 2021) showing data for 2021-2023 that are within or adjacent to the project footprint. Nearby wells on both sides of the Casa Loma fault were found to have similar groundwater depths of approximately 200 feet bgs. This observation suggests there is a lower aquifer with similar groundwater levels on both sides of the fault, and an upper (possibly perched) aquifer that is limited to the recent, Holocene-age alluvium that was deposited east of the Casa Loma fault scarp. The proposed project is located east of the fault where shallow groundwater is present.

5.6 GEOLOGIC HAZARDS

5.6.1 Fault Rupture

As discussed in Section 5.4.1, the Casa Loma strand of the SJFZ is adjacent to the north and south ends of the proposed drainage alignment, and the mapped trace of the fault (USGS, 2006) intersects the Line E inlet and basin facilities. The AP Fault Zone setback associated with the mapped fault traces (CGS, 2021) impinges on the proposed channel alignment at the south end near Bridge Street and Sanderson Avenue, and at the north end where the alignment crosses Record Road.

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The AP Fault Zone setback does not appear conservative. Fault trench exploration and mapping performed about one-half mile northwest of the Line E inlet for a proposed residential development (Leighton, 2004) indicates that sections of the Casa Loma fault have numerous splays and that these fault splays effectively widen the fault zone by 250 feet or more.

Consequently, it is our opinion that the risk of surface fault rupture within the project alignment is high. A map presenting the location of the project alignment relative to the nearest faults is provided in Figure 3, Fault Location Map.

5.6.2 Flood Hazard

Based on Flood Hazard Maps available through the Federal Emergency Management Agency (FEMA) online service (FEMA, 2021), most of the project alignment lies within or adjacent to special flood hazard areas. Flood risk areas subject to inundation by a 1% annual chance flood (100-year flood) are presented (FEMA zone A or AE). Overall, the risk of flooding along the alignment is considered high. However, we anticipate construction of the proposed storm drain will warrant modifications to the referenced Flood Hazard Map. We anticipate the proposed storm drain improvements will decrease flood risk caused by potential flooding of the San Jacinto Reservoir south of the proposed alignment, however the proposed storm drain improvements would not change the flood risk caused by potential flooding of the San Jacinto River north of the proposed alignment.

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5.6.3 Erosion

Erosion and sedimentation are natural processes that occur on slopes, hillsides, and natural drainages. The proposed storm drain alignment site is farmland on the distal margin of floodplain of the San Jacinto River and the risk of erosion is considered low to moderate, whereas the risk of sedimentation is considered moderate because the proposed open drainage channel will act as a sediment sink in the event of a flood. Scour and sedimentation analysis is beyond the scope of this study.

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6 ENGINEERING CONCLUSIONS AND RECOMMENDATIONS

6.1 GENERAL

Based on the results of the field explorations, laboratory testing, and our engineering analyses conducted during this study, it is our professional opinion that the proposed project is geotechnically feasible provided the recommendations presented in this report are incorporated into the project design and construction. The following opinions, conclusions, and recommendations are based on the properties of the materials encountered in the field explorations, the results of the laboratory testing program, and our engineering analyses performed. Our recommendations regarding the geotechnical aspects of the design and construction of the project are presented in the following sections.

6.2 SEISMIC DESIGN CONSIDERATIONS

6.2.1 Seismic Design Parameters

According to ACSE/SEI 7-16 (2016), which is incorporated into the 2022 California Building Code (CBC) by reference, sites subject to liquefaction, as discussed below, should be classified as Site Class F, which requires a site response analysis. However, ACSE/SEI 7-16 states that for a short period (less than ½ second) structure on liquefiable soils, Site Class D or E may be used instead of Site Class F to estimate design seismic loading on the structure. The selection of Site Class D or E is based on the assessment of the site soil profile assuming no liquefaction. We have assumed that the period of the structures will be less than ½ second. The assumption that the structures have a period of less than ½ second should be verified by the project structural engineer.

Based on data obtained from our field explorations, published geologic literature and maps, and on our interpretation of the 2022 CBC criteria, it is our opinion that the project site may be classified as Site Class D, Stiff Soil, according to Section 1613 of 2022 CBC and Table 20.3-1 of ASCE/SEI 7-16 (2016). Approximate coordinates for the site are noted below.

- Latitude: 33.8208° N
- Longitude: 117.0247° W

In accordance with Section 11.4.8 of ASCE 7-16, a site-specific ground motion hazard analysis is required for Site Class D sites with an S1 greater than 0.2 g. However, a site-specific ground

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motion hazard analysis is not required if the exceptions in Section 11.4.8 of ASCE 7-16 are taken. In accordance with the 2022 CBC, which adopts Supplement 3 of the ASCE 7-16, the exception would be if the values of the parameters S_{M1} and S_{D1} are increased by 50 percent. The assumption that the exception will be used should be verified by the project structural engineer during final design based on the governing code. Based on the assumption that the exception will be taken in accordance with the governing code, the 2022 CBC Seismic Design Parameters (non site-specific) for the project site are provided in Table 3.

Table 3
2022 CBC Seismic Design Parameters

DESIGN PARAMETER	RECOMMENDED VALUE
Site Class	D
S_s (g)	2.138
S_1 (g)	0.866
F_a	1.0
F_v	N/A*
S_{MS} (g)	2.138
S_{M1} (g)	N/A
S_{DS} (g)	1.425
S_{D1} (g)	N/A
PGA_M (g)	1.062

*Section 11.4.8 of ASCE 7-16 requires a site-specific ground motion hazard analysis be performed for Site Class D sites with S_1 values greater than or equal to 0.2g unless exceptions are taken. If exceptions are taken, then a F_v value of 1.7 could be used only to calculate the T_s value.

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6.3 LIQUEFACTION AND SEISMICALLY INDUCED SETTLEMENT

Soil liquefaction is a phenomenon in which saturated, cohesionless soils lose their strength due to the build-up of excess pore water pressure during cyclic loading such as that induced by earthquakes. The primary factors affecting the liquefaction potential of a soil deposit are: 1) intensity and duration of earthquake shaking, 2) soil type and relative density, 3) overburden pressures, and 4) depth to groundwater. Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands, and non-plastic silts that are saturated. Silty sands and silts, under certain site conditions, may also be susceptible to liquefaction.

Generalized liquefaction potential zones have been mapped for areas of Riverside County (Riverside County, 2021). The zones are based on generalized criteria for sediment types,

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groundwater levels, and ground shaking potential. Based on the screening criteria used to develop the generalized maps, the project alignment is identified as having a moderate potential for liquefaction.

The potential for liquefaction settlement in the vicinity of the proposed MWD pipeline crossing was evaluated using data from the CPTs performed for the project and CPT liquefaction assessment software (Cliq v.3.0.3.4). Although hollow stem auger borings were performed at the locations of potentially liquefiable soils, the blow count data is generally not as reliable as CPT data for liquefaction calculations. Samples collected from the borings and associated laboratory tests were used in verifying the CPT results.

The proposed MWD pipeline crossing area is underlain primarily by sandy silt and silty sand. The apparent density of the granular soil layers ranged from loose to medium dense. When encountered, groundwater levels in the borings ranged from approximately 6 to 33 feet below the ground surface. A design groundwater level of 5 feet bgs was used in the liquefaction calculations, which corresponds to the anticipated highest groundwater level at the site.

Two important input parameters for the liquefaction analysis are PGA and the earthquake magnitude. According to Chapter 18 of the 2022 California Building Code (CBC) the PGA used for liquefaction analysis should be consistent with the maximum considered earthquake ground motions. The 2022 CBC states that the peak ground acceleration shall be determined in accordance with Section 11.8.3 of ASCE 7-16. We determined the peak ground acceleration for each vault and transition structure location where liquefiable soils were present. The design PGA_M used in the liquefaction analysis was 1.06g. In order to estimate the controlling magnitude at the site, the 2014 USGS interactive deaggregation tool was used from the United States Geological Survey (USGS), and a dominant earthquake modal magnitude of 8.1 was calculated, utilizing a 2% exceedance probability in 50 years (return period of about 2,475 years) according to the 2022 CBC and ASCE/SEI 7-16.

Our analyses indicated that liquefaction could occur within interbedded sand layers throughout the upper 60 feet bgs. We have used procedures outlined in Moss et al. (2006) for CPT-based liquefaction triggering and estimation of volumetric compaction or settlement. Estimated total liquefaction-induced settlements in the vicinity of the proposed MWD pipeline crossing result in approximately 2 inches based on the CPT results. Based on the results of our field investigations, the subsurface soil conditions in the MWD pipeline crossing area is generally uniform. The CPTs were performed at locations approximately 300 feet from each other and the difference in liquefaction settlement results is less than ¼-inch. Based on these conditions,

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differential liquefaction-induced settlement is considered generally negligible in the MWD pipeline crossing area. We have ignored any liquefaction and associated settlements below a depth of 60 feet, as their effects on the surface should be minimal. The results of our liquefaction calculations are included in Appendix C, Liquefaction Analysis.

It should be noted the calculated liquefaction settlement is a free-field settlement independent of existing or proposed improvements. Based on liquefaction analysis results by SoCalGeo (2021), other portions of the site in the vicinity of the proposed storm drain alignment may experience approximately 2 to 6 inches of liquefaction settlement during a design level earthquake event.

6.4 MWD PIPELINE CROSSING

6.4.1 Foundations

Based on the results of our field explorations, laboratory testing, and geotechnical analyses, the proposed MWD pipeline crossing may be supported on shallow footing foundations. Recommendations for the design and construction of shallow foundations are presented below.

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Allowable Soil Bearing Pressure

Footings embedded at least 5 feet below the lowest adjacent exterior grade may be designed for a net allowable soil bearing pressure of 3,000 pounds per square foot (psf) for dead plus sustained live loads. The footing dimension and reinforcement should be designed by the structural engineer; however, continuous footings should have a minimum width of 18 inches. A one-third increase in the above bearing pressure can be used for transient wind or seismic loads.

Estimated Settlements

Based on design initial dead and service loads provided by the structural engineer, we estimate total static settlement of foundations designed and constructed in accordance with the recommendations presented above to be on the order of ½ inch for initial dead loads and grading and 1½ inches when including service and flood loads. Based on the generally granular nature of the subsurface soils, the initial dead load settlement is anticipated to be generally “immediate” (on the order of days to weeks). We understand the construction will be staged such that the initial dead load settlement will have occurred prior to allowing service loads to be imposed. Provided this construction staging is performed, total settlement of footings is

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estimated to be up to 1 inch and differential static settlement between similarly loaded footings is estimated to be less than 1 inch over 50 feet.

In addition to the estimated static settlement, as previously discussed, it is estimated that liquefaction-induced settlement of saturated sandy soils due to strong ground shaking during an MCE-level seismic event could be on the order of 2 inches of total settlement, however, based on the generally uniform soil conditions in the MWD crossing area, differential liquefaction-induced settlement is considered generally negligible. We anticipate the liquefaction induced settlement impacts will be relatively similar between the crossing structure and the MWD pipe.

Lateral Resistance

Lateral load resistance may be derived from passive resistance along the vertical sides of the footings, friction acting at the base of the footing, or a combination of the two. An allowable passive resistance of 250 psf per foot of depth may be used for design. Allowable passive resistance values should not exceed 2,500 psf. An allowable coefficient of friction of 0.3 between the base of the footings and the on-site soils can be used for sliding resistance using the dead load normal stresses. Friction and passive resistance may be combined without reduction. We recommend that the first foot of soil cover be neglected in the passive resistance calculations if the ground surface is not protected from erosion or disturbance by a slab, pavement, or in a similar manner.

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6.4.2 MWD Pipeline Settlement

Construction of the proposed storm drain would involve cuts and fills over the existing MWD pipeline. Grade changes, construction sequencing, flooding, and crossing structure footings could subject the MWD pipeline to change in loads that could cause settlement due to an increase in overburden stress or heave due to a decrease in overburden stress. We understand MWD requires proposed improvements in the vicinity of their pipe to not induce displacements on their pipe of more than ¼-inch per 100 feet. We have performed numerical modeling of the subsurface conditions and proposed structures using the 3-D finite element program PLAXIS 3D. The details and results of these analyses are included in Appendix E. The results of the analysis indicate the proposed improvements will meet MWD's tolerance provided the key recommendations and assumptions presented below are implemented in the design and construction of the crossing and storm drain.

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The results of the analysis are presented in Appendix E, Numerical Analysis of Proposed Crossing. The key recommendations and assumptions utilized in the modeling that must be implemented in the design and construction of the crossing and storm drain channel are:

- Excavations will not be completed at a time when MWD has emptied the pipeline (i.e. it is not in-service).
- The crossing structure footings are constructed following the 1/3 sequence of excavation and footing placement.
    - Excavation of the subsequent 1/3 shall not progress until the footing for the previous 1/3 is in-place.
    - Excavation slopes and benches shall not be flatter than 1.5H:1V.
- Excavation and footing construction sequence shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean:
    - Elevations in excavations on either side shall not be more than 1 ft different.
    - The concrete footings shall be poured on both sides at the same time.
- Excavations shall not be backfilled until the full footing construction sequence is completed.
    - Backfill will consist of a medium weight flowable fill material (e.g. LCC) with a unit weight of approximately 85 pcf which does not require high vibration compactor equipment during placement. The medium weight flowable fill should have a friction angle of at least 30 degrees and cohesion of at least 50 psf.
    - Backfill shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean elevations of the backfill on each side shall not be more than 1 ft different.
- Lightweight flowable fill shall be used for embankments within 50 ft from the edge of the MWD pipe. Embankment fill shall consist of lightweight flowable fill material (e.g. LCC) not to exceed a unit weight of 30 pcf and does not require compaction to limit vibration impacts.
- Embankment fill shall be placed such that the elevation difference across (upstream to downstream sides) the MWD pipe is not greater than 1 ft at any time until final grades are established.

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- The channel section shall limit the 100-yr flood event to a peak water elevation of 1453.47 ft.

6.4.3 Additional Constructability Considerations

Construction of the proposed MWD pipe crossing and storm drain in the vicinity of the existing MWD pipe while meeting MWD's requirements is considered feasible provided the key recommendations and assumptions utilized in the modeling provided above are implemented during design and construction. In addition, the following constructability considerations should also be considered based on MWD requirements.

- Vibrations on the MWD pipe should be less than 0.5 inches/second for "continuous" sources based on guidance provided by MWD. Based on Caltrans *Transportation and Construction Vibration Guidance Manual* (2020), vibratory rollers or similar equipment should not be used within 20 feet of the MWD pipe to meet MWD's limit.
- Any excavation within 2 feet of the MWD pipe should be performed by "hand" equipment as approved by MWD.
- Areas to receive fill that are not specified to require flowable fill as described above may utilize the on-site soil or import soil as structural fill in accordance with Section 6.9.
- Appropriate observations and inspections should be completed to ensure that the recommendations and assumptions made during our evaluation are followed during construction. Construction within the MWD right-of-way should conform to the relevant MWD construction standards, observations and inspections.

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6.5 EXPANSIVE SOILS

Expansive soils are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from rainfall, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors, and may cause unacceptable settlement or heave of structures, concrete slabs supported-on-grade, or pavements supported over these materials. Depending on the extent and location below finished subgrade, expansive soils can have a detrimental effect on structures.

In general, the soils encountered at the majority of the borings were silty or granular in nature. Laboratory testing resulted in Expansion Index values of 34 and 44, indicating a "low" expansion

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potential. If import soil materials are used during construction, testing of the final subgrade soils should be performed to further evaluate the expansion potential.

6.6 CORROSIVITY

Selected near-surface soil samples from borings throughout the alignment were tested for potential corrosion to concrete and reinforcing steel. The samples were tested in general accordance with California Standard Test Methods to evaluate pH, minimum electrical resistivity, soluble sulfates, and chlorides content. These tests are only an indicator of soil corrosivity for the samples tested. Other soils found on site may be more, less, or of a similar corrosive nature.

Resistivity values ranged from 299 to 1,763 ohm-cm. Resistivity values less than 1,000 ohm-cm are considered extremely corrosive to buried ferrous metals. Resistivity values between 1,000 to 3,000 to ohm-cm are considered highly corrosive to buried ferrous metals (Roberge, 2006).

The concentrations of soluble sulfates indicate that the subsurface soils represent a Class S0 exposure to sulfate attack on concrete in contact with the soil based on ACI 318-19 Table 19.3.1.1 (ACI, 2019). Therefore, in accordance with ACI Building Code 318-19, no special provisions for selection of cement type are required.

The values obtained from corrosion potential testing are shown in Appendix B, Laboratory Testing. Kleinfelder's scope of services does not include corrosion engineering and, therefore, a detailed analysis of the corrosion test results is not included. We recommend the review of these results and consultation of a corrosion expert for further evaluation, if necessary.

6.7 TEMPORARY SHORING

6.7.1 General

Temporary shoring may be required where space or other restrictions do not allow a sloped excavation. Design and installation are the responsibility of the contractor. Temporary shoring may consist of a turn-key shoring system, soldier piles and lagging, or other system. Recommendations for design of temporary shoring are presented below.

The contractor's shoring design should be provided by a civil engineer registered in the State of California and experienced in the design and construction of shoring under similar conditions. Once the final excavation and shoring plans are complete, the plans and design should be

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reviewed by Kleinfelder for conformance with the design intent and geotechnical recommendations provided herein.

6.7.2 Lateral Pressures

For the design of cantilevered shoring, an equivalent fluid pressure of 40 pounds per cubic foot (pcf) for drained conditions or 82 pcf for undrained conditions may be used for level backfill. Where the surface of the retained earth slopes up away from the shoring, a greater pressure should be used. Design data can be developed for additional cases when the design conditions are established.

In addition to the recommended earth pressure, any surcharge (live, including traffic, or dead load) located within a 1H:1V plane drawn upward from the base of the shored excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind the wall may be calculated by multiplying the surcharge by 0.36 for the level backfill condition. Lateral load contributions of surcharges located at a distance behind the shored wall may be provided once the load configurations and layouts are known. As a minimum, a 2-foot equivalent soil surcharge (250 psf) is recommended to account for traffic or nominal construction loads. Stockpiled material should not be placed closer to the edge of an excavation than a distance equal to the depth of the excavation, and never closer than 4 feet from the edge of the excavation.

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6.7.3 Design of Soldier Piles

All soldier piles should extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. We recommend the required embedment depths be calculated based on the principles of force and moment equilibrium. For this method, the ultimate passive pressure against soldier piles that extend below the level of excavation may be assumed to be equivalent to a fluid pressure of 250 pcf, with a maximum resistance value of 2,500 psf. To account for arching, the passive resistance may be assumed to act over a width 2.0 times the width of the embedded portion of the pile, provided adjacent piles are spaced at least 3.0 pile diameters, center-to-center.

Drilling of the soldier pile shafts could be accomplished using heavy-duty drilling equipment. Groundwater may be encountered. The piles may be constructed partly below groundwater and, therefore, caving of the pile shafts should be anticipated and will need to be prevented. Temporary steel casing may be required to stabilize the sides of the pile shaft. Concrete for piles should be placed immediately after the drilling of the hole is complete. The concrete should

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be pumped to the bottom of the drilled shaft using a tremie. Once concrete pumping is initiated, a minimum head of 5 feet of concrete above the bottom of the tremie should be established and maintained throughout the concrete placement to prevent contamination of the concrete by soil inclusions. If steel casing is used, the casing should be removed as the concrete is placed.

To develop full lateral resistance, provisions should be taken to assure firm contact between the soldier piles and undisturbed materials. The concrete placed in the soldier pile excavations may be a lean-mix concrete. However, the concrete used in that portion of the soldier pile that is below the planned excavated level should provide sufficient strength to adequately transfer the imposed loads to the surrounding materials.

6.7.4 Lagging

Continuous treated timber lagging and/or steel plates should be used between the soldier piles. The lagging/steel plates should be installed as the excavation proceeds. If treated timber is used, the lagging may remain in place after backfilling. The lagging should be designed for the recommended earth pressure but limited to a maximum value of 400 psf.

Some caving and running of the upper soils should be anticipated. To reduce the potential for loss of ground and settlement of the soil behind the wall, the contractor should backfill any space between the lagging and the cut slope with clean sand or sand-cement slurry after installation.

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6.7.5 Deflection

Shoring adjacent to existing structures or improvements should be designed and constructed to reduce potential movement. The shoring system designer should evaluate potential deflections in their design. If the deflection analysis indicates excessive deflections, positive reinforcements such as tie backs may be needed.

6.7.6 Monitoring

Some deflection of the shored excavation should be anticipated during the planned excavation. We recommend the project civil engineer perform a survey of all existing utilities and structures adjacent to the shored excavation. The purpose of this survey would be to evaluate the ability of existing utility lines or improvements to withstand horizontal movements associated with a shored excavation and to establish the baseline condition in case of unfounded claims of

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damage. If existing improvements are not capable of withstanding anticipated lateral movements, alternative shoring systems may be required.

Horizontal and vertical movements of the shoring system should be monitored by a licensed surveyor. The construction monitoring and performance of the shoring system are ultimately the contractor's responsibility. However, at a minimum, we recommend that the top of shoring be surveyed prior to excavation and that the top and bottom of the soldier beams be surveyed on a weekly basis until the shoring is not needed. Surveying should consist of measuring movements in vertical and two perpendicular horizontal directions.

6.8 REINFORCED CONCRETE BOX DESIGN

6.8.1 Design Parameters

The following geotechnical design recommendations are provided for the design of standard reinforced concrete box (RCB) for use along the entire storm drain project alignment.

Table 4
Standardized RCB Parameters

Soil Description	Sandy Silt to Silty Sand
Soil Density	110 pcf
Active Earth Pressure (Equivalent Fluid Pressure)	40 pcf (Drained) 20 pcf (Undrained***) 35 pcf (Seismic Increment*)
At-Rest Earth Pressure** (Equivalent Fluid Pressure)	60 pcf (Drained) 30 pcf (Undrained***)
Soil Cohesion	50 psf
Ultimate Passive Resistance	250 pcf
Coefficient of Friction	0.3
Allowable Net Bearing Pressure	2,000 psf

*Retaining structures supporting more than 6 feet of backfill should be designed to support an incremental seismic lateral pressure, which is applied as a triangular pressure distribution with a maximum pressure at the bottom of the retaining structure, similar to the active lateral earth pressure.

**For restrained retaining structures (at-rest condition), use the static active earth pressure and seismic increment to check the seismic condition; use at-rest earth pressure only to check the static condition; the larger loading of both cases should be used for the design of restrained retaining structure.

***Retaining structures should be designed with adequate drainage to reduce the potential for a buildup of hydrostatic pressures. For retaining structures where drainage outlets are not feasible, the undrained earth pressures listed above should be used. In addition to the above lateral pressures, walls should be designed to resist hydrostatic pressures. Hydrostatic pressures should assume a unit weight of 62.4 pcf and extend the full height of the wall. Hydrostatic pressure is applied as a triangular pressure distribution with a maximum pressure at the bottom of the wall, similar to the active lateral earth pressure. The resultant force may be assumed to at a height of 0.33H above the wall footing, where H is the retaining wall height.

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6.8.2 Estimated RCB Settlement

The static settlement of individual RCB's will vary, depending on the depth of embedment, the plan dimensions of the vaults and the actual loading. We estimate the maximum total static settlement of vaults designed and constructed in accordance with the recommendations in this report to be on the order of 1 inch or less. Differential settlement is expected to be less than ½ inch, provided vaults are founded on similar materials. The estimated settlements discussed above do not include potential seismically-induced settlement discussed in Section 6.3.

6.9 EARTHWORK AND GRADING

Grading plans were not available for the project at the time this report was prepared. We anticipate earthwork and grading will be relatively minor. The final grading plans should be reviewed and, if needed, additional recommendations should be provided.

6.9.1 Site Preparation

All site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations, and other local, state, or federal specifications. All references to maximum unit weight should be established in accordance with the current ASTM Standard Test Method D1557 and may supersede references cited herein. The earthwork operations should be observed and tested by a representative of Kleinfelder.

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6.9.2 Stripping and Grubbing

Prior to general site grading, existing pavement, vegetation, organic topsoil, existing fill soils, and debris shall be stripped and disposed of outside the construction limits. Deeper stripping or grubbing may be required where concentrations of fill debris, organic soils, existing trees, or thick root mats are encountered during site grading. Stripped topsoil (less any debris) may be stockpiled and reused for landscape purposes elsewhere on the project; however, this material should not be incorporated into any engineered fill.

In areas where existing trees will be removed, care should be taken to remove the root-ball, roots exceeding 1 inch in diameter, remaining organics, and to backfill the excavations with compacted engineered fill. We strongly recommend having a representative of Kleinfelder present during tree removal, in areas to receive fill or beneath foundations to observe removal of large roots and subsequent scarification and recompaction. Engineered fill should be placed and compacted in accordance with recommendations provided below.

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6.9.3 Earthwork

At the RCB subgrade and storm drain bottoms, the exposed surface should be scarified to a minimum depth of 6 inches, moisture-conditioned, and compacted to at least 90 percent relative compaction. Any areas of loose or yielding soils should be over-excavated and re-compacted. Any soils that cannot be compacted, or are otherwise unsuitable for the planned use, should be excavated and disposed of from the project site and replaced with suitable engineered fill.

All materials to be placed as fill should be free of vegetation, organics, debris, and other deleterious materials. During fill placement, “oversize” material should be placed accordingly. Oversize material is any material with maximum dimension greater than 3 inches. All oversize material should be exported to an appropriate disposal facility. The larger rock, if any, will require special handling to reduce its size or place as windrows in a rock disposal fill.

All fill placed should be placed in horizontal lifts less than 8 inches in loose thickness, moisture-conditioned to within 2 percent of the optimum moisture content and compacted to 90 percent relative compaction per ASTM D1557. Engineered fill placed within the upper 12 inches of unpaved access roads or 12 inches below pavement subgrades should be compacted to at least 95 percent relative compaction of the maximum dry density obtained by ASTM D1557.

Import materials, if required, should have an Expansion Index (EI) of less than 20 with no more than 30 percent of the particles passing the No. 200 sieve and no particles greater than 3 inches in maximum dimension. The maximum EI for imported soils may be modified by the project geotechnical engineer depending on its proposed use. Imported fill should be documented to be free of hazardous materials, including petroleum or petroleum byproducts, chemicals and harmful minerals. Kleinfelder should evaluate the proposed imported materials prior to their transportation and use on site.

6.9.4 Temporary Excavations

All excavations must comply with applicable federal, state, and local safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below solely as a service to our client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor’s activities. Such responsibility is not being implied and should not be inferred.

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Temporary cut slopes up to 15 feet high may be sloped back at an inclination of no steeper than 1.5:1 (horizontal to vertical) in the existing site soils. Minor sloughing and/or raveling of sandy slopes should be anticipated as they dry out. If signs of slope instability are observed, the inclination recommended above should be decreased until stability of the slope is obtained. Kleinfelder should be onsite full time to observe the temporary backcuts. Where space for sloped embankments is not available, shoring will be necessary. All applicable excavation safety requirements and regulations, including OSHA requirements, should be met.

Where sloped excavations are used, the tops of the slopes should be barricaded so that vehicles and storage loads do not encroach the tops of excavated slopes within a distance equal to the depth of the excavation. Greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. Kleinfelder should be advised of such heavy vehicle loadings so that specific setback requirements can be established. If temporary construction slopes are to be maintained during the rainy season, berms are recommended along the tops of the slopes to reduce runoff that may enter the excavation and erode the slope faces. Stockpiled material should not be placed closer to the edge of an excavation than a distance equal to the depth of the excavation, and never closer than 4 feet from the edge of the excavation.

Temporary, shallow excavations with vertical side slopes less than 4 feet high should generally be stable, although sloughing may be encountered in the granular deposits. Vertical excavations greater than 4 feet high should not be attempted without appropriate shoring to prevent local instability. All trench excavations should be braced and shored in accordance with good construction practice and all applicable safety ordinances and codes. The contractor should be responsible for the structural design and safety of the temporary shoring system, and we recommend that this design be submitted to Kleinfelder for review to check that our recommendations have been incorporated. For planning purposes, the on-site soils may be considered as a Type C soil, as defined using the current OSHA soil classification.

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6.9.5 Unstable Subgrade Conditions

Groundwater may be encountered during site grading. We recommend that a dewatering plan be prepared such that the groundwater is maintained below the storm drain subgrade elevation during construction. Following dewatering, we anticipate pumping subgrade conditions may be encountered, and the subgrade may need to be stabilized. An unstable subgrade could be over-excavated 12 to 24 inches below the subgrade elevation and replaced with an equal amount of ¾- or 1-inch compacted crushed rock wrapped by geotextile fabric. The geotextile fabric should

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consist of a woven geotextile, such as Mirafi 600X or equivalent. The final depth of removal will depend upon the conditions observed in the field once over-excavation begins. The geotextile fabric should be placed in accordance with the manufacturer's recommendations. Alternate stabilization methods approved by Kleinfelder may also be performed.

6.10 PERMANENT SLOPES

Permanent slopes may be constructed for the proposed project. The following sections provide general recommendations for both fill and cut slopes. Revised recommendations may be needed based on our review of the final project plans.

6.10.1 Fill Slopes

Fill slopes may be inclined up to 2:1 (horizontal:vertical) or flatter. Where the toe of a fill slope terminates on a natural or cut slope, a keyway is required at the toe of the fill slope. The fill slope keyway should be a minimum width of 15 feet, with a minimum depth of 3 feet into competent natural material and should extend a distance equal to the depth of the keyway beyond the toe of the fill. Benching should be cut into the existing slope to bind the fill to the slope. Benches should be step-like in profile, with each bench not less than four feet in height and established in competent material. Figure 4, Typical Engineered Fill Slope Detail shows a typical section for a fill slope including keyway and benching. For slopes 10 feet high or less, the keyway depth and width may be reduced as presented in Table 5 below.

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Table 5
Minimum Keyway Recommendations

Keyway Recommendations for Fill Slopes			
Slope Height	5 feet or less	> 5 feet to 10 feet	> 10 feet
Minimum Keyway Depth	1 foot into competent material	2 feet into competent material	3 feet into competent material
Minimum Keyway Width	8 feet *	8 feet	15 feet

* For fill slopes 5 feet or less in height, further evaluation of the keyway width can be made by the Engineer of Record based on field conditions and construction methods employed.

Compressible or other unsuitable soils should be removed from the slope prior to benching. Competent material is defined as being essentially free of loose soil, heavy fracturing or erosion prone material and is established by the Geotechnical Consultant during grading. Following

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completion of the excavation for the keyway, the project Geotechnical Consultant shall observe the keyway prior to backfilling with certified engineered fill.

Depending on fill slope construction and actual site conditions encountered in the field to be verified by the Geotechnical Engineer or their representative, back drains may be required within the compacted fill to prevent the buildup of hydrostatic pressures behind the fill slope. Field conditions, such as observed seepage, or the presence of water within the slope may require the use of subdrains to adequately prevent buildup of hydrostatic pressures behind the fill slope. In general, fill slopes with design heights less than 10 feet will likely not require subdrains.

When constructing fill slopes, the contractor shall avoid spillage of loose material down the face of the slope during dumping and rolling conditions. Preferably, the incoming load shall be dumped behind the face of the slope and bladed into place. As a preferred method, the slope should be over-built and then trimmed back to expose a compacted core. As an alternative method, after each 4 feet of vertical height has been obtained, the contractor shall compact the outer face of the slope by backing the tamping roller over the top of the slope and thoroughly covering the entire slope surface with overlapping passes of the roller and accepted by geotechnical engineer of record. The foregoing should be repeated after the placement of each 4-foot thickness of fill.

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As discussed previously, fill slopes should conform to the requirements of the “Earthwork” section of this report and should contain no particles greater than 3 inches in maximum dimension. The fill slope surface should be compacted to a minimum of 90 percent relative compaction per ASTM D1557, or as specified in the project plans and specifications. Surface drainage control, such as berms at the tops of slopes, should be included in the design of fill slopes to direct sheet flow away from the tops of slopes and reduce the potential for slope erosion.

6.10.2 Cut Slopes

In general, cut slopes should be a maximum inclination of 2:1 (horizontal:vertical). Due to the potential for adverse geologic conditions, cut slopes proposed in formational material should be evaluated on a case-by-case basis. We recommend that a qualified geologist be on site during grading of the cut slopes to map the exposed geology for consistency with the conditions presented in this report. Revised recommendations may be needed based on the in-grading mapping.

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6.11 EXCAVATION CHARACTERISTICS

In general, the drilling equipment used for our geotechnical investigation was able to reach the target depths at all of the borings, suggesting that the subsurface soils can be excavated with conventional excavation equipment.

6.12 SCOUR CONSIDERATIONS

We understand scour analysis will be performed by others. The near-surface soil generally consisted of sandy silt and silty sand. The sieve analysis results presented in Appendix B can be used to support scour analyses. The grain size representing percent passing 50% (D_{50}) obtained from the sieve analyses of the near-surface soil are summarized in Table 6 below.

Table 6
D_{50} Results

Boring Number	Depth (ft)	D_{50} (mm)
B-1	5	0.072
B-2	5	0.045
B-3	0 – 5	>0.1
B-4	0 – 5	0.14
B-5	5	0.025
B-6	0 – 5	0.040
B-7	0 – 5	0.094
B-8	5	0.052
B-9	5	0.13
B-10	0 – 5	0.067
B-11	0 – 5	0.071
B-12	0 - 5	0.059
B-13	0 – 5	0.10
B-14	0 – 5	0.76
B-15	0 – 5	0.31
B-16	5	0.096
B-17	5	0.097
B-18	0 – 5	0.28
B-19	0 – 5	0.26

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6.13 PAVEMENT RECOMMENDATIONS

6.13.1 Asphalt Concrete

If proposed access roads will be paved, the required pavement structural sections will depend on the expected wheel loads, volume of traffic, and subgrade soils. The Traffic Indexes (TI's) assumed should be reviewed by the project Owner, Architect, and/or Civil Engineer to evaluate their suitability for this project. Changes in the TI's will affect the corresponding pavement section. The pavement subgrade should be prepared just prior to placement of the base course. Positive drainage of the paved areas should be provided since moisture infiltration into the subgrade may decrease the life of pavements. A preliminary asphalt concrete pavement section is provided in Table 7, below.

Table 7
Preliminary Asphalt Concrete Pavement Sections
(Design R-value = 50)

Assumed Traffic Index (TI)	Minimum Asphalt Concrete (inches)	Minimum Aggregate Base (inches)
5	3.0	4.0

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Based on laboratory testing results, a design R-Value of 50 was selected for pavement design. Since the characteristics of the near-surface soils can change as a result of grading, we recommend that representative subgrade samples be obtained during grading and additional R value tests performed. Should the results of these tests indicate a significant difference, the design pavement section(s) provided above may need to be revised. Pavement sections provided above are contingent on the following recommendations being implemented during construction.

- The upper 12 inches of subgrade below pavements should be compacted to at least 95 percent relative compaction.
- Subgrade soils should be in a stable, non-pumping condition at the time aggregate base materials are placed and compacted.
- Aggregate base materials should be compacted to at least 95 percent relative compaction.
- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet.

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- Aggregate base materials should meet current Caltrans specifications for Class II aggregate base rock or crushed miscellaneous base as specified in the "Standard Specifications for Public Work Construction" ("Greenbook").
- The asphalt pavement should be placed in accordance with “Green Book” specifications or the City of San Jacinto requirements, as appropriate. We recommend that the asphalt pavement be placed in a single layer of ½-inch aggregate mix for pavements 4 inches thick or less. If the pavement section is over 4 inches thick, then the asphalt should be placed in at least two layers of mix. The first layer should consist of a base or coarse layer (¾-inch mix). The second layer (i.e., top layer) should consist of a medium or fine layer of ½-inch mix.

6.13.2 Portland Cement Concrete

Portland cement concrete (PCC) pavement should have a minimum 28-day compressive strength of 3,000 psi. Control joints should be spaced approximately every 10 feet. The concrete pavement section should be placed on at least 18 inches of engineered fill compacted to at least 90 percent of the maximum dry density with the upper 12 inches below pavements compacted to at least 95 percent relative compaction. Prior to fill placement, the exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to near optimum moisture content at the time of compaction. The following table presents our recommendations of Portland Cement Concrete pavement sections.

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Table 8
Preliminary PCC Pavement Sections

Assumed Traffic Index (TI)	Minimum Concrete Thickness (inches; using a 28-day compressive strength of 3,000 psi)	Minimum Concrete Thickness (inches; using a 28-day compressive strength of 4,000 psi)
5	6.5	6.0

As an alternative to placing PCC pavements directly over 18 inches of engineered fill, 6 inches of aggregate base material may be added between the PCC and engineered fill to provide additional load distribution, drainage, and an option to reduce the thickness of the recommended PCC. If 6 inches of aggregate base material (compacted to 95% relative compaction) is used between the recommended 18 inches of engineered fill and PCC pavement, the recommended PCC thickness may be reduced by ½ inch. Aggregate base materials should meet current Caltrans specifications for Class 2 aggregate base or crushed

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miscellaneous base as specified in the "Standard Specifications for Public Work Construction" ("Greenbook").

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7 LIMITATIONS

Recommendations contained in this report are based on our field observations and subsurface explorations, laboratory tests, and our present knowledge of the proposed project. It is possible that soil conditions could vary between or beyond the points explored. If soil conditions are encountered during construction, which differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed project, including the proposed foundation systems or vault locations, change from that described in this report, our recommendations should also be reviewed and a response issued. References to elevations and locations provided within this report were based upon general information provided for our use. Kleinfelder did not provide surveying services.

Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the authors of this report, are only mentioned in the given standard; they are not incorporated into it or "included by reference," as the latter term is used relative to contracts or other matters of law.

We have strived to prepare the findings, conclusions, and recommendations in this report in a manner consistent with the standards of care and skill ordinarily exercised by members of this profession practicing under similar conditions in the geographic vicinity and at the time the services were performed. No warranty or guarantee, express or implied, is made. Information and recommendations presented in this report should not be extrapolated to other areas or be used for other projects without our prior review and response.

This report may be used only by Albert A. Webb Associates and their subcontractors and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than Albert A. Webb Associates and their subcontractors who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

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Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

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FIGURES

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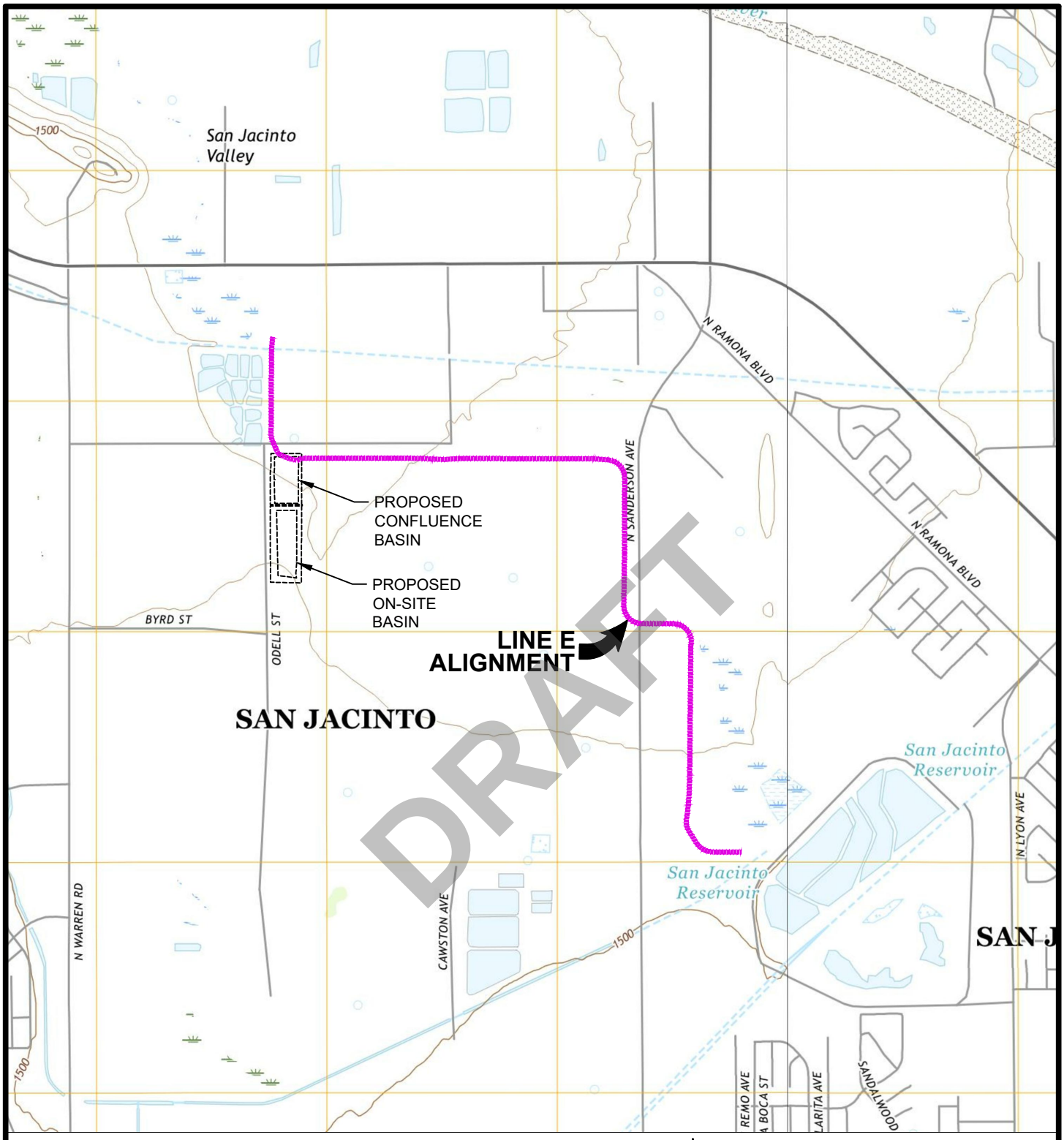

SOURCE: U.S.G.S. 7.5' topographic series, Lakeview and San Jacinto, California quadrangles dated 2018.

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APPROXIMATE SCALE (feet)

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CHECKED BY:	HM
DATE:	10/2023
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SITE VICINITY MAP

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE
1

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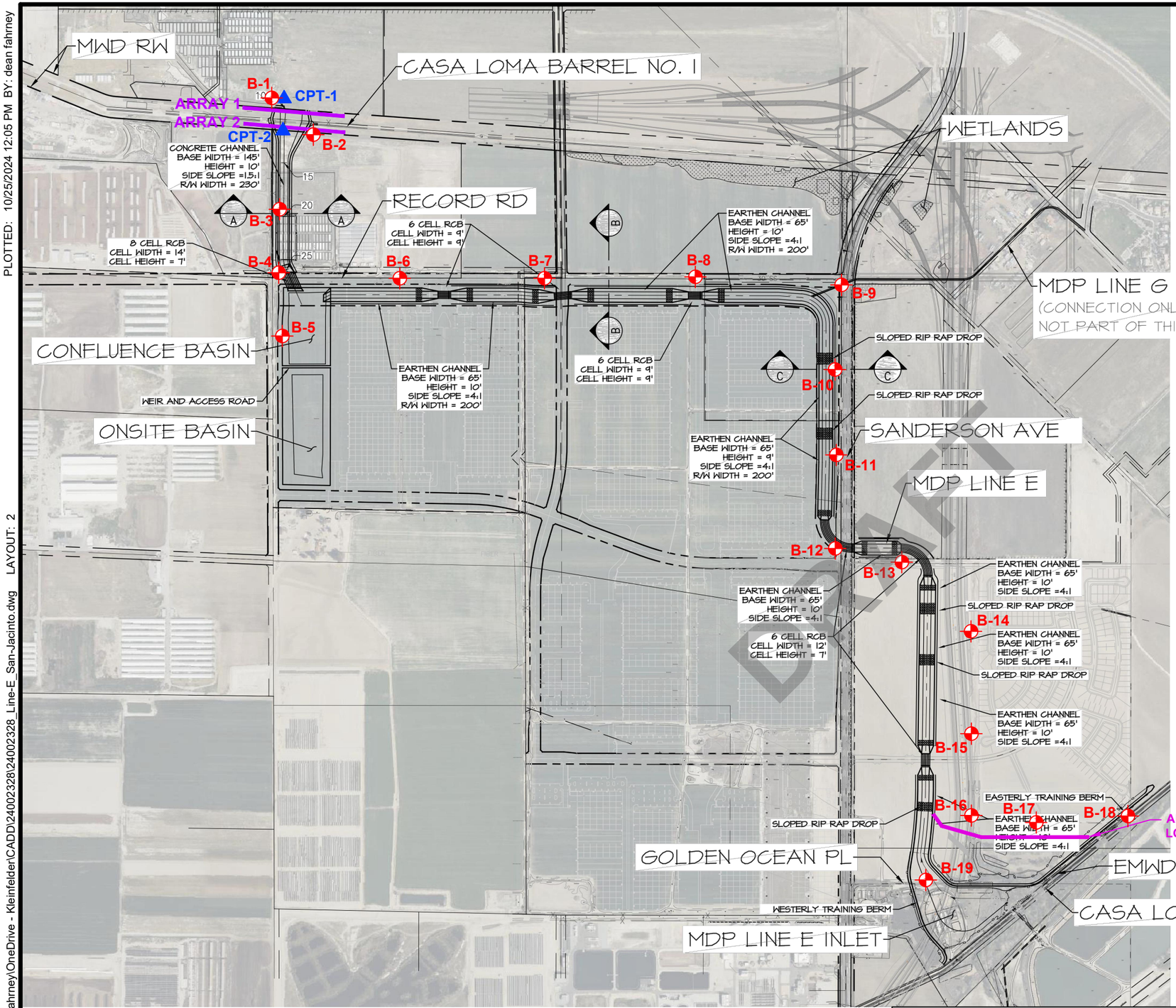

EXPLANATION

- B-19 — APPROXIMATE BORING LOCATION
- CPT-2 — APPROXIMATE CPT LOCATION
- ARRAY 2 — APPROXIMATE SEISMIC SURFACE WAVE ARRAY LOCATION

REFERENCE: BASE MAP PROVIDED BY ALBERT A. WEBB ASSOCIATES, DATED 08/23/2023

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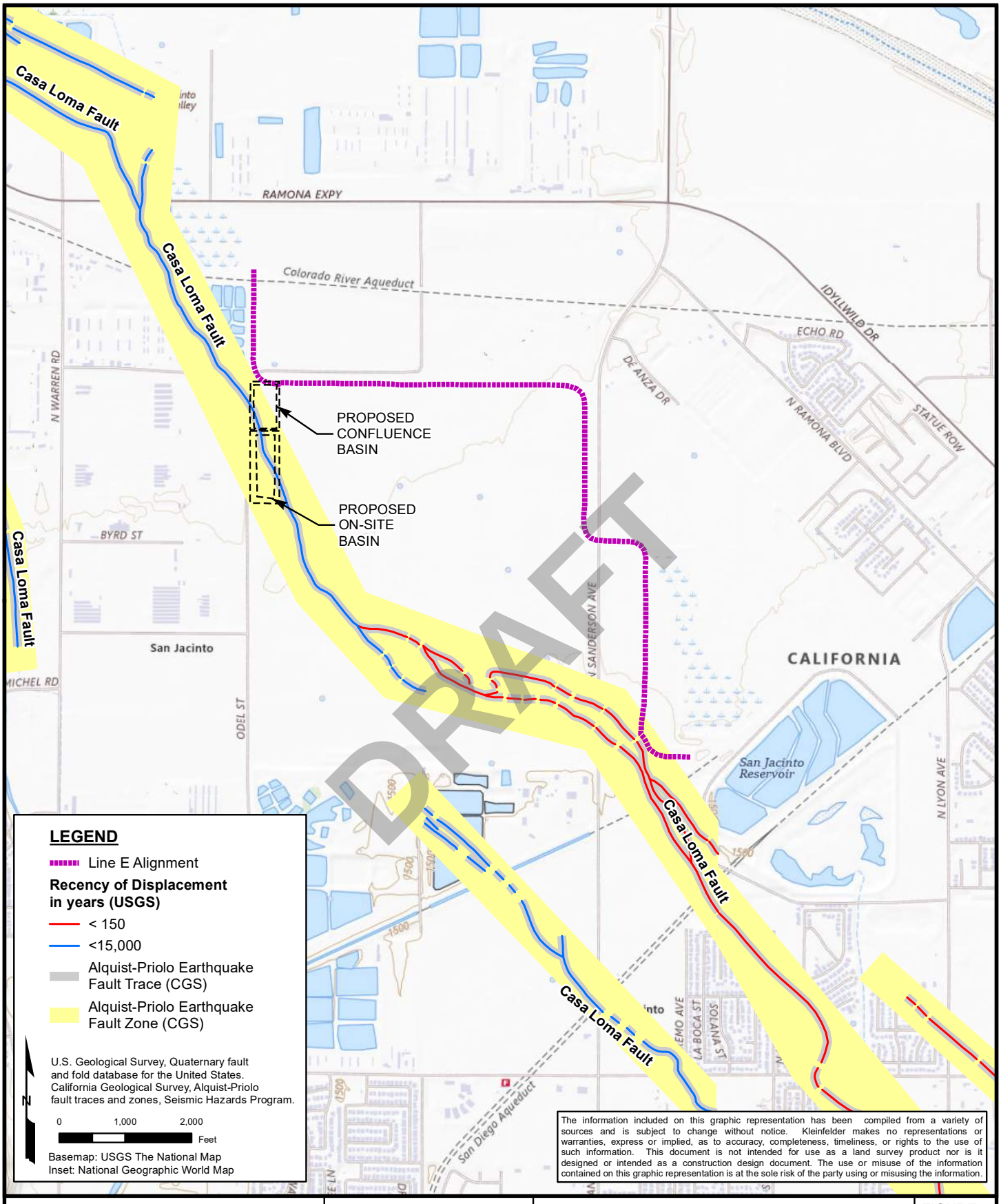
EXPLORATION LOCATION MAP

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE
2



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FAULT LOCATION MAP

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE
3

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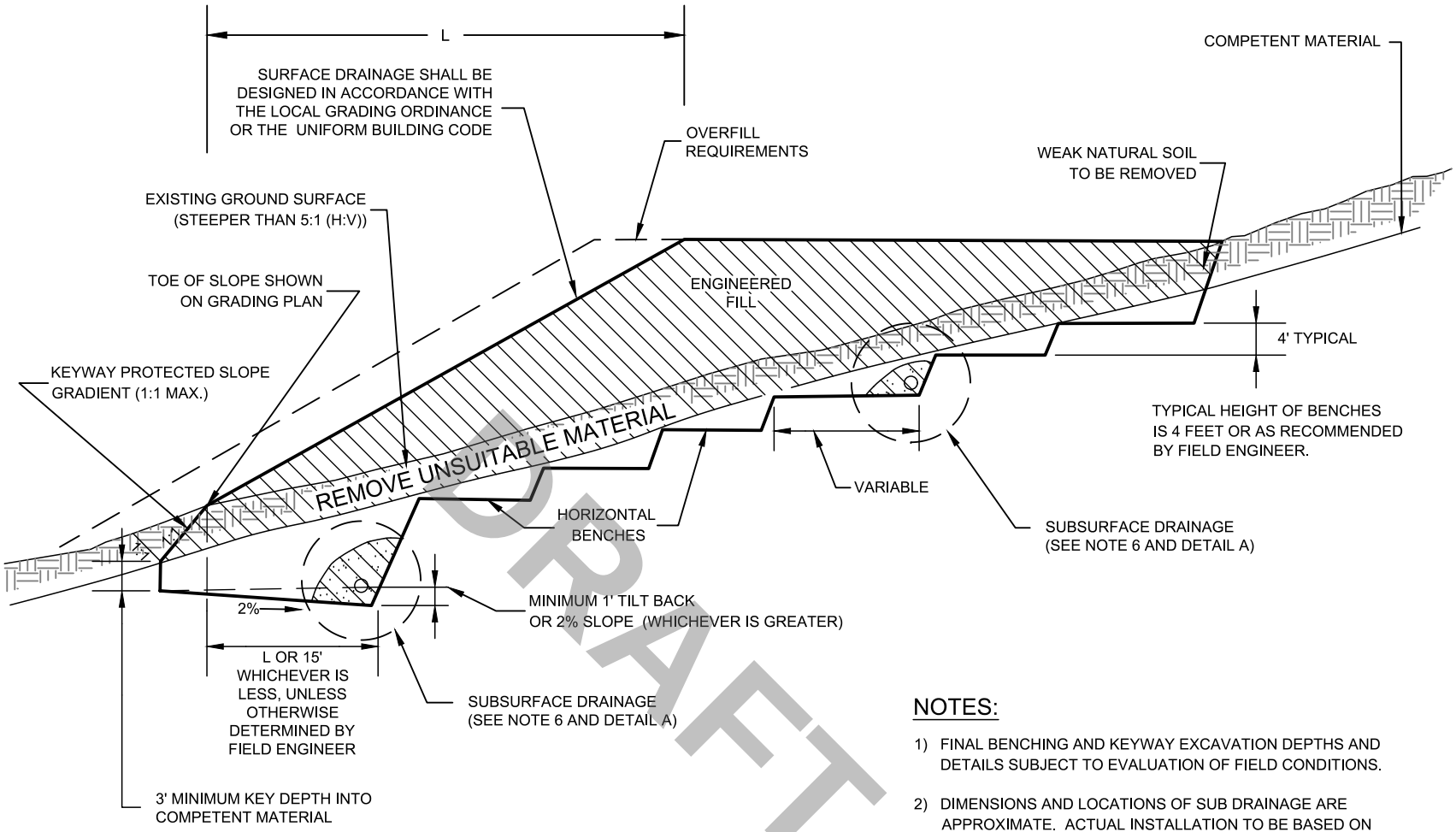
TYPICAL ENGINEERED FILL SLOPE DETAIL

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE: 4



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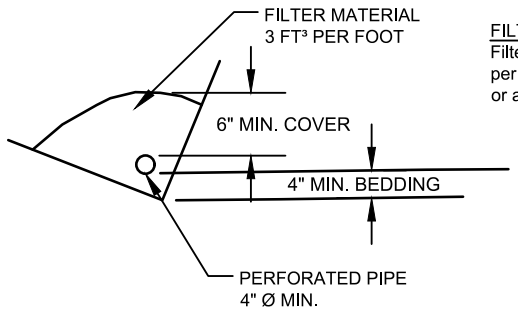
DETAIL A:

PERFORATED PIPE SURROUNDED BY FILTER MATERIAL



FILTER MATERIAL:
Filter material shall be class 2 permeable material per State of California Standards Specifications, or an approved alternate.

NOTES:

1) FINAL BENCHING AND KEYWAY EXCAVATION DEPTHS AND DETAILS SUBJECT TO EVALUATION OF FIELD CONDITIONS.
2) DIMENSIONS AND LOCATIONS OF SUB DRAINAGE ARE APPROXIMATE. ACTUAL INSTALLATION TO BE BASED ON FIELD CONDITIONS.
3) GRADE PIPES TO DRAIN TO AN APPROPRIATE DISCHARGE FACILITY.
4) INSTALL CLEANOUTS AT ENDS, ANGLES, AND JUNCTIONS OF PIPE.
5) BENCH SHALL BE REQUIRED WHEN NATURAL SLOPES ARE EQUAL TO OR STEEPER THAN 5:1 OR WHEN RECOMMENDED BY THE FIELD ENGINEER.
6) SUBDRAINAGE: BACK DRAIN SHOULD BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL CONSULTANT.

APPENDIX A
FIELD EXPLORATION

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APPENDIX A
FIELD EXPLORATION

Field explorations included a site reconnaissance and subsurface explorations. During the site reconnaissance phase, each proposed boring site was visited to evaluate exploration equipment, accessibility, and general site conditions. The subsurface exploration program included drilling 19 hollow-stem auger borings and performing 2 CPTs.

The borings were drilled to depths ranging from approximately 20 to 50 feet bgs. Truck-mounted hollow-stem auger drill rigs supplied by 2R Drilling of Chino, California were used for the soil borings. Hollow-Stem Auger (HSA) drill rigs were equipped with 8-inch outside diameter (O.D.) continuous flight, hollow-stem augers.

The CPTs were advanced to a maximum depth of 100 ft bgs. The CPTs were performed by Kehoe Testing & Engineering, Inc. of Huntington Beach, California using a 30-ton truck rig.

Disturbed and relatively undisturbed samples of the subsurface materials were obtained from the borings using Standard Penetration test (SPT) samplers and California-type (CAL) samplers, respectively. The SPT sampler has a 1.375-inch inside diameter and a 2.0-inch outside diameter. The CAL sampler has a 2.42-inch inside diameter and a 3.0-inch outside diameter. Samples were driven 18 inches into the soil using a 140-pound automatic hammer falling 30 inches. SPT and CAL samples were obtained at 5-foot intervals alternating between the SPT and the CAL until reaching the boring target depth. Large bulk samples were also obtained within the upper 5 feet from each boring. The number of blows required to drive the samplers were recorded for each 6-inch penetration interval. The number of blows required to drive the samplers for the last 12 inches, or the interval achieved where higher resistance was encountered, is referred to as the blow count and is noted on the boring logs. Where the sample was driven less than 12 inches, the number of blows to drive the sample for each 6-inch segment, or portion thereof, is shown on the logs. For example, 50/4" indicates 50 blows to drive the sampler 4 inches to refusal. After the samplers were withdrawn from the test borings, select samples were carefully removed, sealed to reduce moisture loss, and transported to AP Engineering and Testing, Inc. for testing.

A legend to the logs is presented as Figure A-1 and A-2. The boring logs are presented as Figure A-3 through A-24. The logs describe the earth materials encountered, indicate the locations of the samples obtained, and show field and laboratory tests performed. The excavations were logged by an engineer from Kleinfelder using methods outlined in the Unified Soil Classification System (USCS) and general procedures established in ASTM D2488. The

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boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. The CPT visual plots and data are also attached in Appendix A following the logs.

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DRILLING METHOD/SAMPLER TYPE GRAPHICS

BULK SAMPLE

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after stabilizing period)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Solid lines separating strata on the logs represent approximate boundaries only, dashed lines are inferred or extrapolated boundaries. Actual transitions may be gradual or differ from those represented.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (ASTM D2488/D2487) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., CL-ML, GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a pound hammer falling inches.

REFERENCES

1. American Society for Materials and Testing (ASTM), 2011, ASTM D2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System).

UNIFIED SOIL CLASSIFICATION SYSTEM[1]

COARSE GRAINED SOILS (More than 50% retained on No. 200 Sieve)	**GRAVELS** (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVEL WITH <5% FINES	**GW**	WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP	POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH 5% TO 12% FINES	**GW-GM**	WELL-GRADED GRAVEL WITH SILT, WELL-GRADED GRAVEL WITH SILT AND SAND
			GW-GC	WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY), WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILT CLAY AND SAND)
			GP-GM	POORLY GRADED GRAVEL WITH SILT, POORLY GRADED GRAVEL WITH SILT AND SAND
			GP-GC	POORLY GRADED GRAVEL WITH CLAY (OR SILTY CLAY), POORLY GRADED GRAVEL WITH CLAY AND (OR SILTY CLAY AND SAND)
		GRAVELS WITH > 12% FINES	**GM**	SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
			GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL WITH SAND
	SANDS (50% or more of coarse fraction passes the No. 4 Sieve)	CLEAN SANDS WITH <5% FINES	**SW**	WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP	POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL
		SANDS WITH 5% TO 12% FINES	**SW-SM**	WELL-GRADED SAND WITH SILT, WELL-GRADED SAND WITH SILT AND GRAVEL
			SW-SC	WELL-GRADED SAND WITH CLAY (OR SILTY CLAY), WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
			SP-SM	POORLY GRADED SAND WITH SILT, POORLY GRADED SAND WITH SILT AND GRAVEL
			SP-SC	POORLY GRADED SAND WITH CLAY, POORLY GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
		SANDS WITH > 12% FINES	**SM**	SILTY SAND, SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND, CLAYEY SAND WITH GRAVEL
			SC-SM	SILTY, CLAYEY SAND, SILTY, CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS (50% or more passes the No. #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		**ML**	SILT, SILT WITH SAND, SILT WITH GRAVEL
			CL	LEAN CLAY, LEAN CLAY WITH SAND, LEAN CLAY WITH GRAVEL
			CL-ML	SILTY CLAY, SILTY CLAY WITH SAND, SILTY CLAY WITH GRAVEL
			OL	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL
	SILTS AND CLAYS (Liquid Limit 50 or greater)		**MH**	ELASTIC SILT. ELASTIC SILT WITH SAND, ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY, FAT CLAY WITH SAND, FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

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PROJECT NO.: 24002328.001A
DRAWN BY: DE
CHECKED BY: HM
DATE:

GRAPHICS KEY

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-1

gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_GEO_LEG1_GRAPHICS_KEY_W_USCS]
PROJECT NUMBER: 24002328.001A
OFFICE FILTER: RIVERSIDE
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GRAIN SIZE[1]

DESCRIPTION		SIEVE SIZE	GRAIN SIZE
Boulders		>12 in.	>12 in. (304.8 mm.)
Cobbles		3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)
Gravel	coarse	3/4 -3 in.	3/4 -3 in. (19 - 76.2 mm.)
	fine	#4 - 3/4 in.	0.19 - 0.75 in. (4.8 - 19 mm.)
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)
Fines		Passing #200	<0.0029 in. (<0.07 mm.)

SECONDARY CONSTITUENT[1]

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

PLASTICITY[1]

DESCRIPTION	CRITERIA
Non-Plastic	A 1/8 in. (3 mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT[1]

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CONSISTENCY - FINE-GRAINED SOIL[2, 3]

CONSISTENCY	SPT - N (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Easily penetrated several inches by fist
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1,000	Easily penetrated several inches by thumb
Medium Stiff	4 - 8	0.5 ≤ PP <1	1,000 - 2,000	Can be penetrated several inches by thumb with moderate effort
Stiff	8 - 15	1 ≤ PP <2	2,000 - 4,000	Readily indented by thumb but penetrated only with great effort
Very Stiff	15 - 30	2 ≤ PP <4	4,000 - 8,000	Readily indented by thumbnail
Hard	>30	4 ≤ PP	>8,000	Indented by thumbnail with difficulty

APPARENT DENSITY - COARSE-GRAINED SOIL[2]

APPARENT DENSITY	SPT-N (# blows / ft)
Very Loose	<4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

STRUCTURE[1]

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6mm) thick, note thickness.
Laminated	Alternating layers of varying material or color with the layers less than 1/4-in. (6 mm) thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.
Homogeneous	Same color and appearance throughout

ANGULARITY[1]

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

REACTION WITH HYDROCHLORIC ACID[1]

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

CEMENTATION[1]

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or little finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

REFERENCES

1. American Society for Materials and Testing (ASTM), 2017, ASTM D2488: Standard Practice for Description and Identification of Soils (Visual Manual Procedures).
2. Terzaghi, K and Peck, R., 1948, Soil Mechanics in Engineering Practice, John Wiley & Sons, New York.
3. United States Department of the Interior Bureau of Reclamation (USBR), 1998, Earth Manual, Part I.

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PROJECT NO.: 24002328.001A
DRAWN BY: DE
CHECKED BY: HM
DATE:

SOIL DESCRIPTION KEY
(For additional tables, see ASTM D2488)

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-2

PLOTTED: 11/07/2023 08:56 PM BY: DEdrees
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 24002328.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_GEO_LEG2_SOIL_DESC_KEY]
gINT FILE: Klf_gint_master_2024

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-1**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.82065°
Longitude: -117.02476°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist	1										Hand Auger 5' bgs Corrosion Test
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist											
1445	5		stiff, increase in sand content	2		BC=3 5 8	18"	10.2	101.7	100	53			
			very stiff	3		BC=5 7 8	18"	26.4	90.2					Direct Shear Test
1440	10		brown, stiff	4		BC=3 3 5	18"	40.6	81.4					
1435	15			5		BC=1 2 3	18"	36.7	83.7					Consolidation Test
			SILT (ML): low plasticity, olive, moist, medium stiff											
1430	20		increase in sand content	6		BC=3 1 3	18"					38	12	
			SILT with Sand (ML): fine sand, non-plastic, olive, moist, stiff											
1425	25			7		BC=4 4 6	18"	36.8	84.2		76			Direct Shear Test
1420	30		olive, moist to wet, medium stiff	8		BC=1 2 2	18"					NP	NP	
			Silty SAND (SM): fine sand, olive, wet, loose											

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PROJECT NO.:	24002328.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG B-1

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-3

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 24002328.001A
gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-1**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.82065°
Longitude: -117.02476°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, olive, wet, loose	9		BC=4 5 8	18"							
			SILT with Sand (ML): non-plastic, olive, wet, stiff											
1410	40			10		BC=3 5 6	18"				71			
1405	45		olive gray, medium stiff	11		BC=1 3 4	18"							
			Clayey SAND (SC): fine sand, medium plasticity, olive, wet, loose											
1400	50			12		BC=2 3 4	18"					44	18	
1395	55													
1390	60													
1385	65													

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 29.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 16.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-1	FIGURE	
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California	A-4	
CHECKED BY: H.M			
DATE:		PAGE: 2 of 2	

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
PROJECT NUMBER: 24002328.001A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2024 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-2**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.82004°
Longitude: -117.02428°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, light brown, moist	1										Hand Auger 5' bgs Expansion Index Test
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, light brown, moist, medium stiff, trace mica											
1445	5			2		BC=2 3 3	18"	32.3	83.0	100	59			
			stiff	3		BC=4 7 7	18"	25.8	93.2					
1440	10			4		BC=2 3 8	18"	27.4	92.7					Direct Shear Test
			SILT with Sand (ML): fine sand, non-plastic, light brown, moist, medium stiff, trace mica											
1435	15			5		BC=2 2 3	18"				80			
1430	20		olive, hard	6		BC=6 13 17	18"							
			Sandy Elastic SILT (MH): low plasticity, olive, moist, medium stiff											
1425	25		medium stiff, fine sand	7		BC=2 2 3	18"					65	30	
1420	30			8		BC=3 4 3	18"	35.3	85.1		57			Direct Shear Test
			Silty SAND (SM): fine sand, non-plastic, olive, moist to wet, loose											

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PROJECT NO.:	24002328.001A
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DATE:	

BORING LOG B-2

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-5

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 24002328.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: Klf_gint_master_2024

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-2**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.82004°
Longitude: -117.02428°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, olive, moist to wet, loose	9		BC=2 3 6	18"					NP	NP	
1410	40		wet, medium dense	10		BC=4 4 11	18"	39.3	81.3		47			Consolidation Test
1405	45			11		BC=4 5 6	18"					NP	NP	
1400	50			12		BC=4 8 10	18"							
1395	55													
1390	60													
1385	65													

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 34.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 33 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	24002328.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG B-2

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-6

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 24002328.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: Klf_gint_master_2024

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-3**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81791°
Longitude: -117.02451°
Approximate Ground Surface Elevation (ft.): 1,455.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, dry to moist, trace clay	1						100	59			Hand Auger 5' bgs Modified Proctor Corrosion Test
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, dry to moist, trace clay											
1450	5		light gray, hard	2		BC=11 20 21	18"	3.3	97.4					
			fine to medium sand	3		BC=9 13 20	18"	0.8	95.9					
1445	10		**SILT (ML)**: trace fine sand, non-plastic, olive gray, moist, hard	4		BC=11 28 28	18"	6.2	99.8		90			
			Silty SAND (SM): fine sand, olive, moist, medium dense, trace mica											
1440	15			5		BC=3 7 9	18"	29.1	90.1					
1435	20		loose, decrease in sand content	6		BC=2 2 7	18"							
1430	25													
1425	30													

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-3	FIGURE
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California	A-7
CHECKED BY: H.M		
DATE:		PAGE: 1 of 1

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
OFFICE FILTER: RIVERSIDE
PROJECT NUMBER: 24002328.001A
gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-4**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81654°
Longitude: -117.02420°
Approximate Ground Surface Elevation (ft.): 1,459.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, light brown, moist	1						100	22			Hand Auger 5' bgs (very loose) R-Value Test Corrosion Test
			Alluvium **Silty SAND (SM)**: fine sand, light brown, moist											
1455	5			2		BC=10 11 11	18"	8.3	108.0			NP	NP	Consolidation Test
			olive gray, medium dense	3		BC=9 13 15	18"	5.5	114.3					
1450	10			4		BC=4 8 12	18"	7.1	93.9					
1445	15		**Sandy SILT (ML)**: fine sand, low plasticity, olive, moist, medium stiff	5		BC=1 3 4	18"					45	15	
1440	20		**Clayey SAND (SC)**: fine sand, low plasticity, olive, moist, medium dense	6		BC=4 5 10	18"							
1435	25		**Silty SAND (SM)**: fine sand, low to medium plasticity, olive, moist, medium dense	7		BC=2 6 9	18"							
1430	30		olive gray	8		BC=6 8 10	18"					NP	NP	
1425														

DRAFT

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CHECKED BY:	H.M
DATE:	

BORING LOG B-4

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-8

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
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PROJECT NUMBER: 24002328.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: Klf_gint_master_2024

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-4**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81654°
Longitude: -117.02420°
Approximate Ground Surface Elevation (ft.): 1,459.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND (SM): fine sand, low to medium plasticity, olive, moist, medium dense dark olive gray	9		BC=3 4 6	18"							
1420	40		10		BC=4 8 12	18"							
1415	45	increase in fines content	11		BC=4 5 9	18"							
1410	50		12		BC=7 13 14	18"							
1405	55												
1400	60												
1395	65												
1390													

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

DRAFT

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PROJECT NO.: 24002328.001A	BORING LOG B-4		FIGURE
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California		A-9
CHECKED BY: H.M			
DATE:			PAGE: 2 of 2

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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-5**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81486°
Longitude: -117.02388°
Approximate Ground Surface Elevation (ft.): 1,463.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, dark brown, moist, trace clay	1										Hand Auger 5' bgs
1460			**Alluvium** **Sandy SILT (ML)**: fine sand, non-plastic, dark brown, moist, trace clay											
	5		olive yellow, moist, very stiff, increase in sand content	2		BC=7 11 18	18"	14.6	113.3	100	67			
			fine sand, olive, moist, trace medium sand											
1455				3		BC=7 12 16	18"	12.4	111.0					
	10		**Silty SAND (SM)**: fine sand, light gray, moist, dense	4		BC=11 20 23	18"	4.8	120.4					
1450			**Sandy SILT (ML)**: fine sand, non-plastic, olive gray, moist, stiff											
	15			5		BC=4 7 5	18"							
1445			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist, dense											
	20			6		BC=14 22 22	18"							
1440														
	25													
1435														
	30													
1430														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	24002328.001A
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BORING LOG B-5

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-10

PAGE: 1 of 1

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gINT FILE: Klf_gint_master_2024

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-6**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81644°
Longitude: -117.02061°
Approximate Ground Surface Elevation (ft.): 1,452.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1450	0		**Artificial Fill** **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist	1						100	69			Hand Auger 5' bgs Modified Proctor
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist											
	5		stiff, increase in sand	2		BC=4 6 8	18"	27.5	91.8					Direct Shear Test
1445				3		BC=6 8 9	18"	27.8	90.0					
	10		fine sand, olive, moist to wet, medium stiff	4		BC=4 3 3	18"	34.7	83.8					
1440														
	15		wet, stiff	5		BC=9 10 10	18"	26.6	95.9					
1435			**Silty SAND (SM)**: fine sand, olive, wet, loose											
	20			6		BC=3 3 3	6"							
1430														
	25													
1425														
	30													
1420														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 10.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 18.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-6

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-11

PAGE: 1 of 1

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-7**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81645°
Longitude: -117.01632°
Approximate Ground Surface Elevation (ft.): 1,457.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1455	0		**Artificial Fill** **Silty SAND (SM)**: fine sand, olive gray, moist, trace clay	1						100	46			Hand Auger 5' bgs Expansion Index Test Corrosion Test
			Alluvium **Silty SAND (SM)**: fine sand, olive gray, moist, trace clay											
	5		light gray, medium dense	2		BC=5 9 13	18"	7.4	101.2					
1450			increase in sand content	3		BC=7 12 14	18"	3.6	99.8					
	10		olive gray, moist	4		BC=3 7 13	18"	15.2	100.5					
1445														
	15			5		BC=5 8 12	18"							
1440 ▼			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist to wet, dense											
	20			6		BC=8 19 28	18"							
▽			wet											
1435														
	25													
1430														
	30													
1425														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-7

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-12

PAGE: 1 of 1

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gINT FILE: Klf_gint_master_2024

BORING LOG B-8

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling		
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81640°
Longitude: -117.01184°
Approximate Ground Surface Elevation (ft.): 1,459.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive brown, moist, trace medium sand	1										Hand Auger 5' bgs
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive brown, moist, trace medium sand											
1455	5		stiff, increase in sand content	2		BC=4 5 6	18"	27.8	90.0	100	66			
			very stiff	3		BC=5 9 13	18"	8.7	98.1					
1450	10		light gray	4		BC=8 11 16	18"	3.8	99.0					
1445	15		olive, moist to wet, stiff	5		BC=2 4 9	18"							
1440	20		olive gray, wet	6		BC=3 5 9	18"							
1435	25													
1430	30													
1425														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 15 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 19 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-8

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-13

PAGE: 1 of 1

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Date Begin - End: 9/27/2023 **Drilling Company:** 2R Drilling

Logged By: D. Edrees **Drill Crew:** Miguel/Justin

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-75 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

BORING LOG B-9

Latitude: 33.81617°
Longitude: -117.00761°
Approximate Ground Surface Elevation (ft.): 1,463.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to medium sand, light brown, moist	1										Hand Auger 5' bgs Modified Proctor
1460			**Alluvium** **Silty SAND (SM)**: fine to medium sand, light brown, moist											
	5		fine sand, olive, loose, increase in fines	2		BC=3 7 6	18"	14.1	110.2	100	39			
1455			fine to medium sand, medium dense	3		BC=4 6 6	18"	12.1	107.9					
	10		fine sand, trace medium sand	4		BC=4 9 10	18"	14.9	111.2					
1450														
	15		olive, moist to wet	5		BC=3 9 12	18"	12.1	112.3					
1445														
	20		fine to medium sand, wet, increase in sand	6		BC=6 5 5	18"							
1440														
	25													
1435														
	30													
1430														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 15 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-9

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-14

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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-10**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81403°
Longitude: -117.00741°
Approximate Ground Surface Elevation (ft.): 1,467.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			FIELD EXPLORATION					LABORATORY RESULTS						
1465	0		**Artificial fill** **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist	1						100	54			Hand Auger 5' bgs
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist											
	5		**Poorly Graded SAND (SP)**: fine to coarse sand, light gray, moist, loose	2		BC=5 3 4	18"	2.1	103.6		2.3			
1460			**Silty SAND (SM)**: fine sand, olive, moist, loose	3		BC=2 3 4	18"	23.7	91.6					
	10			4		BC=3 4 10	18"	20.9	103.1					
1455			**Sandy SILT (ML)**: fine to medium sand, non-plastic, moist, medium stiff											
	15			5		BC=1 2 3	18"							
1450			**Silty SAND (SM)**: fine sand, olive gray, moist, medium dense											
	20			6		BC=7 8 13	18"							
1445														
	25													
1440														
	30													
1435														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

DRAFT

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BORING LOG B-10

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-15

PAGE: 1 of 1

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Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-11**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81185°
Longitude: -117.00735°
Approximate Ground Surface Elevation (ft.): 1,469.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill	1										Hand Auger 5' bgs
			Sandy SILT (ML): fine sand, non-plastic, dark brown, moist							100	52			Corrosion Test
			Alluvium											
1465			**Sandy SILT (ML)**: fine sand, non-plastic, dark brown, moist											
	5		olive gray, stiff, increase in sand content	2		BC=3 3 5	18"	10.7	80.0					Direct Shear Test
			medium stiff	3		BC=2 3 4	18"	23.0	95.4					
1460	10		very stiff	4		BC=2 8 15	18"	8.1	110.4					
			Poorly Graded SAND with Silt (SP-SM): fine to medium sand, light gray, moist, medium dense											
			Silty SAND (SM): fine sand, olive gray, moist, medium dense											
1455	15			5		BC=8 8 16	18"	13.4	102.2					
1450	20		decrease in silt, trace medium sand	6		BC=7 11 13	18"							
1445	25													
1440	30													
1435														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-11	FIGURE
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California	A-16
CHECKED BY: H.M		
DATE:		PAGE: 1 of 1

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Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-12**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80946°
Longitude: -117.00736°
Approximate Ground Surface Elevation (ft.): 1,471.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1470			**Artificial Fil** **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, moist	1						100	59			Hand Auger 5' bgs Modified Proctor
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, moist											
1465	5		very stiff, increase in sand	2		BC=3 5 10	18"	16.8	104.8					
			olive	3		BC=3 6 9	18"	16.1	98.5					
1460	10		light gray, trace medium sand	4		BC=5 10 16	18"	19.2	94.5					
1455	15		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, olive gray, moist, medium dense	5		BC=3 5 7	18"							
			Silty SAND (SM): fine to medium sand, light gray, moist, dense											
1450	20			6		BC=6 20 30	18"							
1445	25													
1440	30													

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	24002328.001A
DRAWN BY:	D.E
CHECKED BY:	H.M
DATE:	

BORING LOG B-12

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-17

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PROJECT NUMBER: 24002328.001A
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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-13**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80917°
Longitude: -117.00521°
Approximate Ground Surface Elevation (ft.): 1,475.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fil **Silty SAND (SM)**: fine sand, olive gray, moist	1						100	38			Hand Auger 5' bgs R-Value Test Corrosion Test
			Alluvium **Silty SAND (SM)**: fine sand, olive gray, moist trace medium sand											
1470	5		loose	2		BC=2 3 4	18"	17.8	104.1		34			
			Poorly Graded SAND (SP): fine sand, olive, moist, loose	3		BC=2 2 7	18"	35.3	84.4					
1465	10		**Sandy SILT (ML)**: fine sand, non-plastic, olive, moist, very stiff	4		BC=3 5 10	18"	22.2	100.9					
			Silty SAND (SM): fine to medium sand, olive, moist, loose, trace coarse sand	5		BC=2 2 6	18"							
1455	20		fine sand, dark gray, moist, medium dense	6		BC=5 5 10	18"							
1450	25													
1445	30													

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-13	FIGURE
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California	A-18
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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-14**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80735°
Longitude: -117.00326°
Approximate Ground Surface Elevation (ft.): 1,477.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1475	0		**Artificial Fill** **Well-Graded SAND with Silt (SW-SM)**: fine to medium sand, light gray, moist	1						99	6.0			Hand Auger 5' bgs
			Alluvium **Well-Graded SAND with Silt (SW-SM)**: fine to medium sand, light gray, moist											
			SILT with Sand (ML): fine sand, light gray, moist, medium stiff											
	5			2		BC=1 2 3	18"	37.8	81.3		71			
1470			olive gray, loose	3		BC=3 3 7	18"	8.6	108.7					
	10		**Poorly Graded SAND with Silt (SP-SM)**: fine sand, olive gray, moist, medium dense	4		BC=2 4 12	18"	13.5	100.6					
			Sandy SILT (ML): fine sand, non-plastic, dark gray, moist, very stiff											
1465			**Silty SAND (SM)**: fine sand, dark grey, moist, loose											
	15			5		BC=4 5 7	18"	26.7	93.3					
1460 ▼			**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, dark grey, moist, medium dense											
	20			6		BC=5 6 4	18"							
▽			wet											
1455														
	25													
1450														
	30													
1445														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-14
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FIGURE
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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-15**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80475°
Longitude: -117.00315°
Approximate Ground Surface Elevation (ft.): 1,479.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill	1										Hand Auger 5' bgs
			Silty SAND (SM): fine to medium sand, olive brown, moist							99	25			Modified Proctor Corrosion Test
			Alluvium											
1475			**Silty SAND (SM)**: fine to medium sand, olive brown, moist											
			fine sand, olive											
	5		loose	2		BC=2 3 3	18"	29.1	86.1					Direct Shear Test
			Poorly Graded SAND (SP): fine sand, light gray, moist, medium dense, trace mica	3		BC=4 7 9	18"	9.4	104.2					
1470														
	10			4		BC=6 10 10	18"	25.5	93.4					
			Clayey SAND (SC): fine sand, low to medium plasticity, light gray, moist, loose											
1465														
	15			5		BC=1 2 4	18"							
			Silty SAND (SM): light gray, moist, medium dense											
1460														
	20		wet	6		BC=5 7 9	18"							
1455														
	25													
1450														
	30													
1445														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 18.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-15
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FIGURE
A-20

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-16**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.80256°
Longitude: -117.00315°
Approximate Ground Surface Elevation (ft.): 1,483.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, grayish brown, moist	1										Hand Auger 5' bgs
1480			**Alluvium** **Silty SAND (SM)**: fine sand, grayish brown, moist, loose											
	5			2		BC=5 5 5	18"	3.8	108.3	100	39			
1475			olive gray, loose, increase in sand content	3		BC=4 4 8	18"	21.1	97.5					
	10		olive, moist to wet, decrease in sand content	4		BC=2 2 3	18"	33.9	87.3					
1470														
	15		fine to medium sand, wet	5		BC=3 4 4	18"	25.7	99.9					
1465			**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse sand, light gray, wet, loose											
	20			6		BC=1 2 6	18"							
1460														
	25													
1455														
	30													
1450														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 10.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 8 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-16

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-17**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.80223°
Longitude: -117.00116°
Approximate Ground Surface Elevation (ft.): 1,483.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, dark brown, moist	1										Hand Auger 5' bgs Corrosion Test
1480			**Alluvium** **Silty SAND (SM)**: fine sand, dark brown, moist											
	5		loose	2		BC=1 2 3	18"	27.3	97.5	100	38			
1475			moist to wet, increase in sand	3		BC=5 7 7	18"	43.1	80.9					
	10		very loose	4		BC=2 2 2	18"	23.0	91.9					
1470														
	15		wet, medium dense	5		BC=3 7 7	18"							
1465														
	20		fine to medium sand, medium dense, trace coarse sand	6		BC=3 4 15	18"							
1460														
	25													
1455														
	30													
1450														

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 8 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 12.5 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-17
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FIGURE
A-22
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Date Begin - End: 9/26/2023 **Drilling Company:** 2R Drilling

Logged By: D. Edrees **Drill Crew:** Miguel/Justin

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-75 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

BORING LOG B-18

Latitude: 33.80212°
Longitude: -116.99922°
Approximate Ground Surface Elevation (ft.): 1,483.00
Surface Condition: Unpaved Road

Approx. Elevation (ft)	Depth (ft)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Artificial Fill **Silty SAND (SM)**: fine to medium sand, brown, moist	1						100	22			Hand Auger 5' bgs R-Value Test
1480		**Alluvium** **Silty SAND (SM)**: fine to medium sand, brown, moist											
	5	medium dense	2		BC=6 7 8	18"	16.4	104.6					Direct Shear Test
		fine sand, olive gray, moist to wet	3		BC=1 2 3	18"	34.8	83.0					
1475													
	10	**Sandy SILT (ML)**: fine sand, non-plastic, dark gray, wet, soft	4		BC=1 1 1	18"	38.3	85.3					
1470		**Silty SAND (SM)**: fine to medium sand, dark grey, wet, medium dense											
	15		5		BC=1 7 17	18"	20.3	112.5					
1465													
	20	increase in fines	6		BC=6 10 12	18"							
1460													
	25												
1455													
	30												
1450													

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
⧖ Groundwater was observed at approximately 9 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 5.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-18

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-23

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-19**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80100°
Longitude: -117.00472°
Approximate Ground Surface Elevation (ft.): 1,491.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1490			**Artificial Fill** **Silty SAND (SM)**: fine sand, brown, moist	1						100	13			Hand Auger 5' bgs Modified Proctor
			Alluvium **Silty SAND (SM)**: fine sand, brown, moist											
1485	5		**SILT (ML)**: low plasticity, olive gray, moist, medium stiff, trace clay	2		BC=2 3 3	18"	18.4	93.5					
			Poorly Graded SAND with Silt (SP-SM): fine to medium sand, moist, medium dense	3		BC=5 10 20	18"	3.7	107.7					
1480	10		trace mica	4		BC=8 17 17	18"	19.2	102.7					
1475	15			5		BC=5 7 9	18"							
			Silty SAND (SM): fine sand, olive gray, moist to wet, medium dense											
1470	20		wet	6		BC=8 15 23	18"							
1465	25													
1460	30													

DRAFT

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-19

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-24

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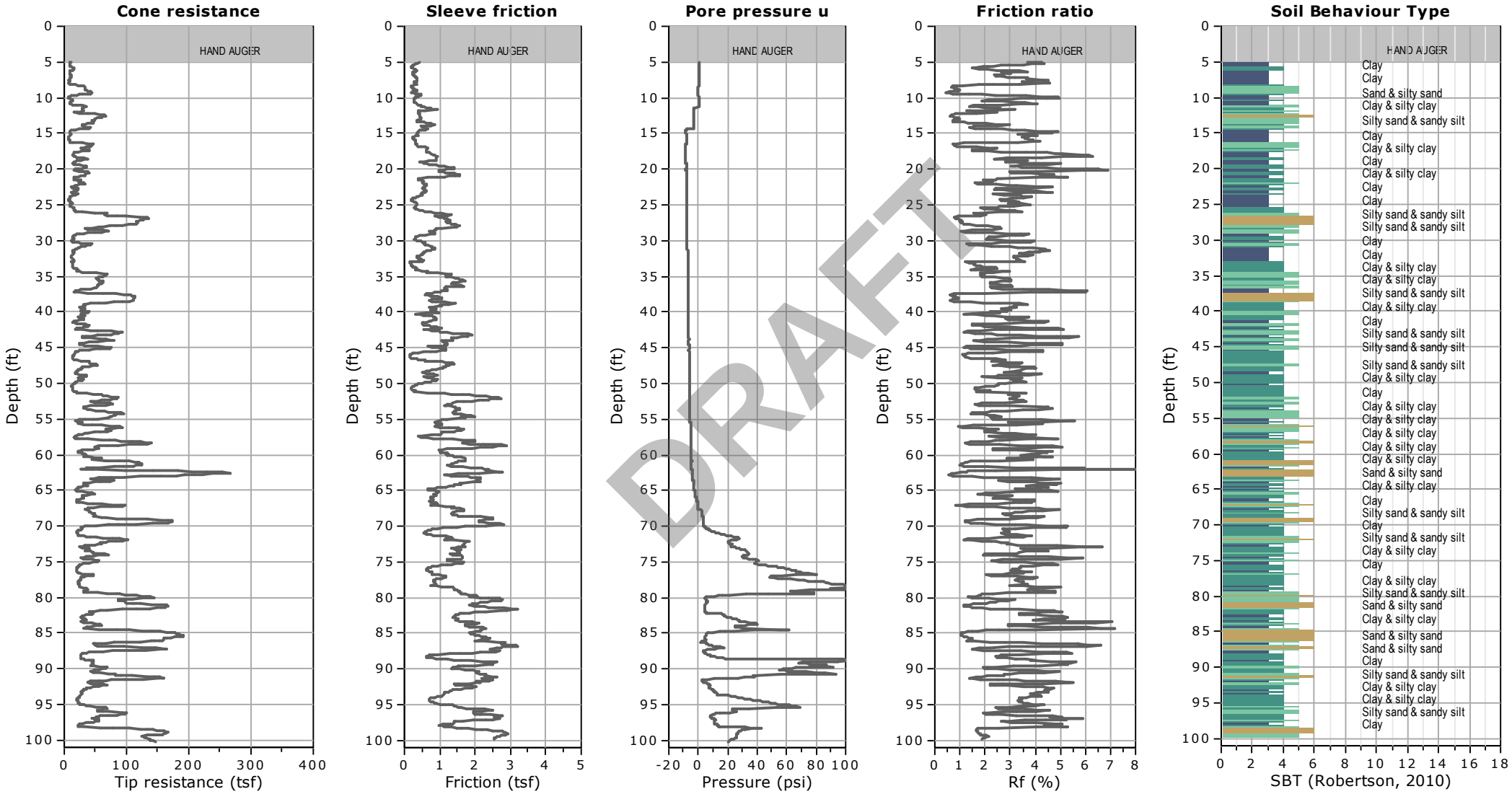
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Kleinfelder/ Line E San Jacinto**
Location: **San Jacinto, CA**

CPT-1
Total depth: 100.14 ft, Date: 10/12/2023



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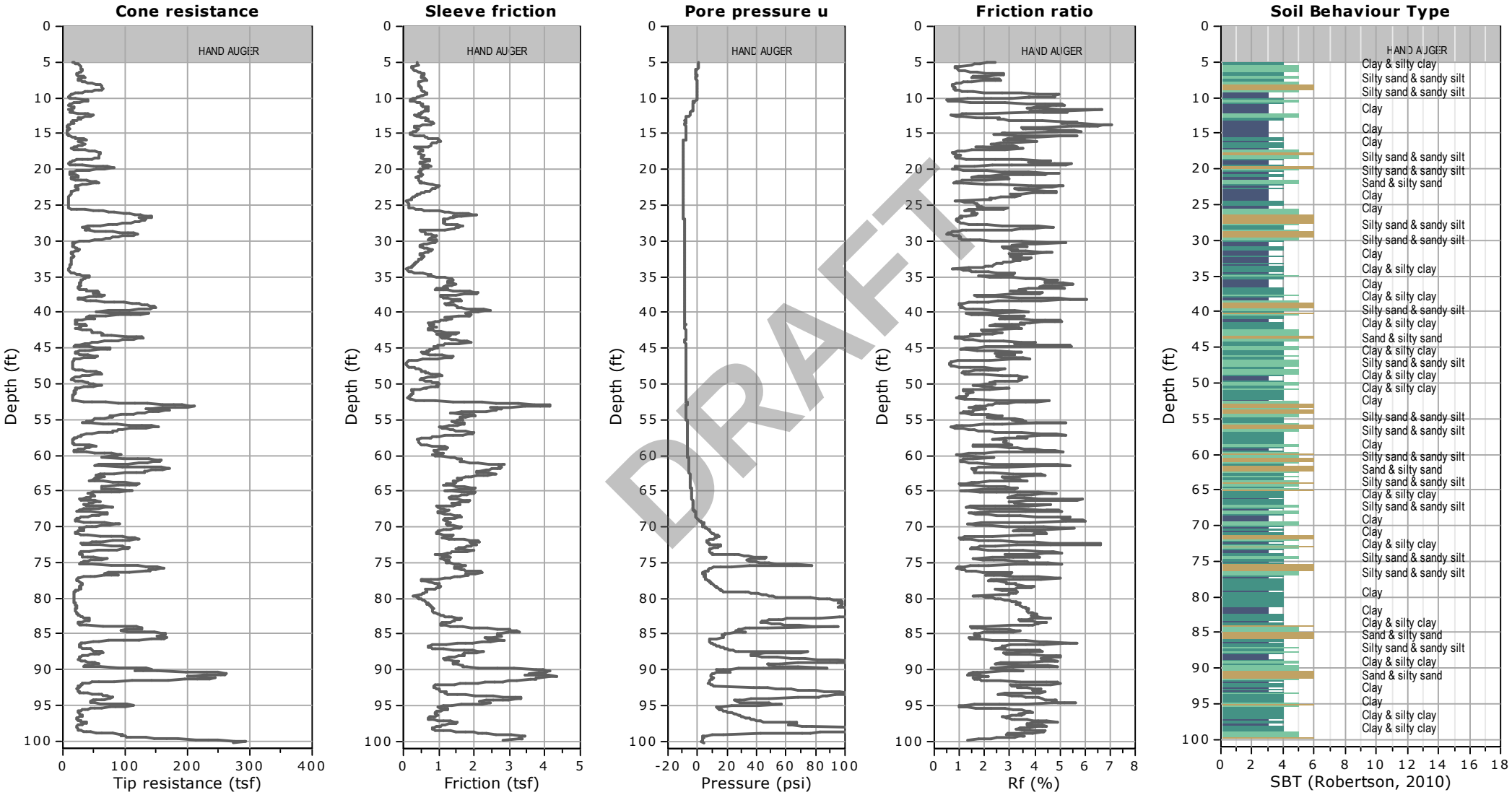
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Kleinfelder/ Line E San Jacinto**
Location: **San Jacinto, CA**

CPT-2
Total depth: 100.14 ft, Date: 10/12/2023



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APPENDIX B
LABORATORY TESTING

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APPENDIX B
LABORATORY TESTING

Laboratory tests were performed on drive and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed by Kleinfelder's Ontario, California lab and AP Engineering & Testing, Inc. (AP) of Pomona, California. The test results are presented herein. Visual classifications presented on the lab plates were performed by AP during their laboratory testing and may differ from those presented on the boring logs provided in Appendix A.

IN-SITU MOISTURE CONTENT AND DRY UNIT WEIGHT

In-situ moisture content and dry unit weight tests were performed on samples that could be recovered in a relatively undisturbed condition. Moisture content was evaluated in general accordance with ASTM Test Method D2216. Dry unit weight was evaluated in general accordance with ASTM Test Method D7263. The results are presented on the boring logs in Appendix A.

WASH SIEVE

To provide information on the fines content of the soil layers at the site, wash sieves were performed to determine the percentage passing the #200 sieve. The wash sieves were performed in accordance with ASTM Test Method D1140. The results are presented on the boring logs in Appendix A.

GRAIN SIZE DISTRIBUTION

Sieve & hydrometer analyses were performed on soil samples to evaluate the gradation of the material and to aid in soil classification. Tests were performed in general accordance with ASTM Standard Test Method D6913. The results are presented on the boring logs in Appendix A and in the attached laboratory data in Appendix B.

ATTERBERG LIMITS (PLASTICITY INDEX)

Plasticity limit and liquid limit testing was performed on soil samples to evaluate behavior conditions at varying water contents. Testing was performed in general accordance with ASTM Standard Test Method D4318. The results are presented on the boring logs in Appendix A and in the attached laboratory data in Appendix B.

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DIRECT SHEAR

Direct shear strength tests were performed by AP on drive samples to evaluate the drained shear strength of the onsite soils. Samples were tested in a near-saturated condition in general accordance with ASTM Test Method D 3080 (consolidated, drained). The results are presented in the attached laboratory data in Appendix B.

CONSOLIDATION TEST

Consolidation testing was performed by AP on selected relatively undisturbed samples by AP Engineering in accordance with ASTM D 2435. The tests were performed on 1.0-inch-high, 2.41-inch diameter samples. After trimming the ends, the sample was placed in a consolidometer and an initial reading was recorded. The sample was saturated during loading, and thereafter, the sample was incrementally loaded. The results are presented in the attached laboratory data in Appendix B.

EXPANSION INDEX

Expansion Index testing was performed on near surface bulk samples to determine the expansion potential of the soil. The testing was performed in accordance with ASTM Standard Test Method D4829. The results are presented in the attached laboratory data in Appendix B.

COMPACTION TESTING (MAXIMUM DRY DENSITY-OPTIMUM MOISTURE)

Maximum dry density-optimum moisture tests were performed on select bulk samples of the on-site soils to determine compaction characteristics. The tests were performed in accordance with ASTM Standard Test Method D1557. The results are presented in the attached laboratory data in Appendix B.

R-VALUE TESTING

Resistance value (R-value) tests were performed on bulk soil samples obtained to evaluate pavement support characteristics of the near-surface onsite soils. R-value tests were performed in accordance with ASTM Standard Test Method D2844. The results are presented in the attached laboratory data in Appendix B.

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CORROSIVITY TESTS

Chemical analyses were performed on samples of the near surface soil by AP to estimate pH, minimum resistivity, soluble sulfate, and chloride contents. The tests were performed in accordance with Caltrans standards. The results are presented in the attached laboratory data in Appendix B.

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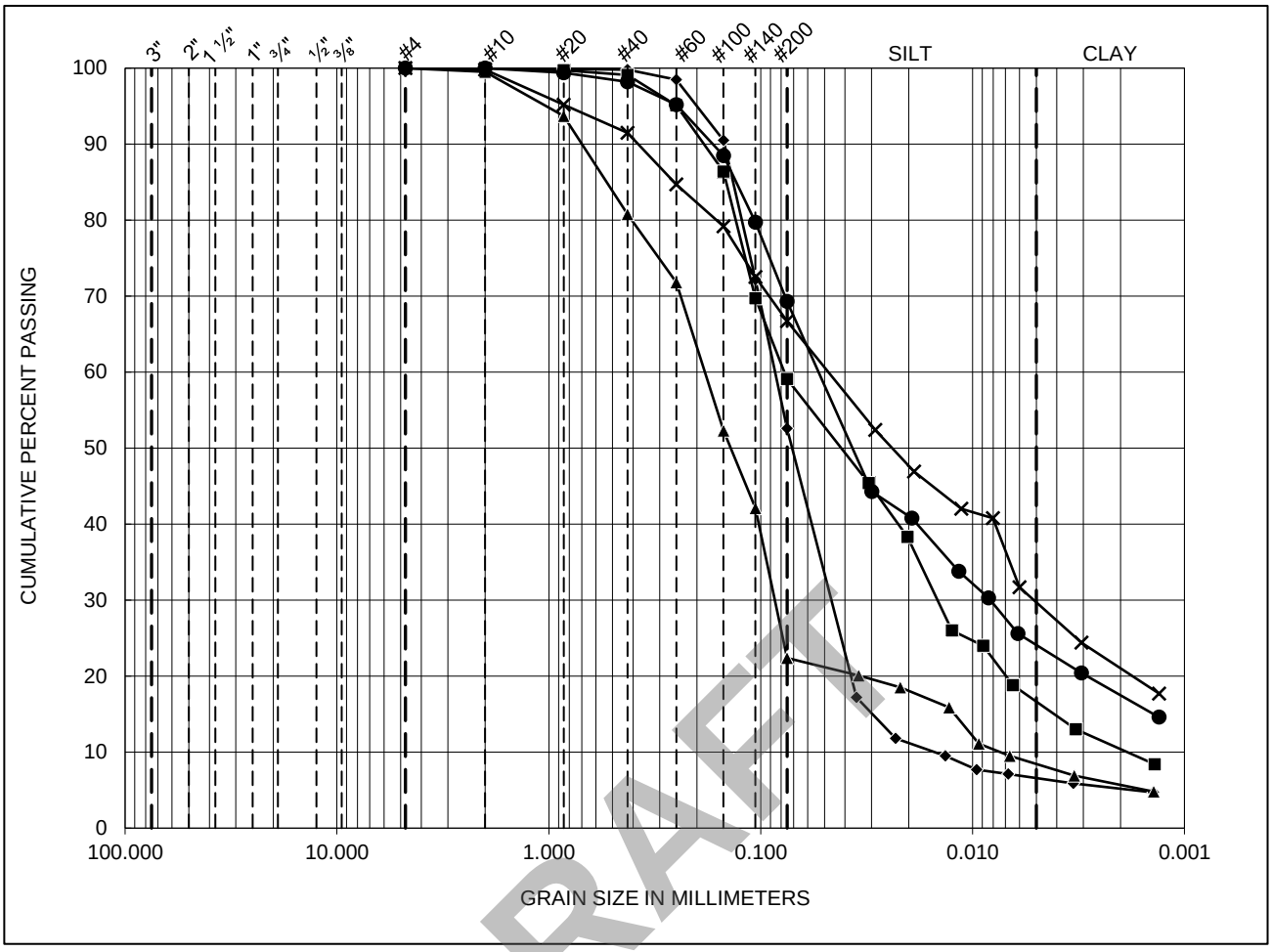

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COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-1	2	5	0.0	47.4	52.6	NM	NM	NM	Sandy Silt (ML)
■	B-2	2	5	0.0	40.9	59.1	NM	NM	NM	Sandy Silt (ML)
▲	B-4	1	0-5	0.0	77.6	22.4	NM	NM	NM	Silty Sand (SM)
×	B-5	2	5	0.0	33.3	66.7	NM	NM	NM	Sandy Silt (ML)
●	B-6	1	0-5	0.0	30.7	69.3	NM	NM	NM	Sandy Silt (ML)

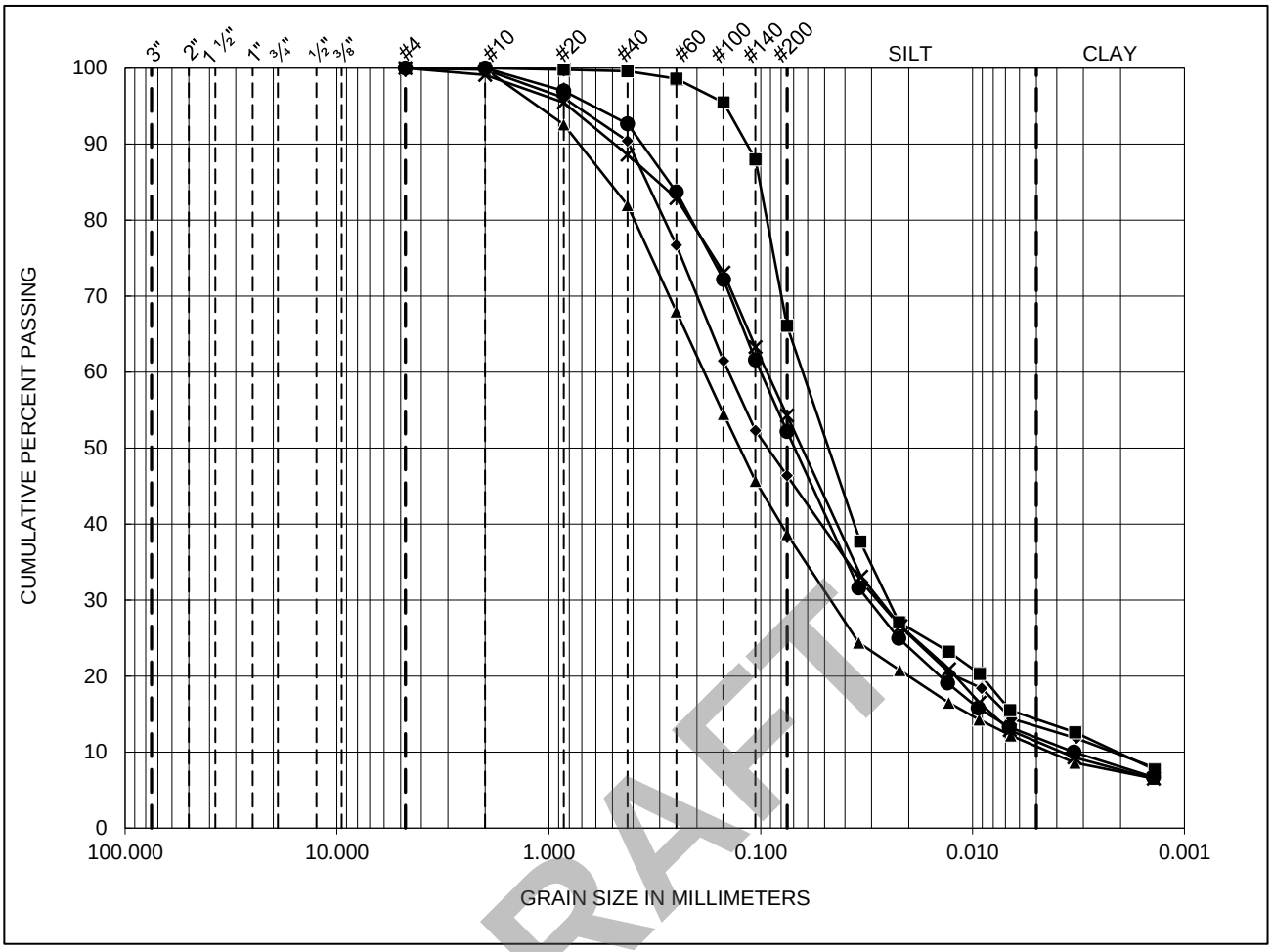
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-7	1	0-5	0.0	53.6	46.4	NM	NM	NM	Silty Sand (SM)
■	B-8	2	5	0.0	33.9	66.1	NM	NM	NM	Sandy Silt (ML)
▲	B-9	2	5	0.0	61.3	38.7	NM	NM	NM	Silty Sand (SM)
×	B-10	1	0-5	0.0	45.7	54.3	NM	NM	NM	Sandy Silt (ML)
●	B-11	1	0-5	0	47.8	52.2	NM	NM	NM	Sandy Silt (ML)

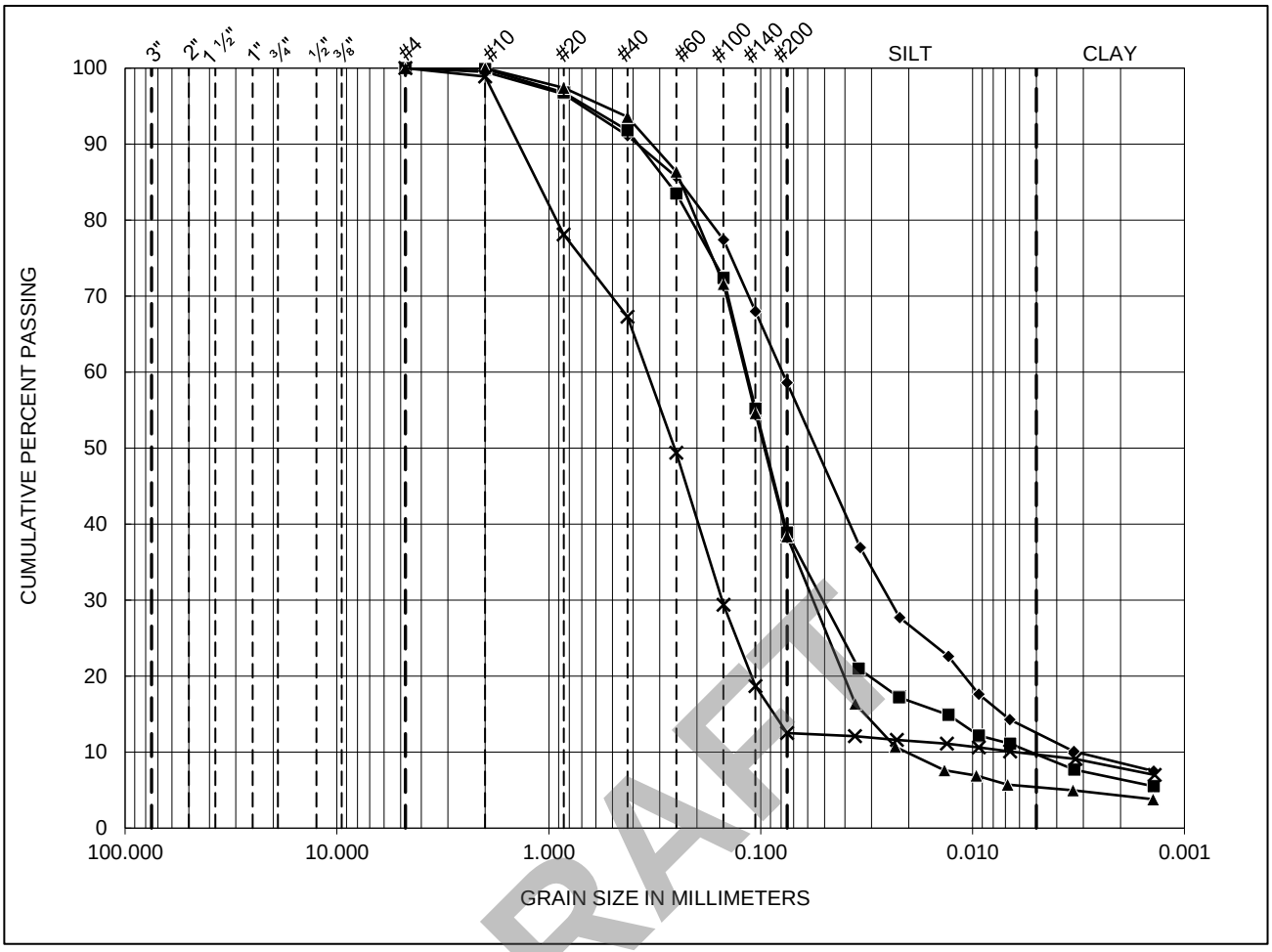
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-12	1	0-5	0.0	41.4	58.6	NM	NM	NM	Sandy Silt (ML)
■	B-16	2	5	0.0	61.1	38.9	NM	NM	NM	Silty Sand (SM)
▲	B-17	2	5	0.0	61.6	38.4	NM	NM	NM	Silty Sand (SM)
×	B-19	1	0-5	0.0	87.5	12.5	NM	NM	NM	Silty Sand (SM)

KLEINFELDER
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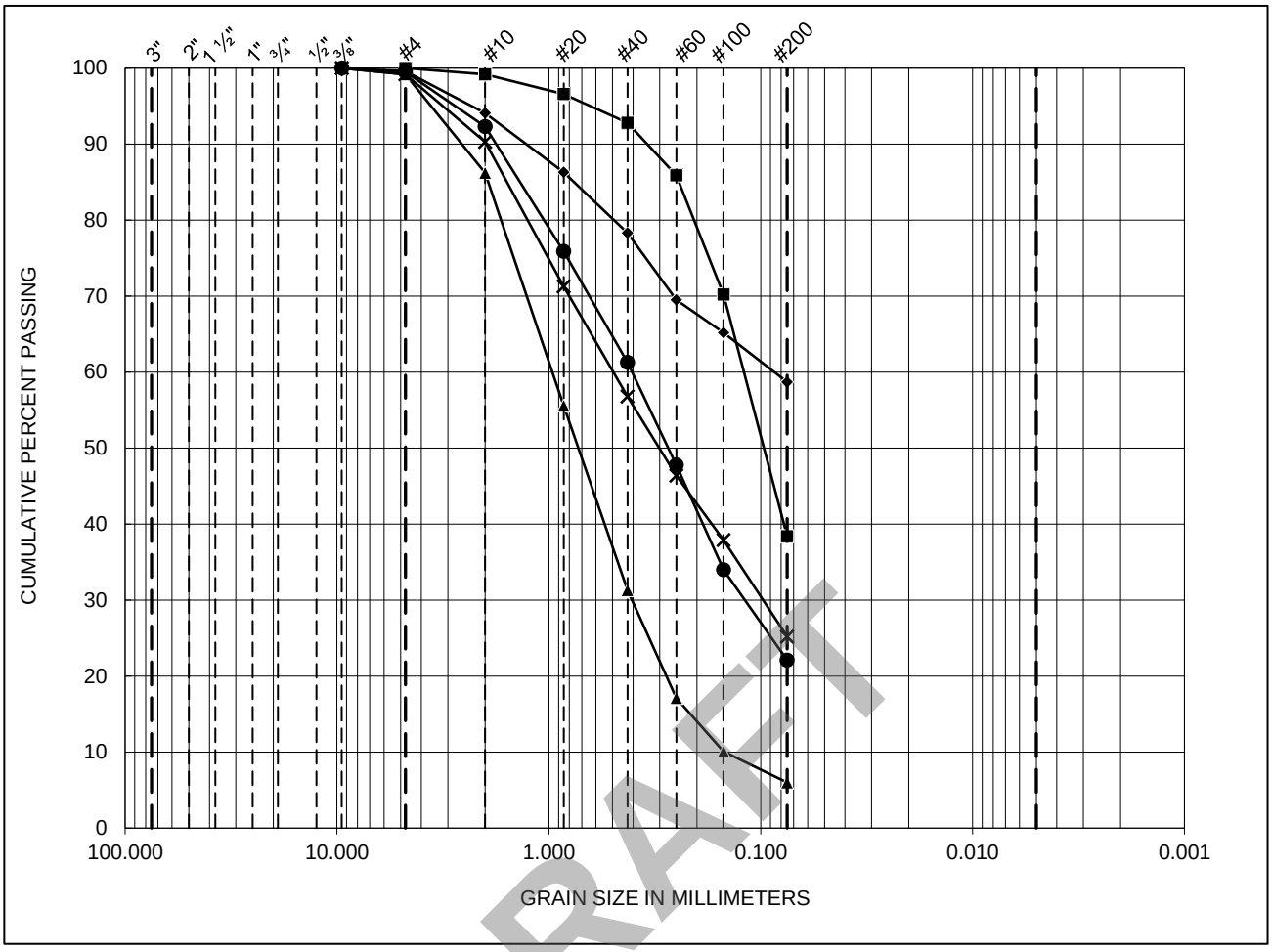
PROJECT NO.:	24002823.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-3	1	0-5	0.4	40.9	58.7	NM	NM	NM	Sandy Silt (ML)
■	B-13	1	0-5	0.0	61.6	38.4	NM	NM	NM	Silty Sand (SM)
▲	B-14	1	0-5	0.8	93.2	6.0	NM	NM	NM	Well Graded Sand w/Silt (SW-SM)
×	B-15	1	0-5	0.8	74.0	25.2	NM	NM	NM	Silty Sand (SM)
●	B-18	1	0-5	0.5	77.4	22.1	NM	NM	NM	Silty Sand (SM)

KLEINFELDER
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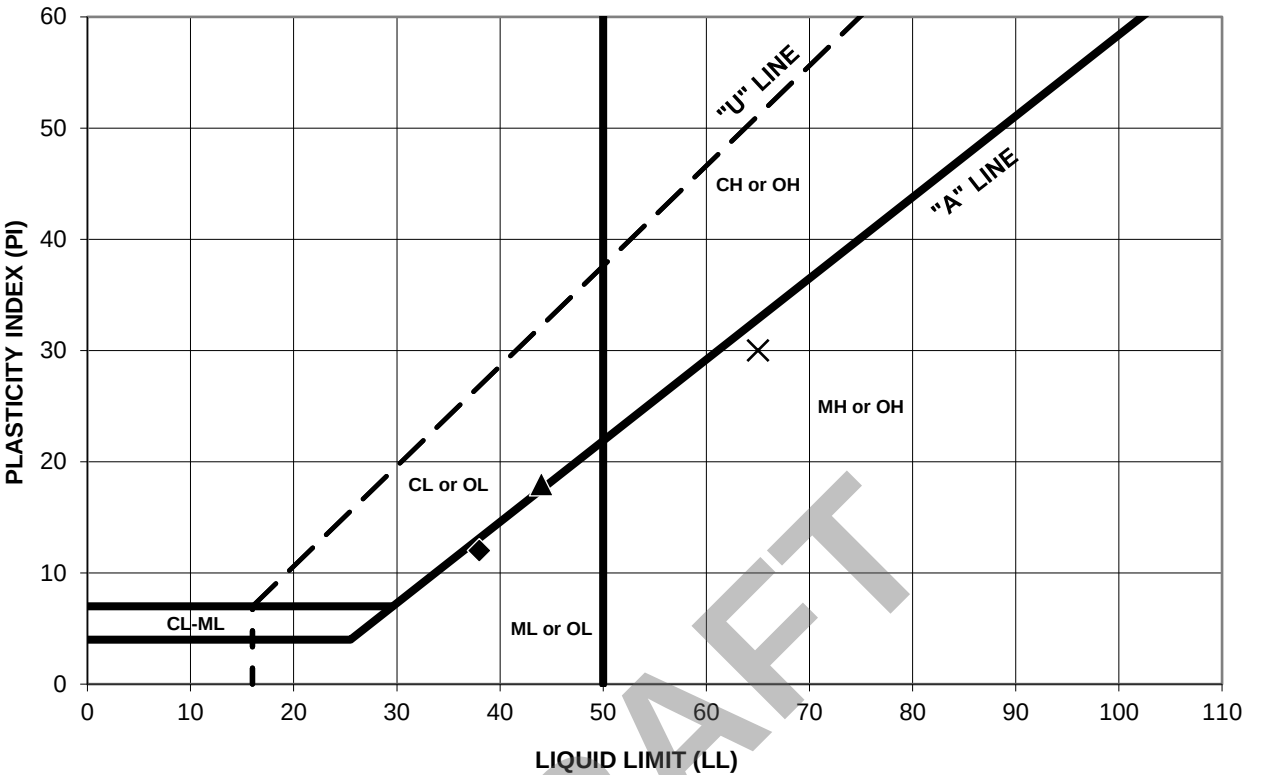
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	B-1	6	20	38	26	12	Silt (ML)
●	B-1	8	30	NP	NP	NP	Silt with Sand (ML)
▲	B-1	12	50	44	26	18	Clayey Sand (SC)
×	B-2	7	25	65	35	30	Sandy Elastic Silt (MH)
■	B-2	9	35	NP	NP	NP	Silty Sand (SM)

*NP= Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
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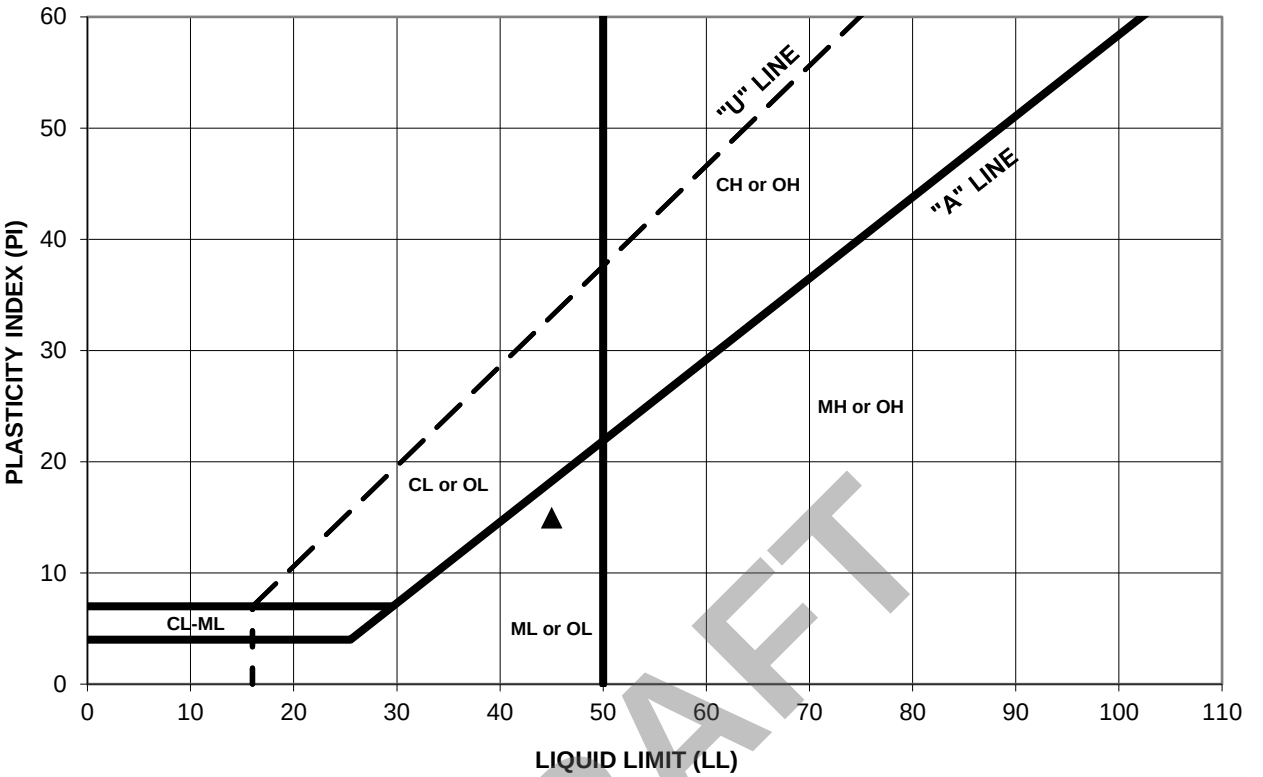
PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/26/2023
CHECKED BY:	M.Magaña
DATE:	11/2/2023

PLASTICITY TESTING

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	B-2	11	45	NP	NP	NP	Silty Sand (SM)
●	B-4	2	5	NP	NP	NP	Silty Sand (SM)
▲	B-4	5	15	45	30	15	Sandy Silt (ML)
×	B-4	8	30	NP	NP	NP	Silty Sand (SM)

*NP= Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/26/2023
CHECKED BY:	M.Magaña
DATE:	11/2/2023

PLASTICITY TESTING

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE

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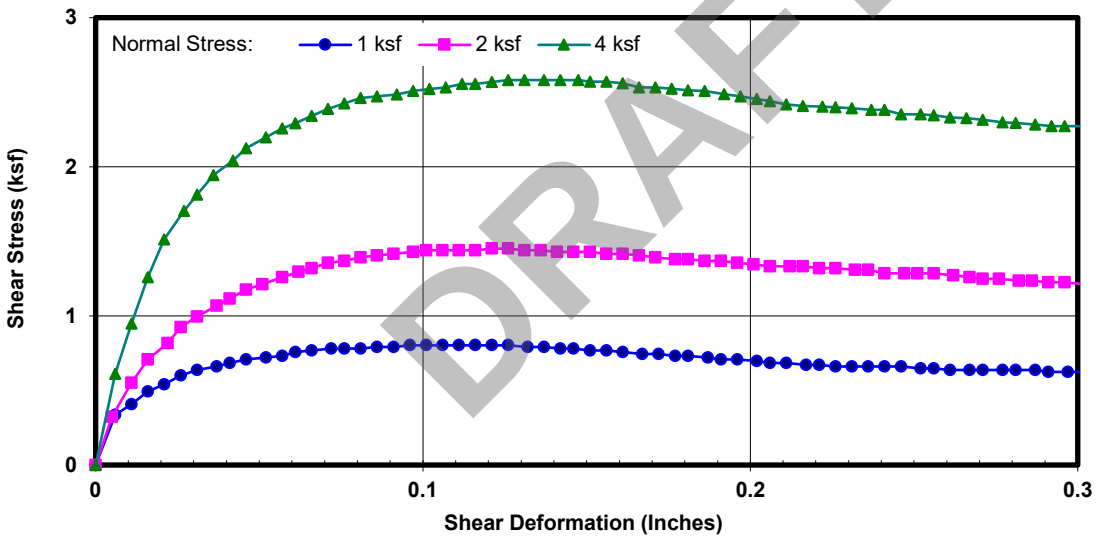
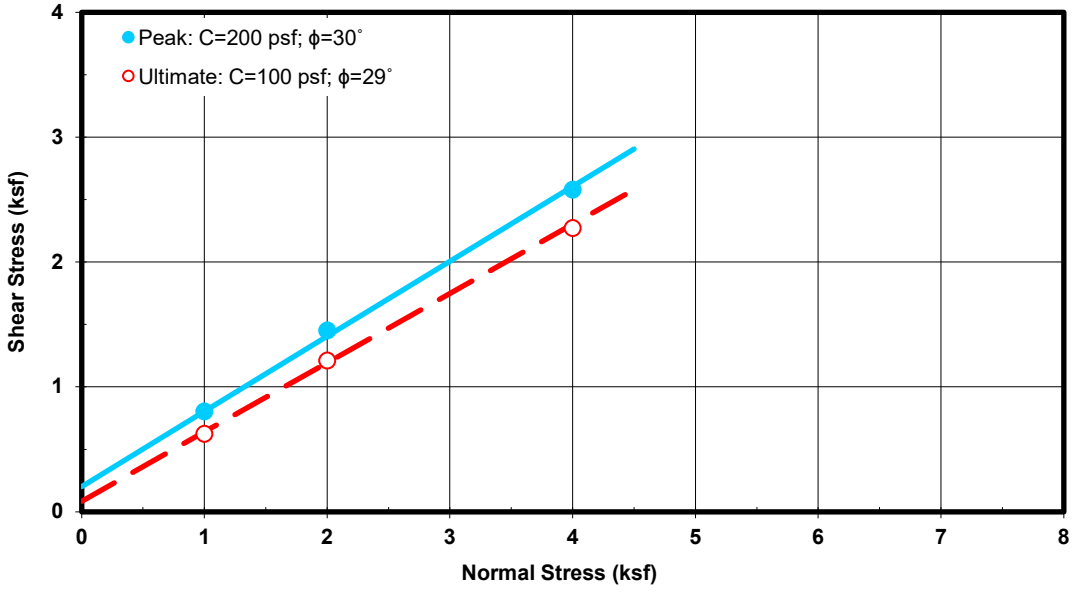
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-1		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	3	**Depth (ft):** 7.5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
114.0	90.2	26.4	29.8	82	93	1	0.804	0.624
						2	1.452	1.212
						4	2.580	2.272

DRAFT





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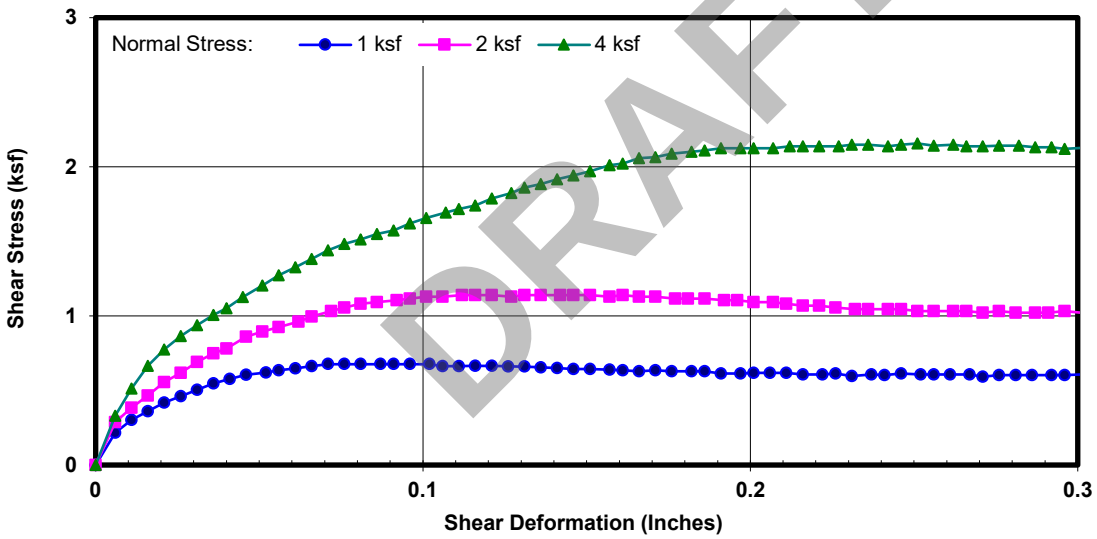
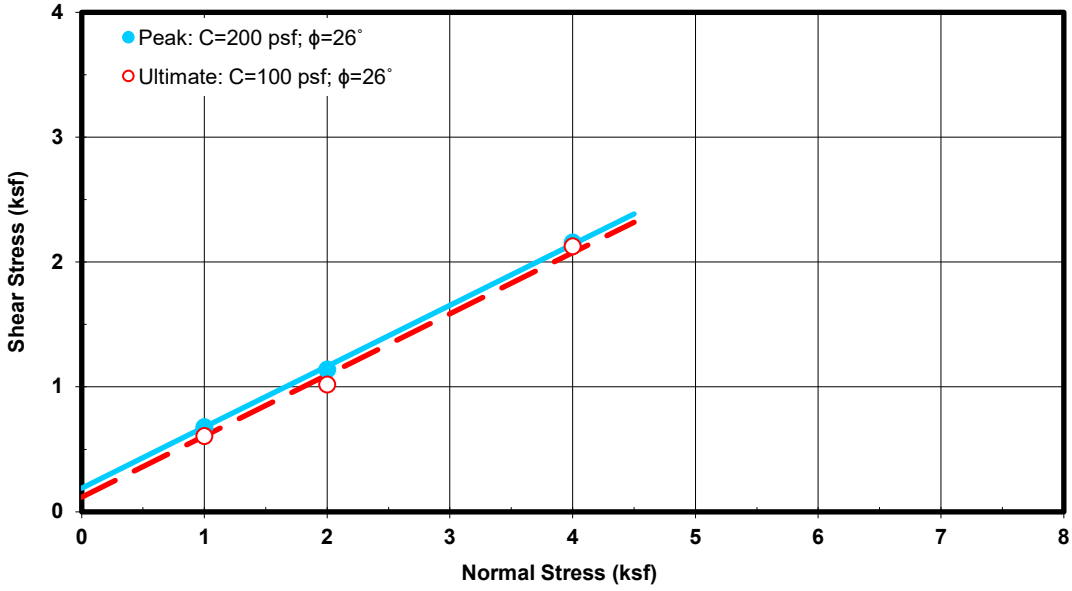
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-1		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	7	**Depth (ft):** 25			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
115.1	84.2	36.8	37.3	99	100	1	0.677	0.607
						2	1.140	1.020
						4	2.157	2.126

DRAFT





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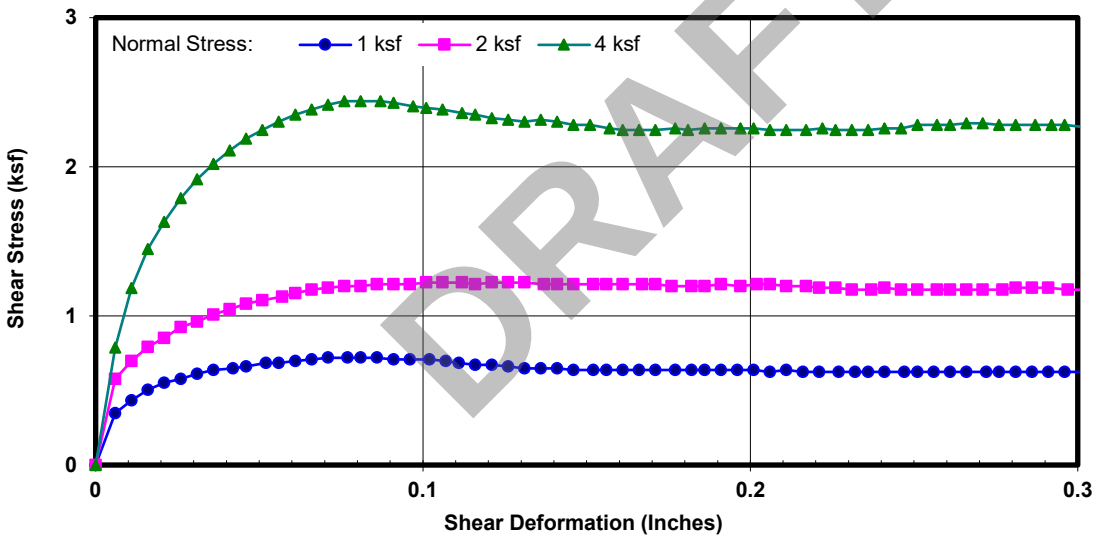
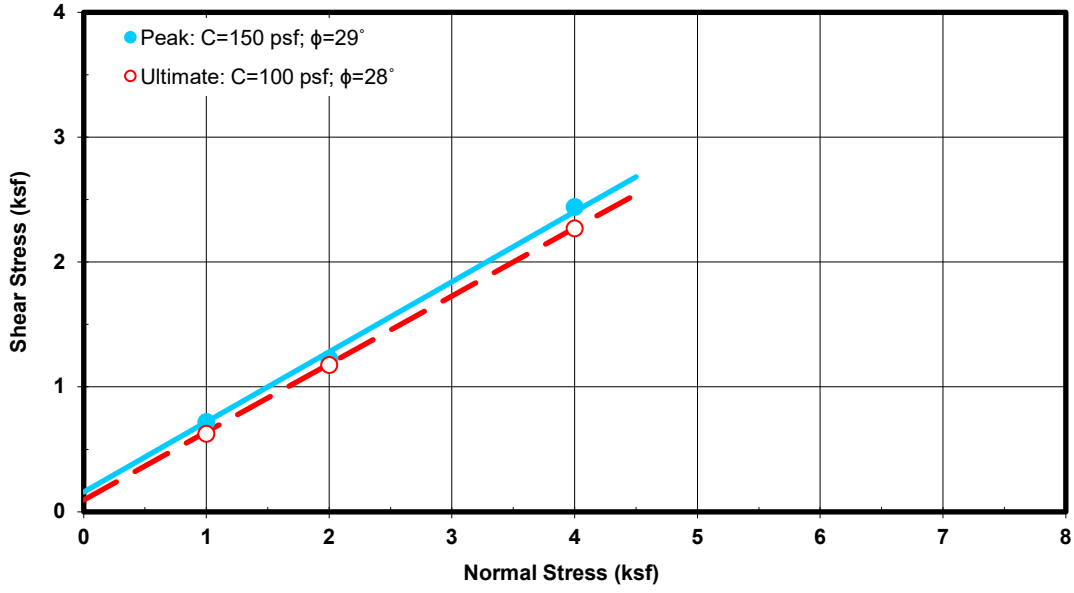
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-2		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	4	**Depth (ft):** 10			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
118.2	92.7	27.4	30.3	91	100	1	0.720	0.624
						2	1.224	1.176
						4	2.440	2.270

DRAFT





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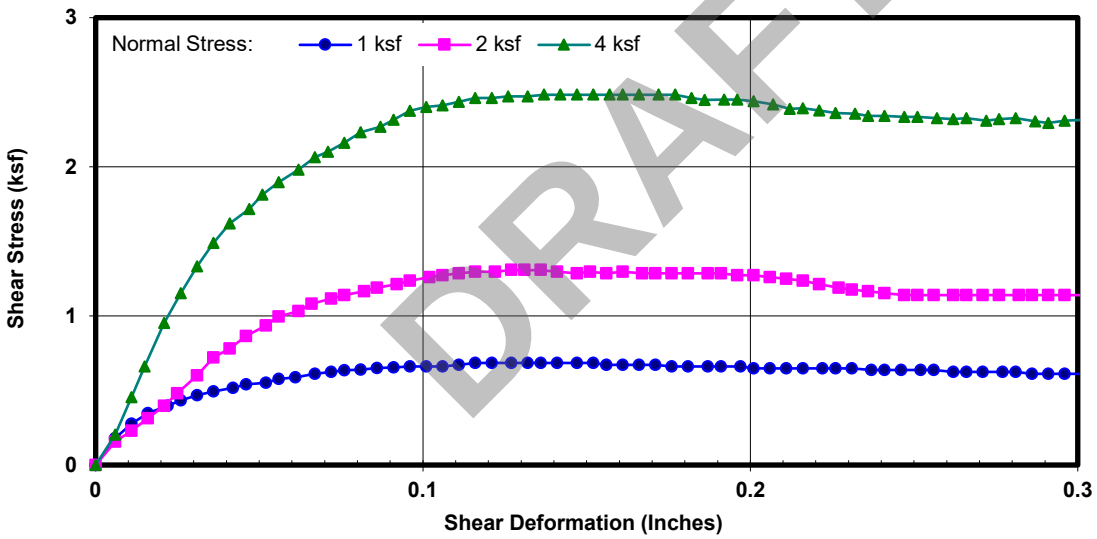
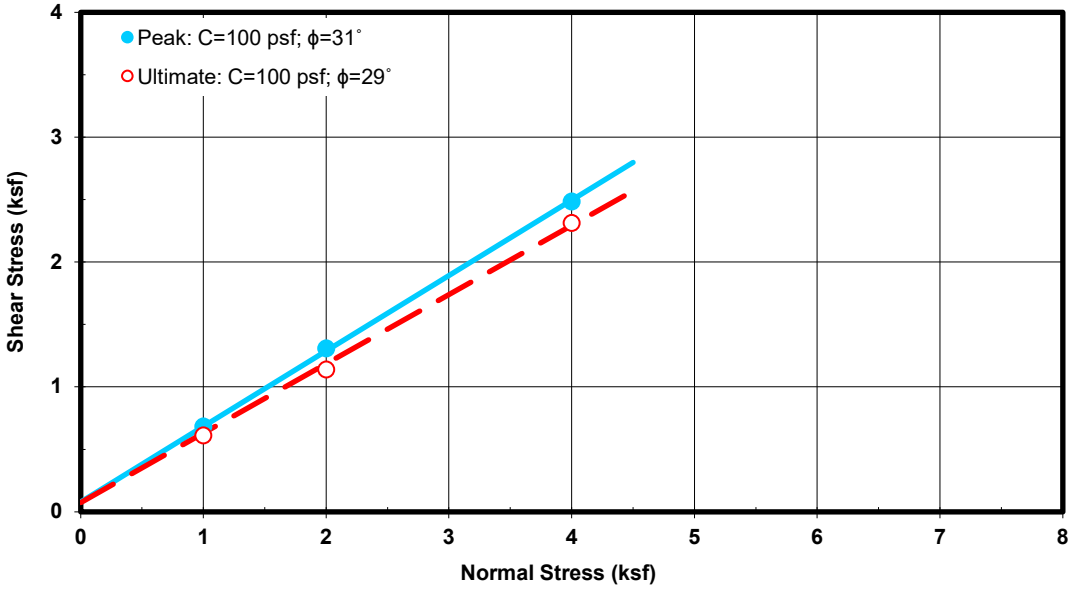
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-2		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	8	**Depth (ft):** 30			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
115.1	85.1	35.3	36.1	97	99	1	0.684	0.612
						2	1.308	1.140
						4	2.484	2.314

DRAFT





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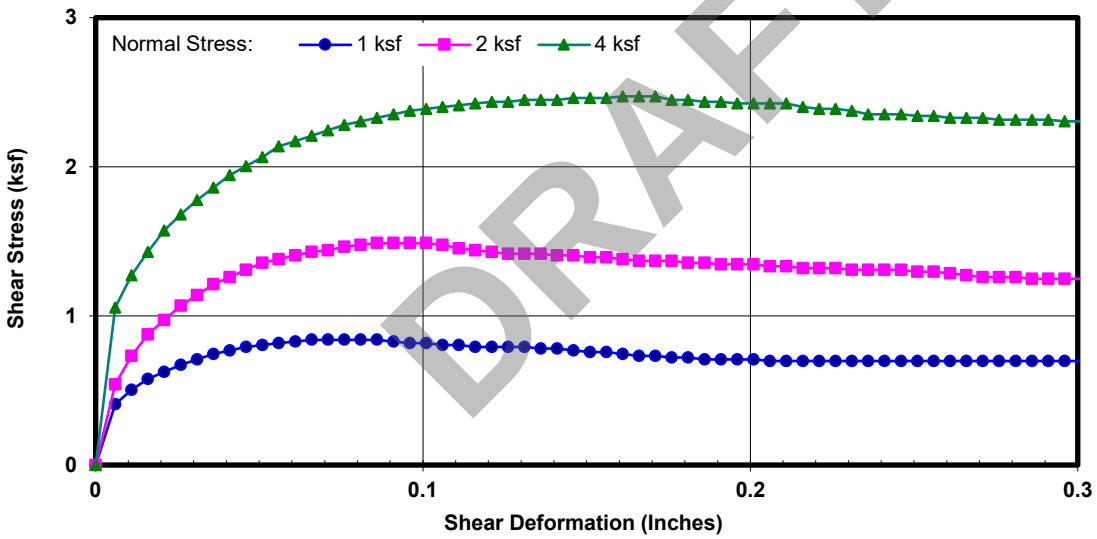
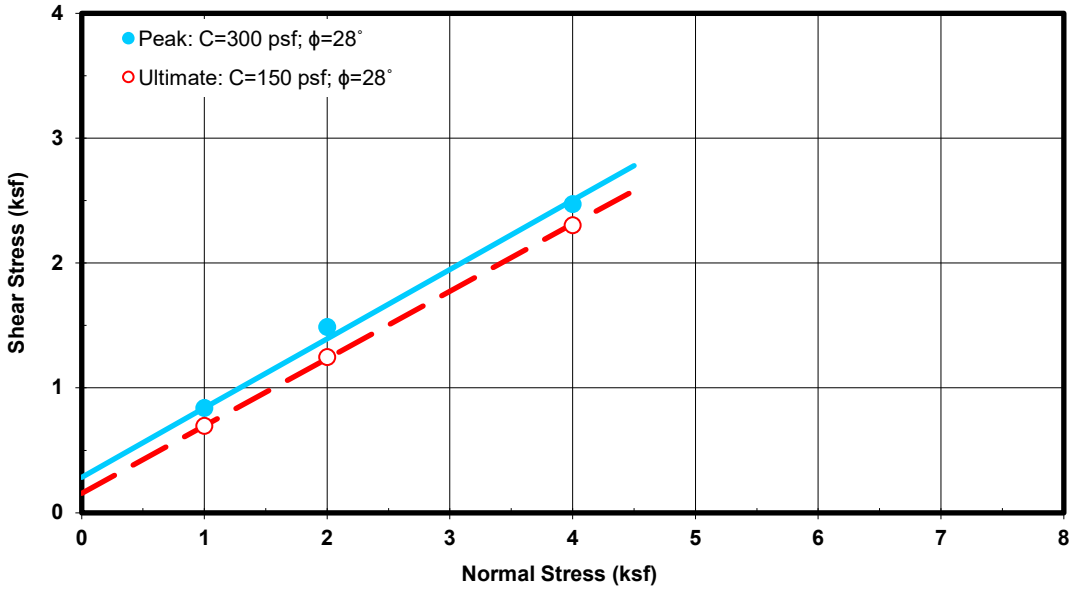
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-6		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
117.0	91.8	27.5	29.5	89	95	1	0.840	0.696
						2	1.488	1.248
						4	2.472	2.304

DRAFT





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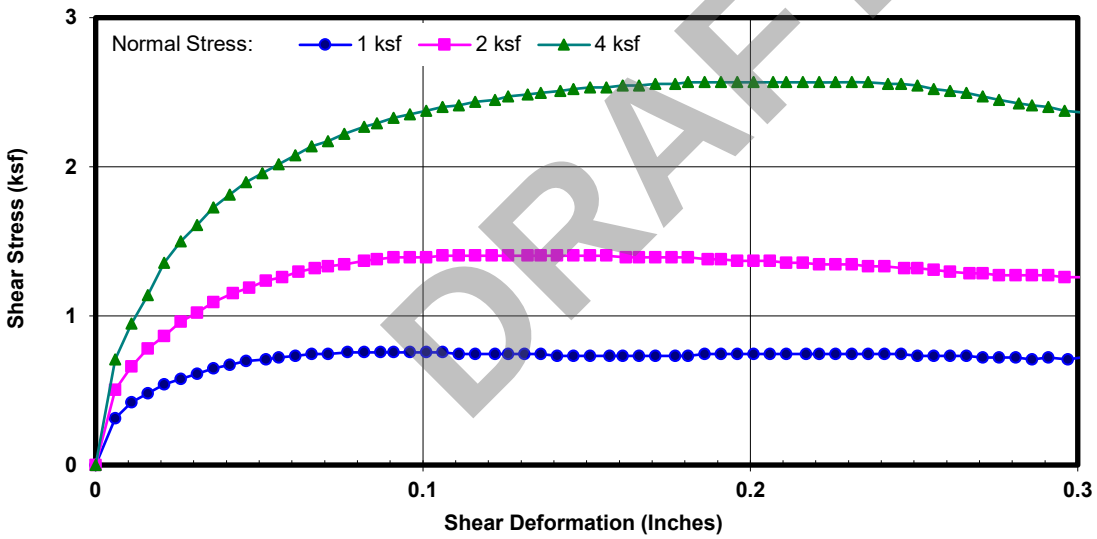
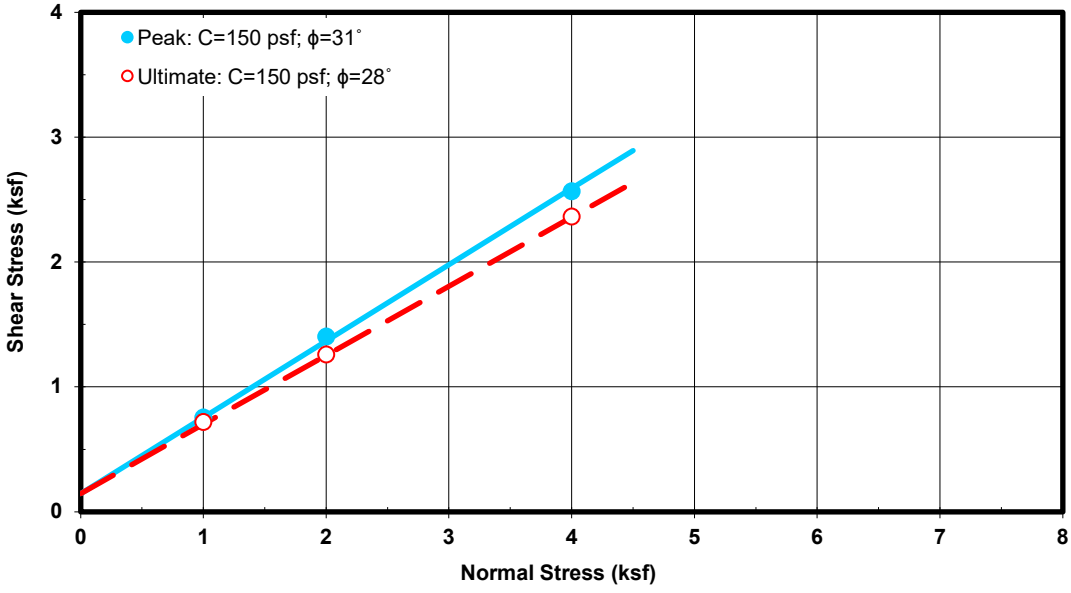
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-11		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
88.5	80.0	10.7	37.6	26	92	1	0.756	0.720
						2	1.404	1.260
						4	2.568	2.364

DRAFT





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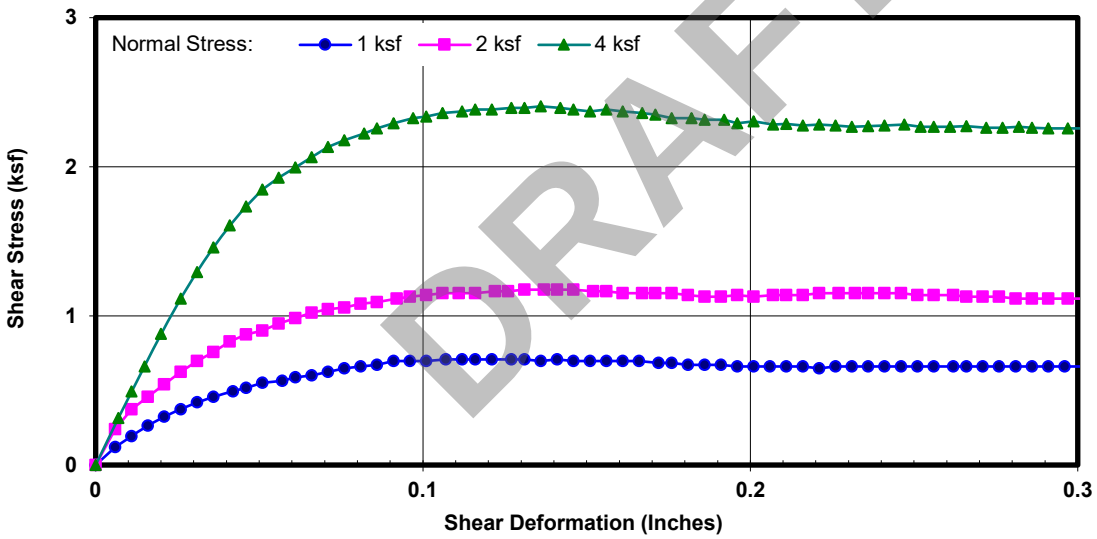
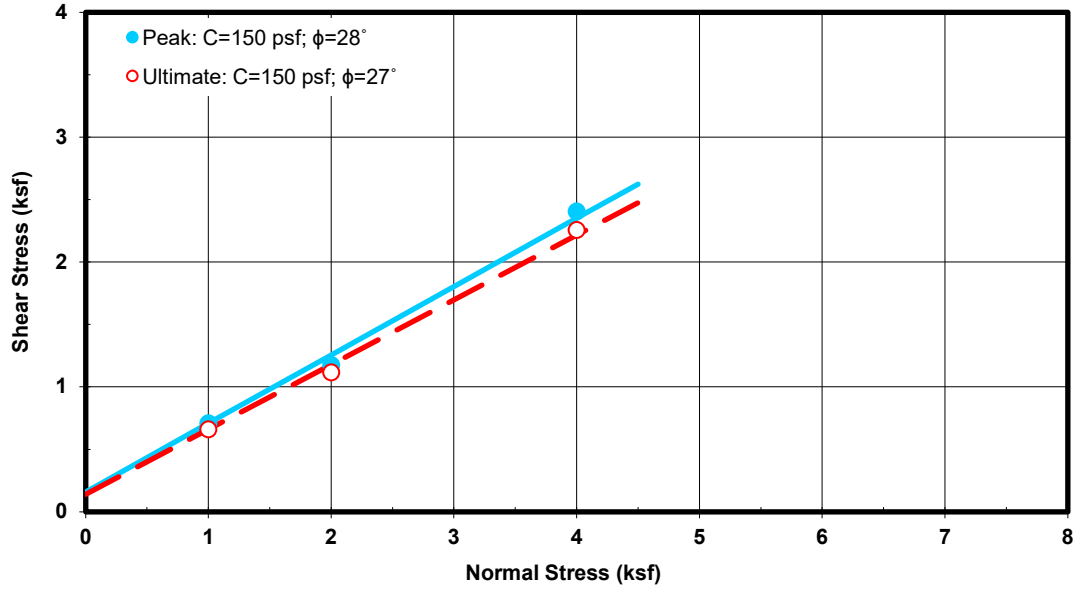
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-15		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
111.1	86.1	29.1	33.3	82	94	1	0.708	0.660
						2	1.176	1.116
						4	2.405	2.257

DRAFT





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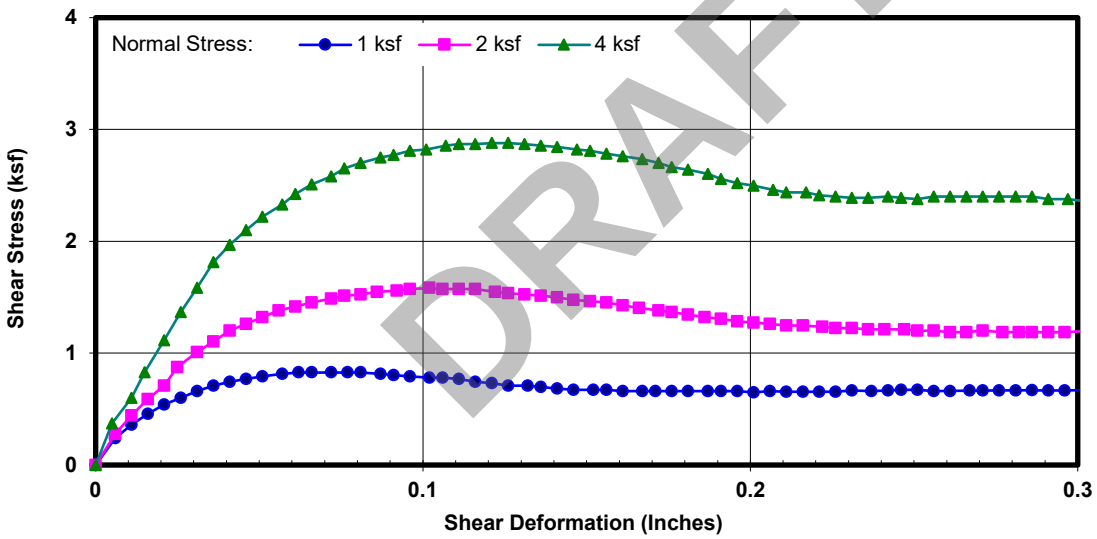
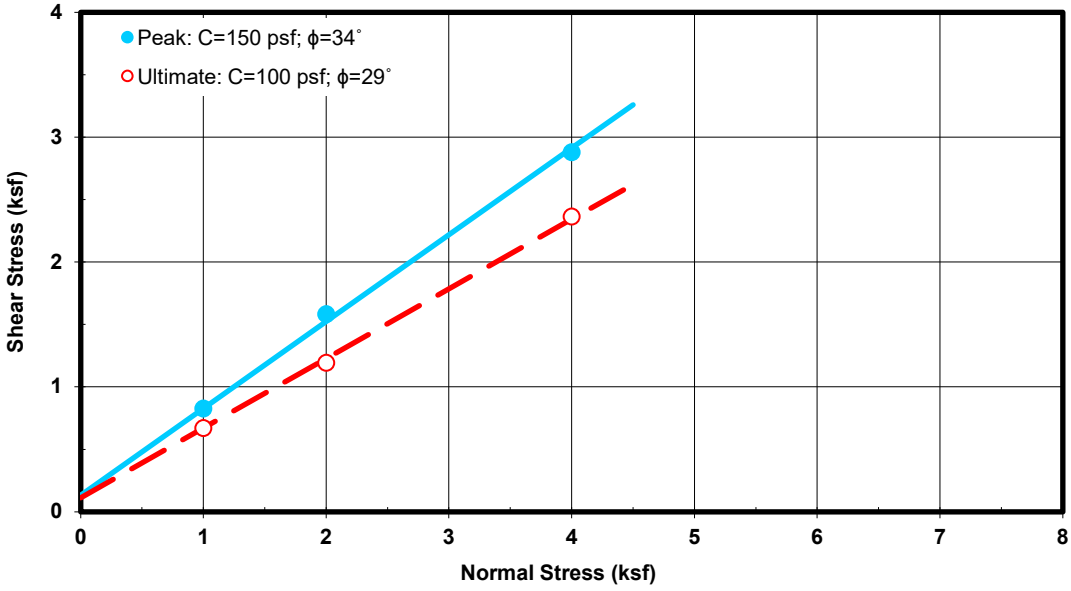
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-18		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
121.7	104.6	16.4	22.0	72	97	1	0.828	0.670
						2	1.584	1.194
						4	2.880	2.364

DRAFT





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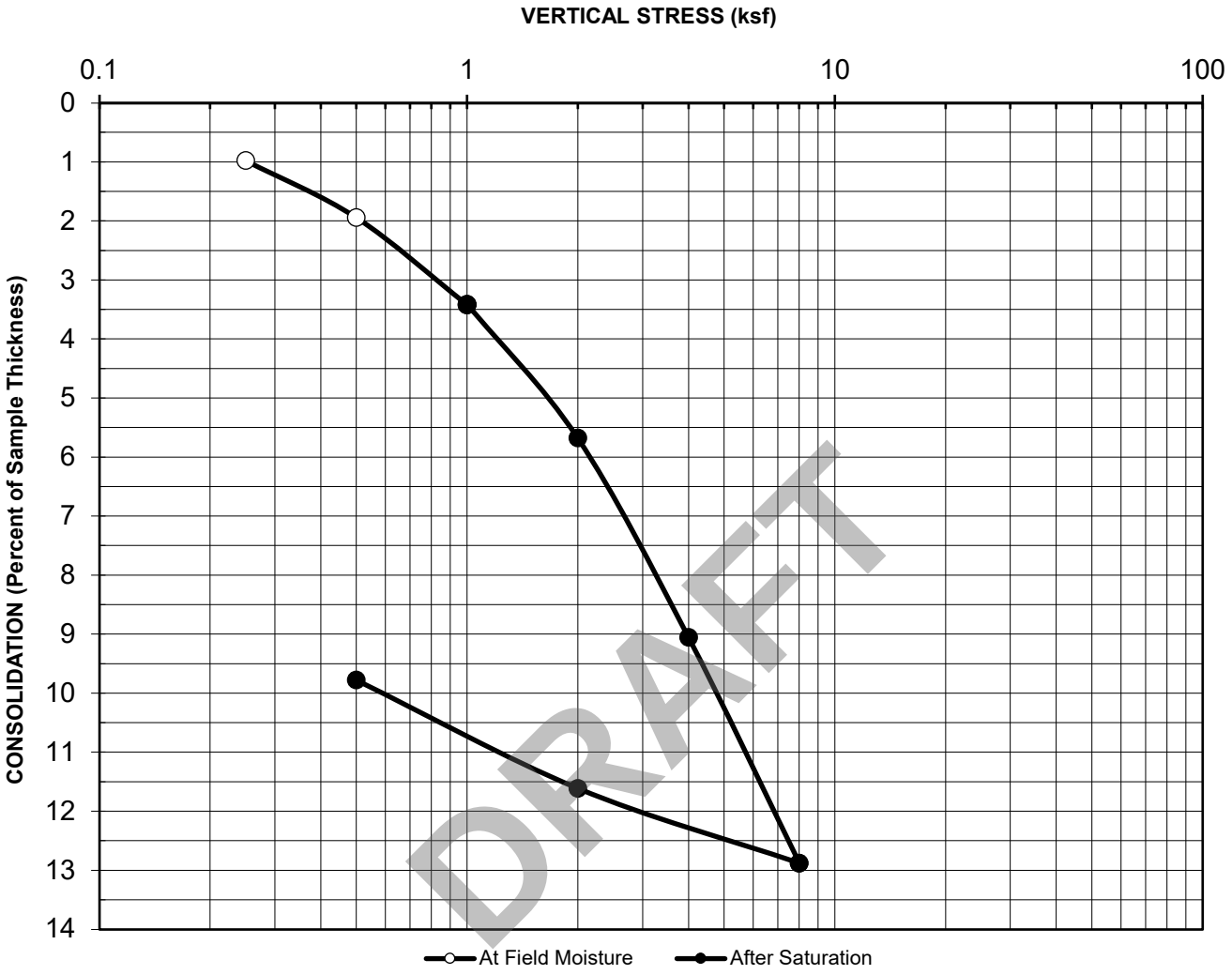

DRAFT

Boring No. :	B-1	Initial Dry Unit Weight (pcf):	83.7
Sample No.:	5	Initial Moisture Content (%):	36.7
Depth (feet):	15	Final Moisture Content (%):	36.6
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Sandy Silt	Initial Void Ratio:	1.01
Remarks:	Swell= 0.01% upon inundation		

CONSOLIDATION CURVE
ASTM D 2435

Project Name:	San Jacinto Line E Storm Drain
Project No.:	24002328.001A
Date:	10/26/2023
AP No:	23-1050 **Sheet No:** 1

AP Engineering and Testing, Inc.
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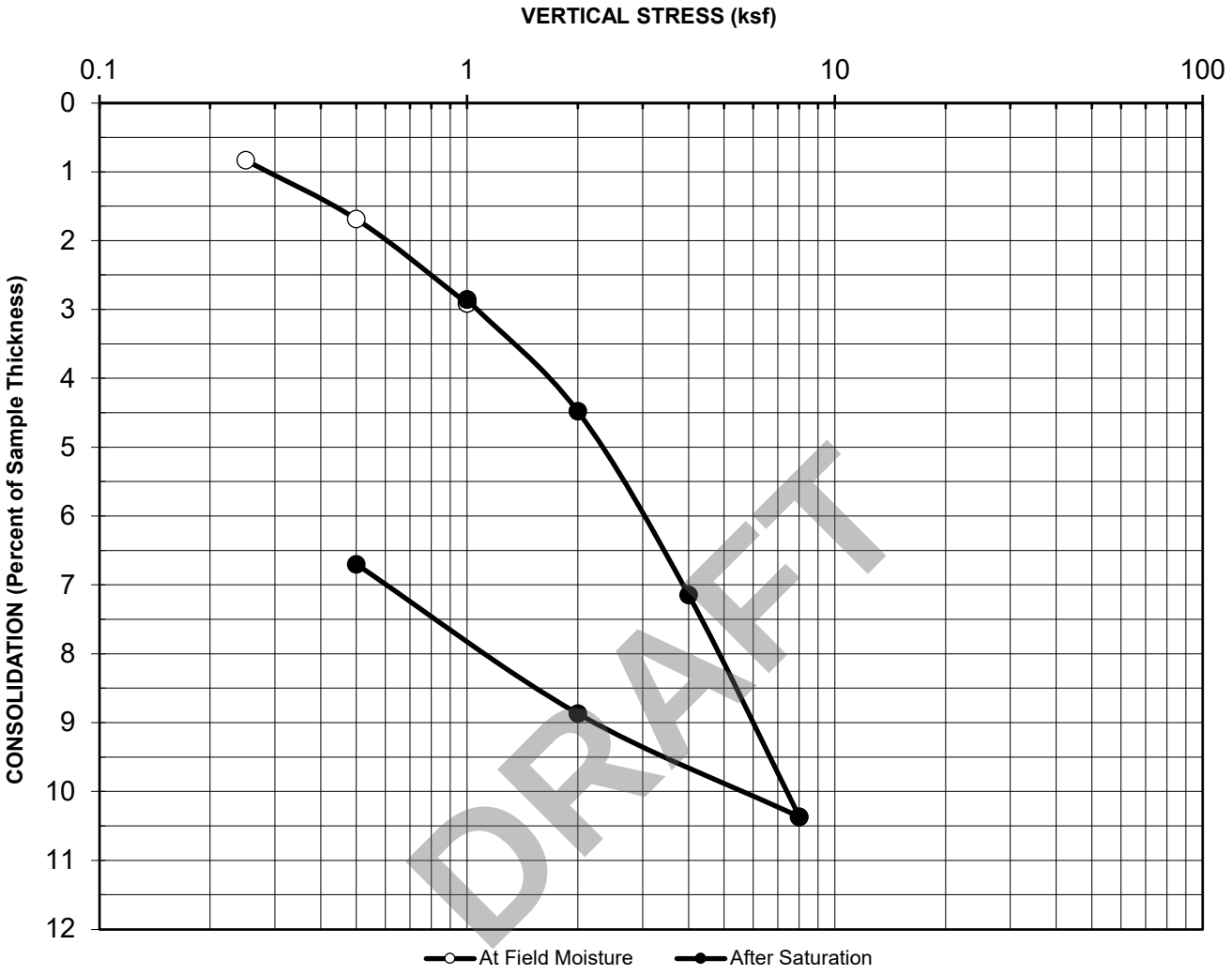

Boring No. :	B-2	Initial Dry Unit Weight (pcf):	81.3
Sample No.:	10	Initial Moisture Content (%):	39.3
Depth (feet):	40	Final Moisture Content (%):	39.4
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Sandy Silt	Initial Void Ratio:	1.07
Remarks:	Swell= 0.06% upon inundation		

CONSOLIDATION CURVE
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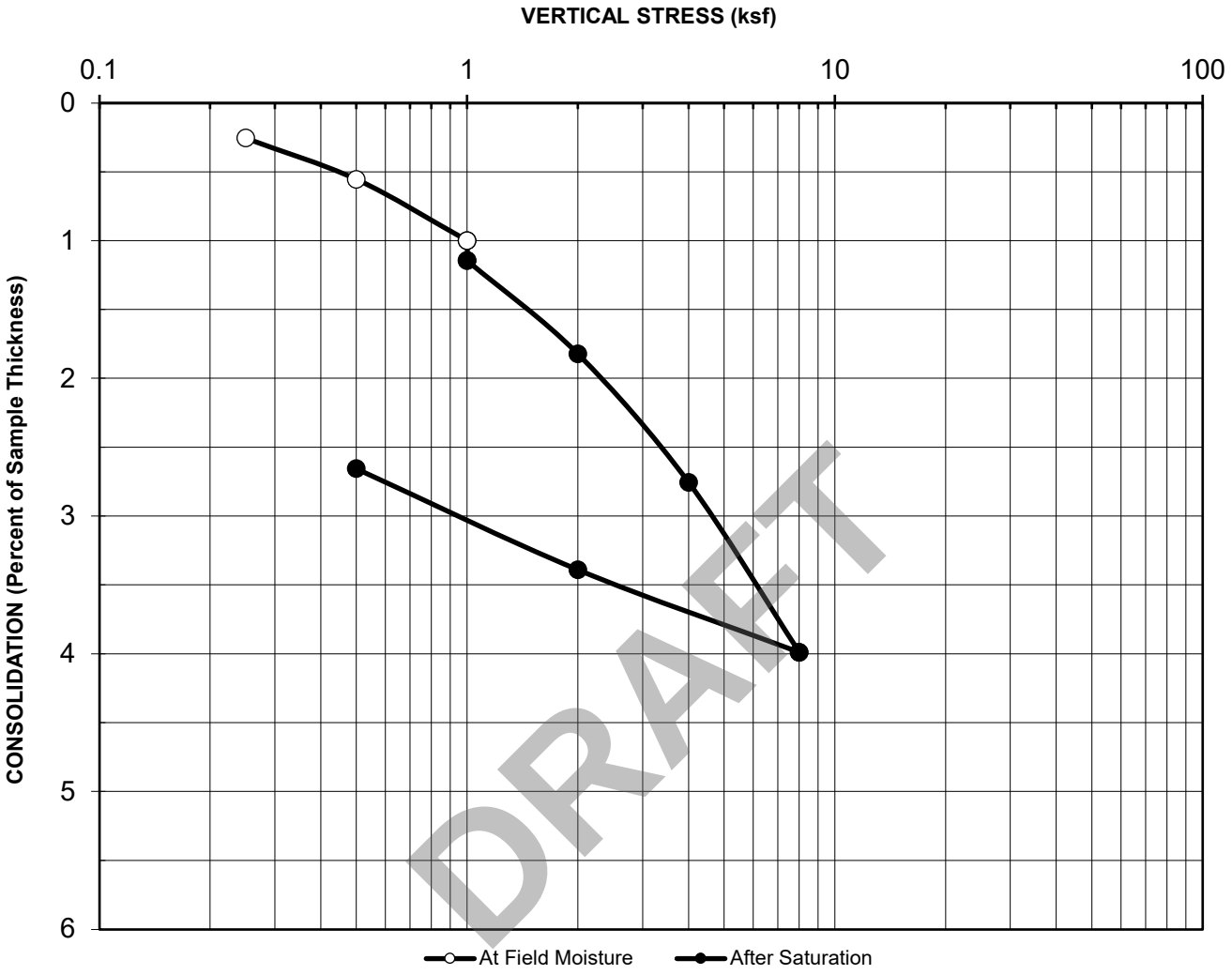

DRAFT

Boring No. :	B-4	Initial Dry Unit Weight (pcf):	108.0
Sample No.:	2	Initial Moisture Content (%):	8.3
Depth (feet):	5	Final Moisture Content (%):	19.4
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Silty Sand	Initial Void Ratio:	0.56
Remarks:	Collapse= 0.14% upon inundation		

CONSOLIDATION CURVE
ASTM D 2435

Project Name:	San Jacinto Line E Storm Drain
Project No.:	24002328.001A
Date:	10/26/2023
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EXPANSION INDEX TEST RESULTS

SAMPLE LOCATION	SAMPLE DEPTH (FT)	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (PCF)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (IN)	EXPANSION INDEX	EXPANSION POTENTIAL
B-2, #1	0-5	13.0%	100.2	30.9%	0.0342	34	Low
B-7, #1	0-5	10.0%	107.9	24.6%	0.0440	44	Low

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PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4829

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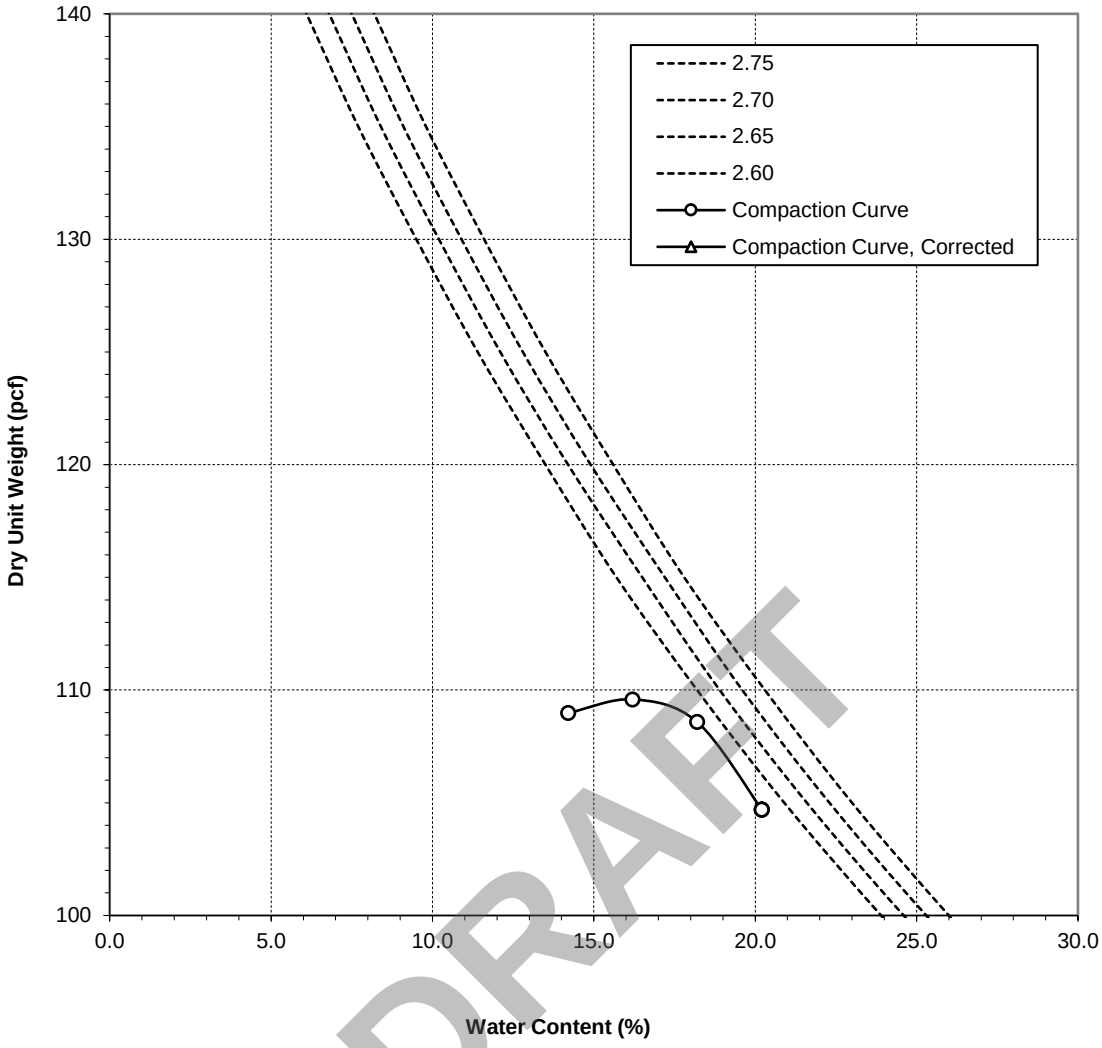
EXPANSION INDEX TEST RESULTS

San Jacinto Line E Storm Drain
San Jacinto, California

PROJECT NO.	DATE	FIGURE
24002328.001A	11/2/2023	



DRAFT

Boring No.: B-3

Sample No.: 1

Depth: 0-5

Material Description: Sandy Silt (ML)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**109.6**	**na**
Optimum Water Content (%)	**16.3**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

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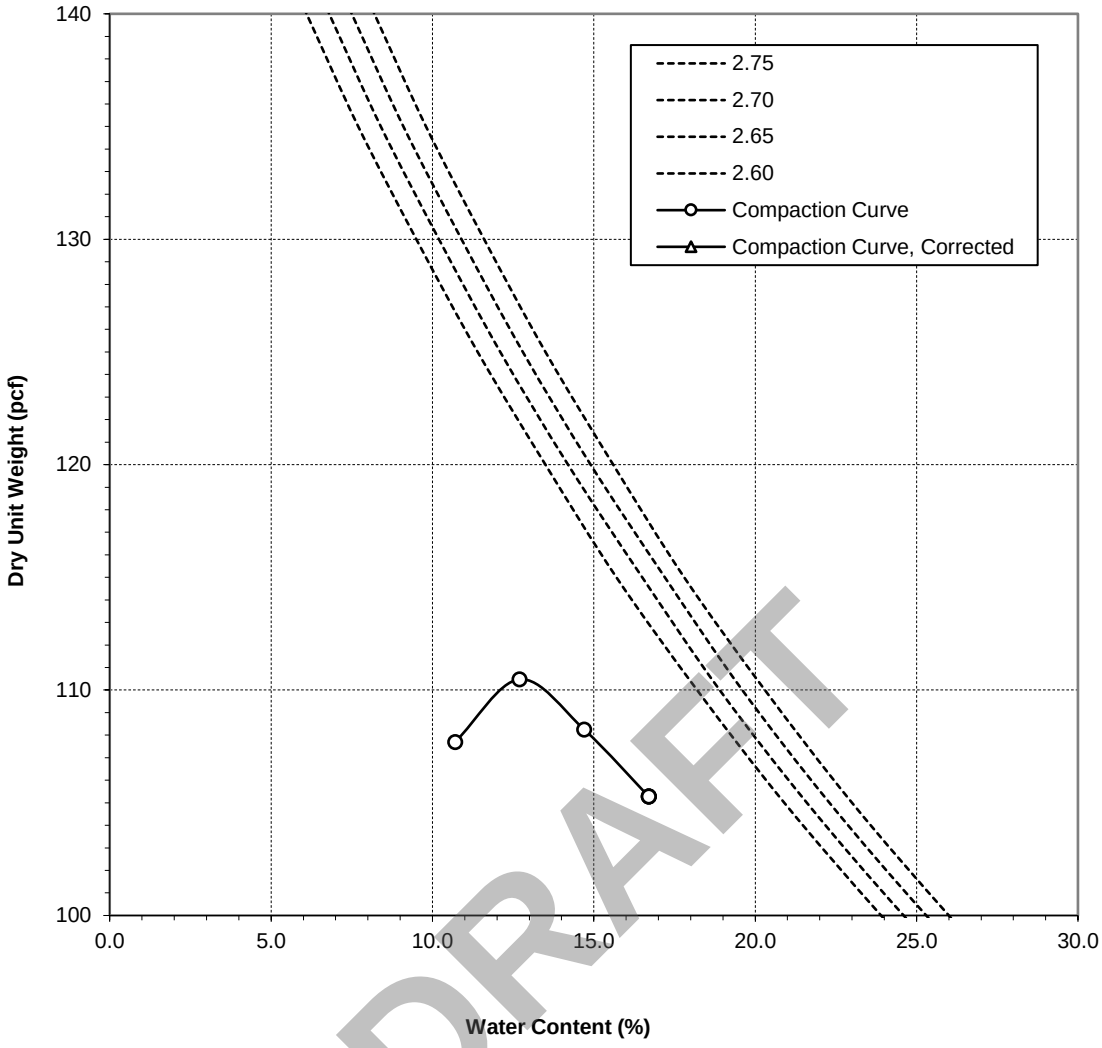
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

Boring No.: B-6

Sample No.: 1

Depth: 0-5

Material Description: Sandy Silt (ML)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**110.2**	**na**
Optimum Water Content (%)	**12.8**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

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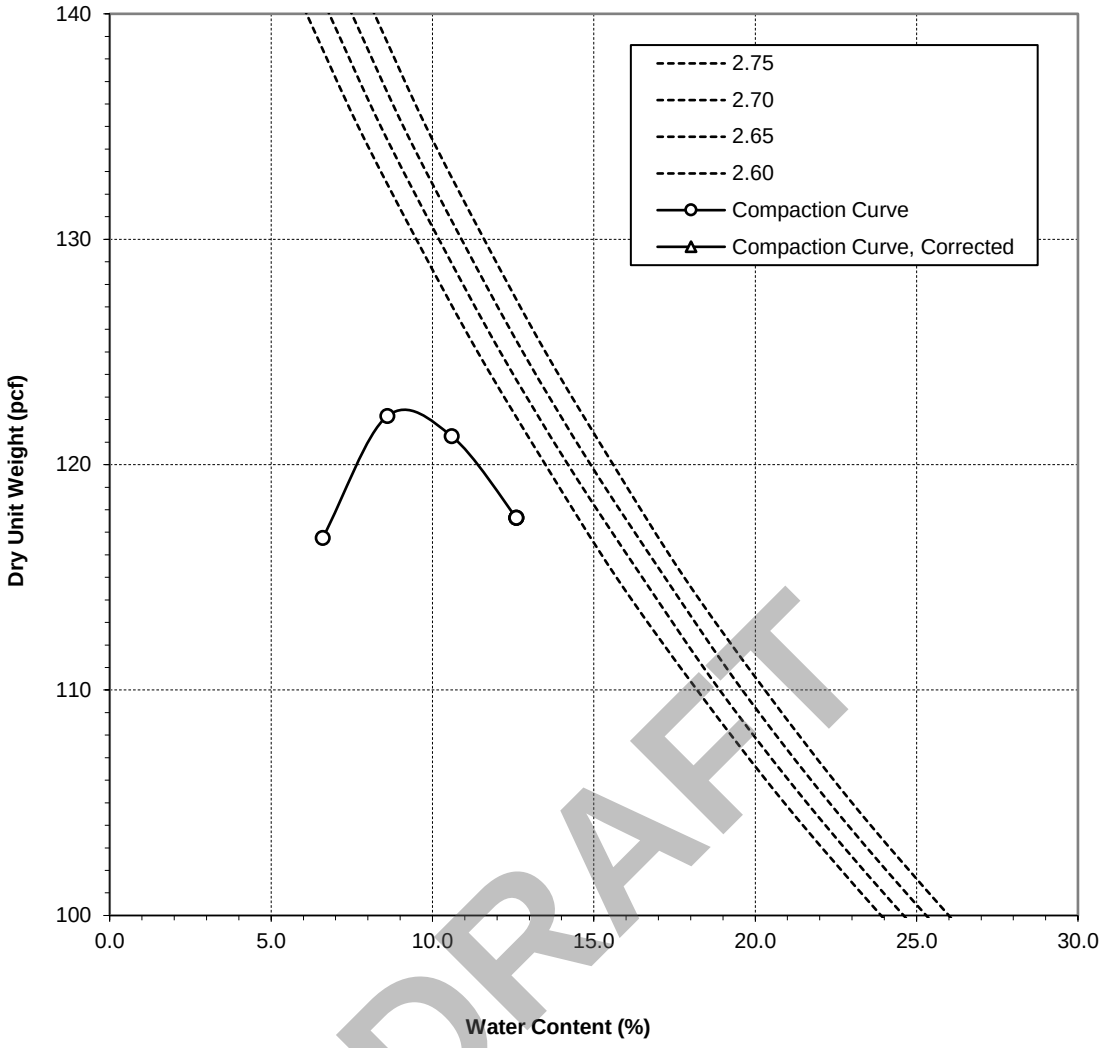
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

Boring No.: B-9

Sample No.: 1

Depth: 0-5

Material Description: Silty Sand (SM)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**122.3**	**na**
Optimum Water Content (%)	**9.1**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

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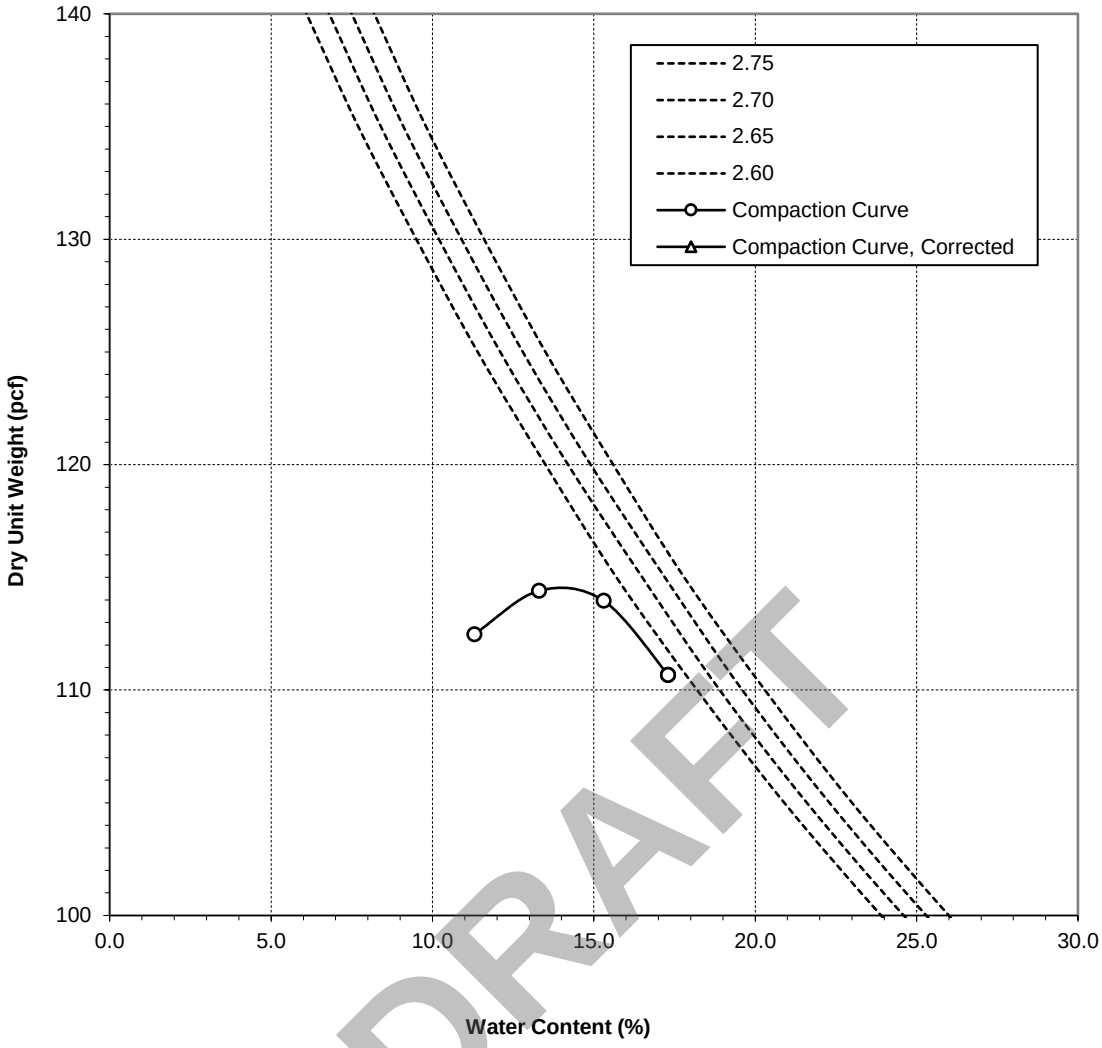
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

Boring No.: B-12

Sample No.: 1

Depth: 0-5

Material Description: Sandy Silt (ML)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**114.5**	**na**
Optimum Water Content (%)	**14.1**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

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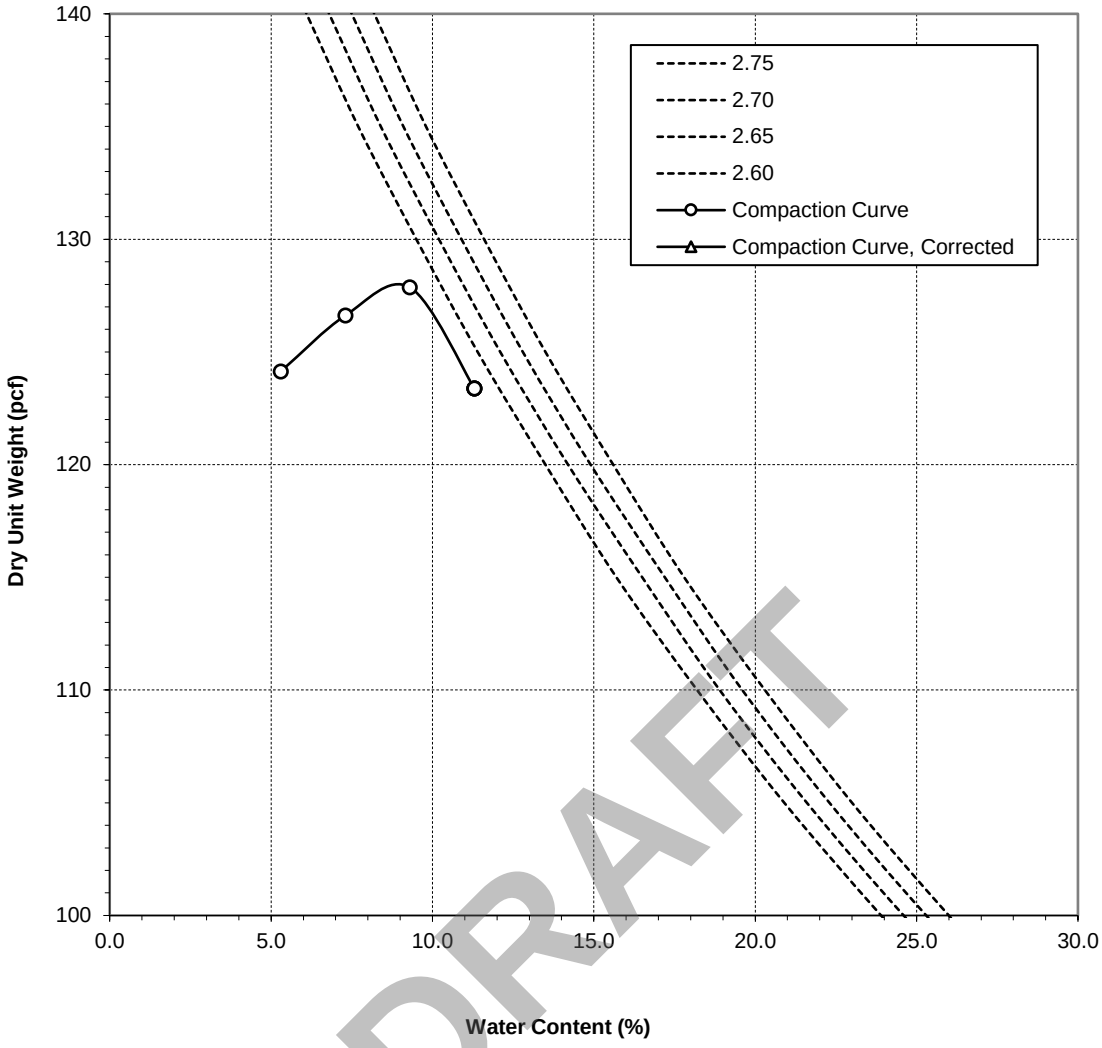
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

Boring No.: B-15

Sample No.: 1

Depth: 0-5

Material Description: Silty Sand (SM)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**128**	**na**
Optimum Water Content (%)	**8.8**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

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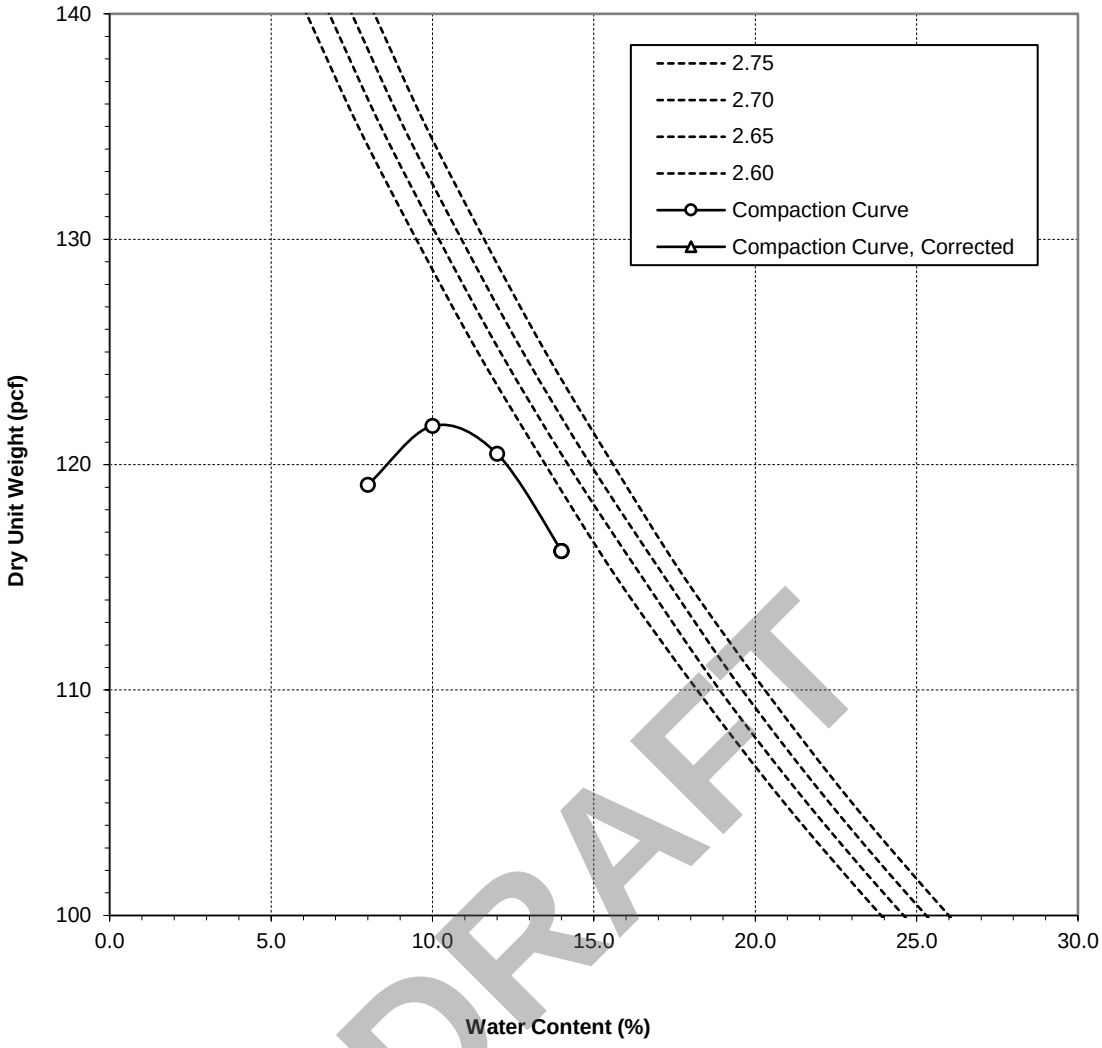
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



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Boring No.: B-19

Sample No.: 1

Depth: 0-5

Material Description: Silty Sand (SM)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**121.7**	**na**
Optimum Water Content (%)	**10.4**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

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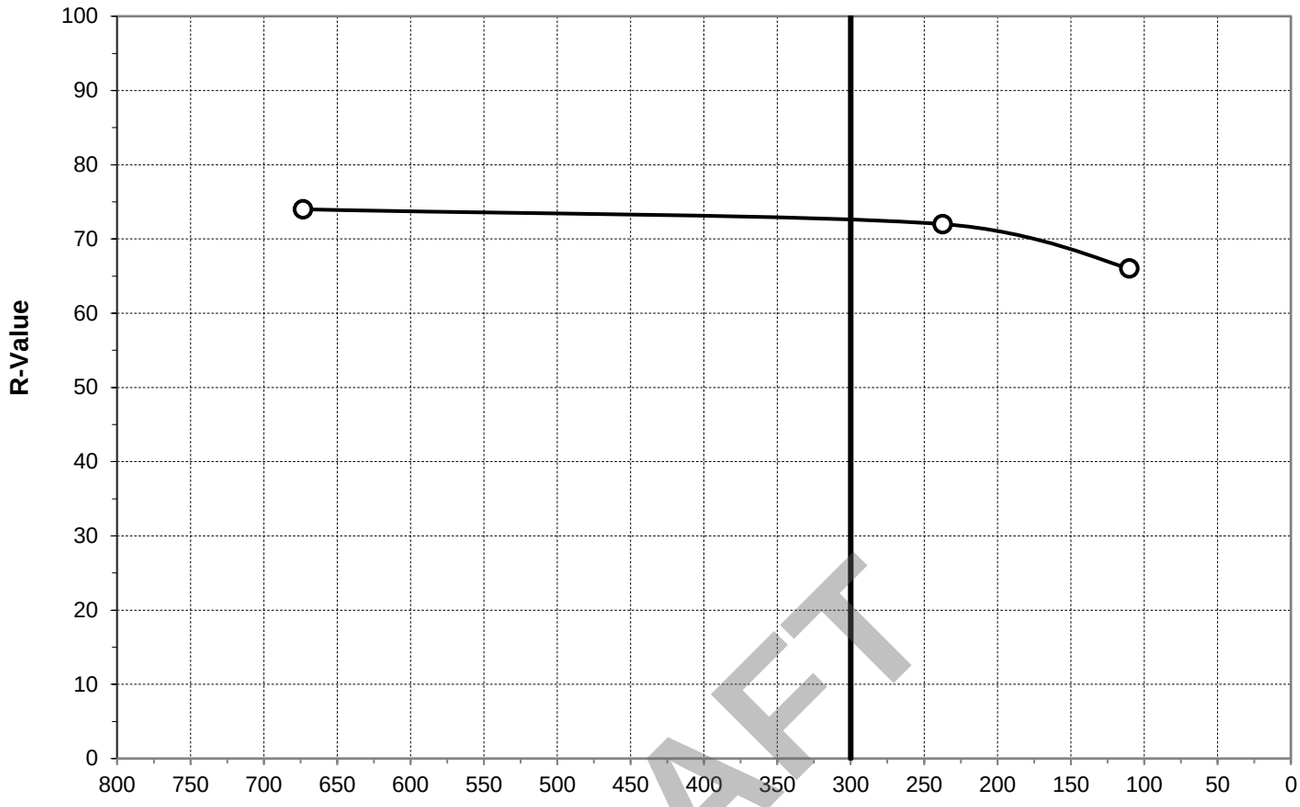
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



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Boring No.: B-4
Sample No.: 1
Depth: 0-5
Material Description: Silty Sand (SM)

Specimen No.	A	B	C
Moisture at Test (%)	12.6	13.5	14.4
Dry Unit Weight at Test (pcf)	112.0	112.1	113.2
Expansion Pressure (psf)	207.8	155.9	90.9
Exudation Pressure (psi)	673.2	237.2	110.0
Resistance Value	74	72	66
R - VALUE AT 300 PSI EXUDATION PRESSURE			**73**

Test Procedure: ASTM D2844

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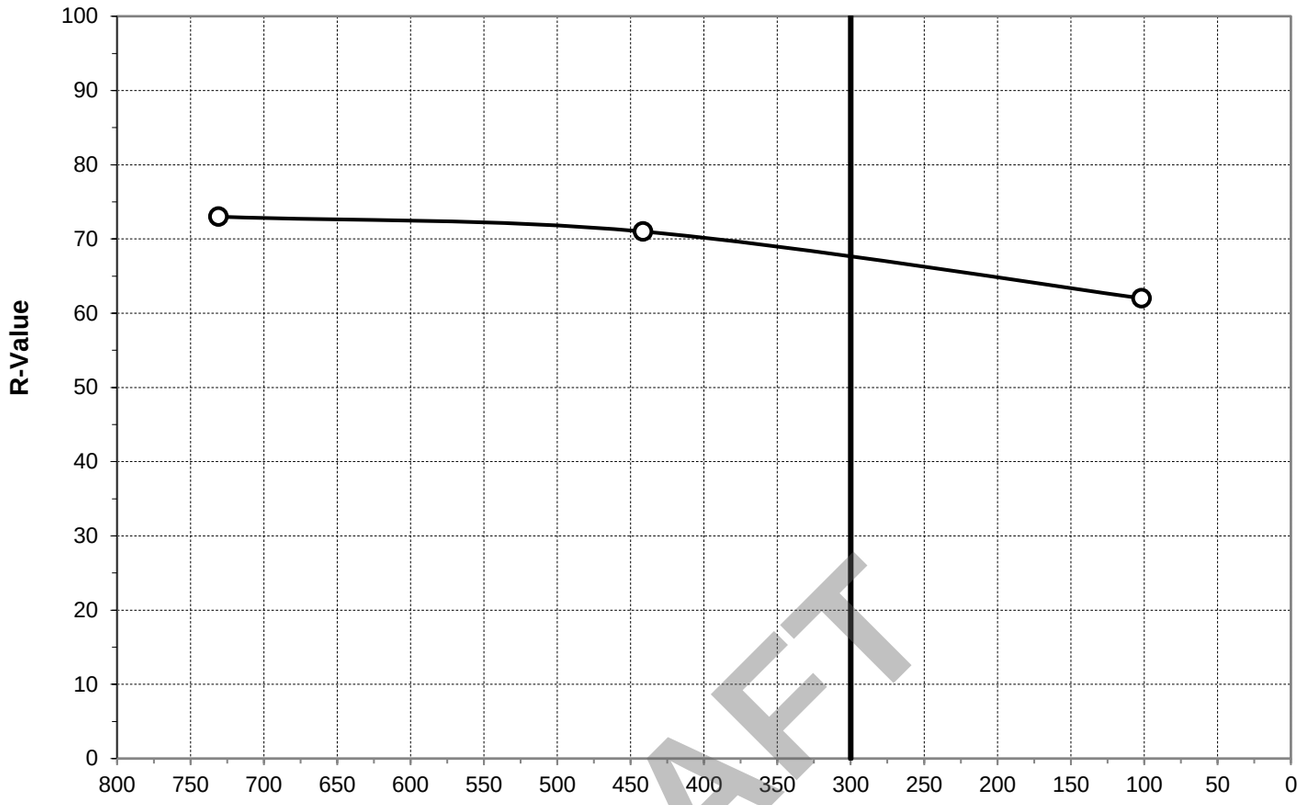
PROJECT NO.: 24002328.001A
TESTED BY: J.Calderon
DATE: 10/31/2023
CHECKED BY: M.Magaña
DATE: 11/3/2023

R-VALUE

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



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Boring No.: B-13
Sample No.: 1
Depth: 0-5
Material Description: Silty Sand (SM)

Specimen No.	A	B	C
Moisture at Test (%)	11.6	12.4	13.3
Dry Unit Weight at Test (pcf)	113.7	113.6	112.2
Expansion Pressure (psf)	186.2	155.9	60.6
Exudation Pressure (psi)	730.8	441.6	101.6
Resistance Value	73	71	62
R - VALUE AT 300 PSI EXUDATION PRESSURE			**68**

Test Procedure: ASTM D2844

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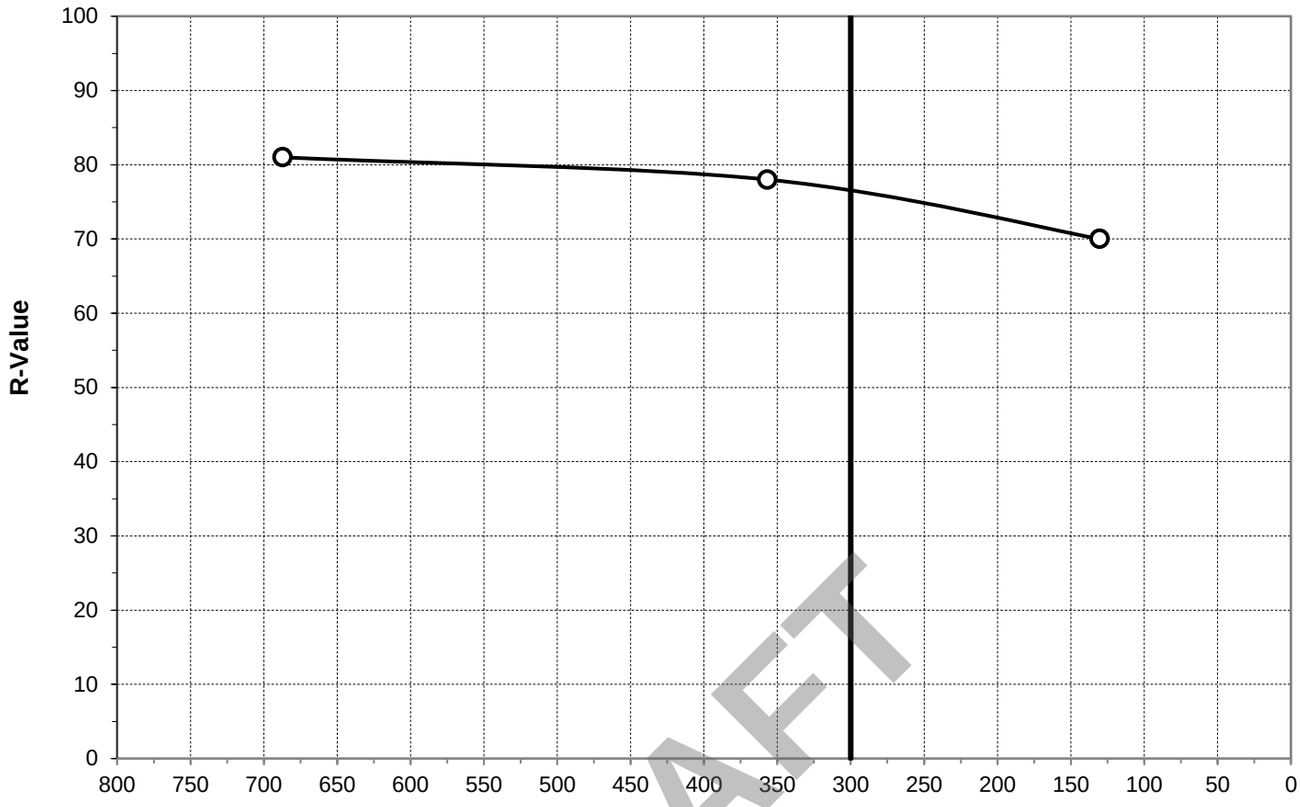
PROJECT NO.: 24002328.001A
TESTED BY: J.Calderon
DATE: 10/31/2023
CHECKED BY: M.Magaña
DATE: 11/3/2023

R-VALUE

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



DRAFT

Boring No.: B-18
Sample No.: 1
Depth: 0-5
Material Description: Silty Sand (SM)

Specimen No.	A	B	C
Moisture at Test (%)	10.8	11.2	11.7
Dry Unit Weight at Test (pcf)	123.3	122.7	121.5
Expansion Pressure (psf)	186.2	155.9	60.6
Exudation Pressure (psi)	687.2	356.8	130.4
Resistance Value	81	78	70
R - VALUE AT 300 PSI EXUDATION PRESSURE			**77**

Test Procedure: ASTM D2844

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PROJECT NO.: 24002328.001A
TESTED BY: J.Calderon
DATE: 10/31/2023
CHECKED BY: M.Magaña
DATE: 11/3/2023

R-VALUE

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE

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CORROSION TEST RESULTS

Client Name: Kleinfelder
Project Name: San Jacinto Line E Storm Drain
Project No.: 24002328.001A

AP Job No.: 23-1050
Date: 10/30/23

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Boring No.	Sample No.	Depth (feet)	Soil Description	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
B-1	1	0-5	Sandy Silt w/ trace clay	521	10.3	467	142
B-3	1	0-5	Sandy Silt	421	8.2	445	243
B-4	1	0-5	Silty Sand w/ trace clay	1,027	10.5	85	63
B-7	1	0-5	Sandy Silt w/ trace clay	299	8.2	563	758
B-11	1	0-5	Sandy Silt w/ trace clay	333	8.9	553	424
B-13	1	0-5	Sandy Silt	3,076	9.0	39	31
B-15	1	0-5	Silty Sand w/ gravel	1,763	9.7	79	69
B-17	1	0-5	Sandy Silt w/ trace clay	336	8.6	672	785

NOTES:
Resistivity Test and pH: California Test Method 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

APPENDIX C
SURFACE WAVE MEASUREMENTS REPORT

DRAFT

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REPORT

SURFACE WAVE MEASUREMENTS

SHEA PROPERTIES – LINE E
MWD CROSSING
SAN JACINTO, CA

DRAFT

GEO*Vision* Project No. 24356

Prepared for

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Prepared by

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Report 24356-01

September 30, 2024

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2.2 SURFACE WAVE TECHNIQUES 2
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1 INTRODUCTION

In-situ seismic measurements using active- and passive-source surface wave techniques were performed along two transects in San Jacinto, California. The purpose of this investigation was to provide a shear (S) wave velocity profile to a depth of 100 feet at 5 (or more) test locations per transect. The active-source surface wave technique utilized during this investigation consisted of the multi-channel analysis of surface waves (MASW) method. The passive-source surface wave technique consisted of the linear array microtremor method. The locations of the active- and passive-source surface wave arrays are shown on Figure 1 and Table 1.

At many sites, active surface wave techniques (MASW) with the utilization of portable energy sources, such as hammers and weight drops, are sufficient to obtain S-wave velocity soundings to 100 ft depths. At sites with high ambient noise levels and/or very soft soils, these energy sources may not be sufficient to image to this depth and a larger energy source, such as a bulldozer, is necessary. Alternatively, passive surface wave techniques, such as the array microtremor technique can be used to extend the depth of investigation at sites that have adequate ambient noise conditions.

This report contains the results of the active and passive surface wave measurements conducted at the site. An overview of the surface wave methods is given in Section 2. Field and data reduction procedures are discussed in Sections 3 and 4, respectively. Data modeling is presented in Section 5 and results are discussed in Section 6. References and our professional certification are provided in Sections 7 and 8, respectively.

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2 Overview of Surface Wave Techniques

2.1 Introduction

Active- and passive-source (ambient vibration) surface wave techniques are routinely utilized for site characterization. Active surface wave techniques include the spectral analysis of surface waves (SASW) and multi-channel array surface wave (MASW) methods. Passive surface wave techniques include the horizontal over vertical spectral ratio (HVSR) technique and the array and refraction microtremor methods.

The basis of surface wave methods is the dispersive characteristic of Rayleigh and Love waves when propagating in a layered medium. Surface waves of different wavelengths (λ) or frequencies (f) sample different depth. As a result of the variance in the shear stiffness of the distinct layers, waves with different wavelengths propagate at different phase velocities; hence, dispersion. A surface wave dispersion curve is the variation of V_R or V_L with λ or f. The Rayleigh wave phase velocity (V_R) depends primarily on the material properties (V_S, mass density, and Poisson's ratio or compression wave velocity) over a depth of approximately one wavelength. The Love wave phase velocity (V_L) depends primarily on V_S and mass density. Rayleigh and Love wave propagation are also affected by damping or seismic quality factor (Q). Rayleigh wave techniques are utilized to measure vertically polarized S-waves (S_V-wave); whereas Love wave techniques are utilized to measure horizontally polarized S-waves (S_H-wave).

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2.2 Surface Wave Techniques

The MASW and array microtremor techniques were utilized during this investigation and are discussed below.

2.2.1 MASW Technique

A description of the MASW method is given by Park, 1999a and 1999b and Foti, 2000. Ground motions are typically recorded by 24 or more geophones spaced 1 to 3 m apart along a linear array and connected to a seismograph. Energy sources for shallow investigations include various sized hammers and vehicle mounted weight drops. When applying the MASW technique to develop a one-dimensional (1-D) V_S model, it is preferable to use multiple-source offsets from both ends of the array. The most commonly applied MASW technique is the Rayleigh-wave based MASW method, which we refer to as MAS_RW to distinguish from Love-wave based MASW (MAS_LW). MAS_RW and MAS_LW acquisition can easily be combined with P- and S-wave seismic refraction acquisition, respectively. MAS_RW data are generally recorded using a vertical source and vertical geophone but may also be recorded using a horizontal geophone with radial (in-line) orientation. MAS_LW data are recorded using transversely orientated horizontal source and transverse horizontal geophone.

A wavefield transform is applied to the time-history data to convert the seismic record from time-offset space to frequency-wavenumber (f-k) space in which the fundamental or higher surface-wave modes can be easily identified as energy maxima and picked. Frequency and/or wavenumber can easily be mapped to phase velocity, slowness, or wavelength using the following properties: $k = 2\pi/\lambda$, $\lambda = v/f$. Common wave-field transforms include: the f-k transform, slant-stack transform, frequency domain beamformer, and phase-shift transform. The

minimum wavelength that can be recovered from MASW data set without spatial aliasing is equal to the minimum receiver spacing. Occasionally, SASW analysis procedures are used to extract surface wave dispersion data, from fixed receiver pairs, at smaller wavelengths than can be recovered by wavefield transformation. Multiple source offsets, and limiting minimum and maximum wavelengths, are required to construct a dispersion curve bandwidth necessary to develop a robust V_S model (Yoon and Rix, 2009; Li and Rosenblad, 2011).

Although the clear majority of MASW surveys record Rayleigh waves, it has been shown that Love wave techniques can be more effective in some environments, particularly shallow rock sites and sites with a highly attenuative, low velocity surface layer (Xia, et al., 2012; **GEO***Vision*, 2012). Rayleigh wave techniques, however, are generally more effective at sites where velocity gradually increases with depth because larger energy sources are readily available for the generation of Rayleigh waves. Rayleigh wave techniques are also more applicable to sites with high velocity layers and/or velocity inversions because the presence of such structures is more apparent in the Rayleigh wave dispersion curves than in Love wave dispersion curves. Rayleigh wave techniques are preferable at sites with a high velocity surface layer because Love waves do not theoretically exist in such environments. Joint inversion of Rayleigh and Love wave data may yield more accurate V_S models in anisotropic materials.

2.2.2 Array Microtremor Technique

A detailed discussion of the array microtremor method can be found in Okada, 2003. Unlike active source techniques, the array microtremor technique (also referred to as passive surface wave method) records ambient noise and ground motions emanating from ocean wave activity, wind noise, traffic, industrial activity, construction, etc. The technique uses 4 or more receivers aligned in a 2-dimensional array. Triangle, circle, semi-circle, and “L” shaped arrays are commonly used, although any 2-dimensional arrangement of receivers can be used. For investigations of the upper 100 m, receivers typically consist of 1 to 4.5 Hz geophones. For deeper investigations, 5 to 120 s seismometers are generally utilized.

The surface wave dispersion curve is typically estimated from array microtremor data using various f-k methods such as beamforming (Lacoss, et al., 1969), and maximum-likelihood (Capon, 1969), and the spatial-autocorrelation (SPAC) method. The SPAC method was originally based on work by Aki (1957) and has since been extended and modified (Ling and Okada, 1993 and Ohori *et al*., 2002) to permit the use of noncircular arrays, and is now collectively referred to as extended spatial autocorrelation (ESPAC or ESAC). SPAC methods are expected to perform better when noise sources are azimuthally well-distributed (e.g., in a large urban area). The minimum wavelength surface wave that can be extracted from an array microtremor dataset acquired utilizing a symmetric array is typically set equal to the minimum receiver spacing. The maximum wavelength is often set equal to twice the maximum receiver separation for SPAC analysis.

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2.3 Surface Wave Dispersion Curve Modeling

The dispersion curves generated from the active and passive surface wave soundings are generally combined and modeled using iterative forward and inverse modeling routines. The final model profile is assumed to represent actual site conditions. The theoretical model used to interpret the dispersion curve assumes horizontally layered, laterally invariant, homogeneous-isotropic material. Although these conditions are seldom strictly met at a site, the results of active and/or passive surface wave testing provide a good "global" estimate of the material properties along the array. The results may be more representative of the site than a borehole "point" estimate.

MAS_RW and/or passive surface-wave modeling may involve modeling of the fundamental mode, some form of effective mode, or multiple individual modes (multi-mode). The fundamental mode assumption is generally applicable to modeling Rayleigh-wave dispersion data collected at normally dispersive sites, providing there are not abrupt increases in velocity or steep velocity gradients. Effective-mode or multi-mode approaches are often required for irregularly dispersive sites and sites with steep velocity gradients at shallow depth. If active and passive surface wave data are combined or MAS_RW data are combined from multiple seismic records with different source offsets and receiver gathers, then effective-mode computations are limited to algorithms that assume far-field plane Rayleigh wave propagation. Local search (e.g., linearized matrix inversion methods) or global search methods (neighborhood algorithm; Monte Carlo approaches such as simulated annealing, generic algorithms) are typically used to solve the inverse problem.

The maximum wavelength (λ_{max}) recovered from a surface wave data set is typically used to estimate depth of investigation although a sensitivity analysis of the V_S models would be a more robust means to estimate depth of investigation. For normally dispersive velocity profiles with a gradual increase in V_S with depth, the maximum depth of investigation is on the order of $\lambda_{max}/2$ for both Rayleigh and Love wave dispersion data. For velocity profiles with an abrupt increase in V_S at depth, the maximum depth of investigation is on the order of $\lambda_{max}/3$ for Rayleigh wave dispersion data but less than $\lambda_{max}/3$ for Love wave dispersion data. The depth of investigation can be highly variable for sites with complex velocity structure (including high velocity layers).

As with all surface geophysical methods, the inversion of surface wave dispersion data does not yield a unique V_S model and multiple possible solutions may equally fit the experimental data. Based on experience at other sites, the shear wave velocity models (V_S and layer thicknesses) determined by surface wave testing are within 20% of the velocities and layer thicknesses that would be determined by other seismic methods (Brown, 1998). The average velocity of the upper 30 m (V_{S30}), however, is much more accurate, often to better than 5%, because it is not sensitive to the layering in the model. V_{S30} does not appear to suffer from the non-uniqueness inherent in V_S models derived from surface wave dispersion curves (Martin et al., 2006, Comina et al., 2011). Therefore, V_{S30} is more accurately estimated from the inversion of surface wave dispersion data than the resulting V_S models.

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3 FIELD PROCEDURES

Surface wave data were collected along two transects, whose locations were provided by Kleinfelder and confirmed by a company representative. The locations of the transects are shown in Figure 1 and coordinates of the array centers (corresponding to the modeled Vs profiles) and endpoints are provided in Table 1. Two types of surface wave data were acquired at each site: an active-source surface wave array to characterize near-surface velocity structure and a passive-source surface wave array to characterize deeper velocity structure.

The surface wave equipment consisted of four Geometrics Geode signal enhancement seismographs, 4.5 Hz vertical geophones, and seismic cables. The geophone array consisted of 96 live geophones with a nominal spacing of 10 feet, for a total array length of 950 feet. Active MASW sources included 4 lb. and 20 lb. sledgehammers, and a 240 lb. accelerated weight drop (AWD).

Shot points were located between 30 and 300 feet from the end geophone locations and at regular intervals in the interior of the array. At least twenty-four active source locations were occupied with the 4-lb hammer and either the AWD or the 20-lb sledgehammer. Data from the active source impacts were averaged in the field to improve the signal-to-noise ratio. In total this resulted in 48 source locations, and ~720 hammer blows for the project. Ambient noise measurements were made along the passive array for 60 minutes (Array 1) and 53 minutes (Array 2) with a 2 MS sample rate. The field geometry and associated files names were documented in field notes. All field data were saved to hard disk and backed up daily on a remote server.

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4 DATA ANALYSIS AND RESULTS

The MASW data were reduced using the software Seismic Pro Surface V10 developed by Geogiga, SeisImager Pick win (Geometrics, Inc.), and multiple in-house utilities for various data extraction and formatting tasks. Because each transect was acquired in a "fully-live" configuration of 96 active receivers, common-midpoint cross-correlation gathers (CMPCC) were generated that organized the common receiver pairs for every shot gather. This allowed for 2-D smooth-model inversion modeling. The surface wave data were modeled using the fundamental mode routine in SeisImager Waves. Data inputs into the modeling software include layer thickness, S-wave velocity, P-wave velocity or Poisson's ratio, and mass density. P-wave velocity and mass density only have a very small influence (i.e., less than 10%) on the S-wave velocity model generated from a surface wave dispersion curve. However, realistic assumptions for P-wave velocity, which is significantly impacted by the location of the saturated zone, and mass density will slightly improve the accuracy of the S-wave velocity model.

During the modeling process an initial velocity model was generated based on provided preliminary CPT summaries. Kleinfelder provided estimates of water table depth (30 feet for Array 1; 16 feet for Array 2), wet and dry unit weights (85 and 115 lbs. per cubic foot, respectively), and Poisson's ratio (0.33). These inputs were used in the initial modeling phase. A first-pass inverse modeling routine was performed, and the results were compared to general characteristics of the dispersion curves. Layer thicknesses were adjusted, and the inversion process repeated until a V_S model was developed with low RMS error between the observed and calculated dispersion curves. Once an acceptable V_S model was developed, layer thicknesses were again adjusted, and the inversion process repeated to compare V_S models with similar RMS error to examine non-uniqueness.

Using the 2-D inversion routine in SeisImager WaveEQ, a 1-D shear-wave velocity profile was generated every 120-feet along each of the two transects shown in Figure 1. The modeled V_S profiles for each transect are presented as Figures 2-3. The resolution decreases gradually with depth due to the loss of sensitivity of the dispersion curve to changes in V_S at greater depth. The V_S profile used to match the field data is provided in tabular form in English units as Tables 2-15. The reported inferred values for P-wave velocity, Poisson's Ratio, and density were calculated based on the shear-wave velocity model results – not direct measurements or lab tests. The initial stage of the modeling process included input parameters provided by Kleinfelder, but these tabulated results show some variation, particularly with respect to density values. The "inferred density" values are based on the relationship between shear-wave velocity and density as described by Boore (2015).

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6 CERTIFICATION

All geophysical data, analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a **GEO***Vision* California Professional Geophysicist.

Prepared by

JB Shawver

PROFESSIONAL GEOPHYSICIST
JONATHAN SHAWVER
PGp 1058
STATE OF CALIFORNIA

9/30/2024

JB Shawver
California Professional Geophysicist, P.Gp. 1058
GEO*Vision* Geophysical Services

Date

DRAFT

This geophysical investigation was conducted under the supervision of a California Professional Geophysicist using industry-standard methods and equipment. A high degree of professionalism was maintained during the project from the field investigation and data acquisition, through data processing interpretation and reporting. Original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review for a period of at least one year.

A professional geophysicist's certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations or ordinances.

TABLES

Feature	Easting	Northing
Manhole	6326353	2242976
Array 1 Start	6326100	2243098
Array 1 End	6327045	2243018
Array 1+120	6326220	2243088
Array 1+240	6326339	2243079
Array 1+360	6326459	2243070
Array 1+480	6326579	2243059
Array 1+600	6326698	2243050
Array 1+720	6326818	2243040
Array 1+840	6326937	2243028
Array 2 Start	6326109	2242956
Array 2 End	6327051	2242867
Array 2+120	6326228	2242946
Array 2+240	6326350	2242936
Array 2+360	6326467	2242927
Array 2+480	6326586	2242918
Array 2+600	6326705	2242907
Array 2+720	6326823	2242893
Array 2+840	6326944	2242879
Coordinates are NAD83, California State Plane Zone 6, US feet		

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Table 1 Project Test Locations

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Inferred Poisson's Ratio	Inferred Density (lb./ft^3)
0.0	6.5	434	868	0.33	105
6.5	8.5	458	915	0.33	105
15.0	15.0	544	1089	0.33	110
30.0	6.5	600	4898	0.49	112
36.5	13.5	672	4978	0.49	114
50.0	15.0	771	5088	0.49	116
65.0	35.0	805	5126	0.49	118
100.0	15.0	927	5262	0.48	120
115.0	Half Space	1186	5548	0.48	122

Table 2 Vs Model for Array 1 Station 120

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	7.0	431	862	0.33	105
7.0	8.0	463	926	0.33	105
15.0	13.5	547	1094	0.33	110
28.5	6.5	601	1201	0.33	112
35.0	13.0	671	4977	0.49	114
48.0	15.0	767	5084	0.49	116
63.0	37.0	800	5120	0.49	118
100.0	20.0	923	5257	0.48	120
120.0	Half Space	1181	5543	0.48	122

Table 3 Vs Model for Array 1 Station 240

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	428	855	0.33	105
6.5	8.0	454	908	0.33	105
14.5	15.0	548	1096	0.33	110
29.5	6.5	608	1216	0.33	112
36.0	13.0	679	4986	0.49	115
49.0	15.0	768	5084	0.49	116
64.0	31.5	797	5117	0.49	118
95.5	44.5	922	5256	0.48	119
140.0	Half Space	1179	5541	0.48	122

Table 4 Vs Model for Array 1 Station 360

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	428	857	0.33	105
6.5	8.5	454	909	0.33	105
15.0	14.0	550	1100	0.33	110
29.0	7.5	616	1232	0.33	112
36.5	10.5	690	4998	0.49	115
47.0	18.0	771	5088	0.49	117
65.0	33.0	796	5116	0.49	118
98.0	42.0	924	5258	0.48	119
140.0	Half Space	1181	5543	0.48	122

Table 5 Vs Model for Array 1 Station 480

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.0	413	827	0.33	102
6.0	8.5	459	918	0.33	105
14.5	13.0	548	1096	0.33	110
27.5	10.5	628	1255	0.33	114
38.0	13.5	704	5014	0.49	115
51.5	15.5	778	5096	0.49	118
67.0	31.0	797	5117	0.49	118
98.0	42.0	925	5259	0.48	120
140.0	Half Space	1184	5546	0.48	122

Table 6 Vs Model for Array 1 Station 600

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	413	826	0.33	102
6.5	8.5	460	919	0.33	105
15.0	11.5	546	1092	0.33	110
26.5	13.5	633	1266	0.33	114
40.0	11.0	712	5022	0.49	115
51.0	15.0	784	5103	0.49	118
66.0	34.0	800	5120	0.49	118
100.0	20.0	928	5262	0.48	120
120.0	Half Space	1189	5552	0.48	122

Table 7 Vs Model for Array 1 Station 720

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	413	827	0.33	102
6.5	8.5	458	916	0.33	105
15.0	11.0	537	1074	0.33	110
26.0	11.0	619	1239	0.33	112
37.0	13.5	706	5016	0.49	115
50.5	15.0	779	5097	0.49	118
68.0	32.5	797	5117	0.49	118
100.5	20.0	927	5262	0.48	120
120.5	Half Space	1190	5554	0.48	122

Table 8 Vs Model for Array 1 Station 840

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	443	887	0.33	85
6.5	9.5	469	938	0.33	85
16.0	12.0	550	4843	0.49	110
28.0	11.0	599	4897	0.49	112
39.0	12.0	723	5035	0.49	115
51.0	13.5	811	5132	0.49	118
64.0	35.5	832	5156	0.49	119
99.5	26.0	960	5298	0.48	120
125.5	Half Space	1206	5571	0.48	122

Table 9 Vs Model for Array 2 Station 120

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	417	834	0.33	85
8.0	8.0	469	938	0.33	85
16.0	9.0	536	4828	0.49	110
25.0	13.0	586	4883	0.49	112
38.0	12.0	718	5029	0.49	115
50.0	15.0	806	5127	0.49	118
65.0	34.8	828	5151	0.49	119
99.8	35.2	959	5297	0.48	120
135.0	Half Space	1207	5572	0.48	122

Table 10 Vs Model for Array 2 Station 240

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	415	829	0.33	85
8.0	8.0	471	942	0.33	85
16.0	12.5	538	4829	0.49	110
28.5	8.5	583	4879	0.49	112
37.0	14.0	715	5026	0.49	115
51.0	14.0	802	5123	0.49	116
68.0	32.0	823	5146	0.49	118
100.0	40.0	957	5294	0.48	120
140.0	Half Space	1209	5574	0.48	122

Table 11 Vs Model for Array 2 Station 360

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.5	415	831	0.33	85
8.5	7.5	472	943	0.33	85
16.0	9.0	515	4804	0.49	108
25.0	11.5	560	4854	0.49	110
36.5	11.5	702	5012	0.49	115
48.0	17.5	798	5118	0.49	118
68.0	31.0	821	5143	0.49	118
99.0	41.0	958	5296	0.48	120
140.0	Half Space	1209	5575	0.48	122

Table 12 Vs Model for Array 2 Station 480

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	413	826	0.33	85
8.0	8.0	467	934	0.33	85
16.0	9.0	502	4789	0.49	108
25.0	11.5	565	4859	0.49	110
36.5	13.5	707	5017	0.49	115
50.0	15.0	803	5124	0.49	118
69.0	30.5	820	5143	0.49	118
99.5	40.5	958	5296	0.48	120
140.0	Half Space	1211	5577	0.48	122

Table 13 Vs Model for Array 2 Station 600

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	7.0	405	811	0.33	85
7.0	9.0	466	931	0.33	85
16.0	9.0	489	4775	0.49	108
25.0	12.0	559	4853	0.49	110
37.0	13.5	701	5010	0.49	115
50.5	15.0	802	5123	0.49	118
69.0	31.5	819	5141	0.49	118
100.5	39.5	960	5298	0.48	120
140.0	Half Space	1210	5575	0.48	122

Table 14 Vs Model for Array 2 Station 720

DRAFT

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	405	810	0.33	85
8.0	8.0	475	951	0.33	85
16.0	9.0	478	4763	0.49	108
25.0	9.5	544	4836	0.49	110
34.5	15.5	686	4994	0.49	115
50.0	16.5	796	5115	0.49	118
68.0	31.0	815	5137	0.49	118
99.0	36.0	960	5298	0.48	120
135.0	Half Space	1211	5576	0.48	122

Table 15 Vs Model for Array 2 Station 840

FIGURES

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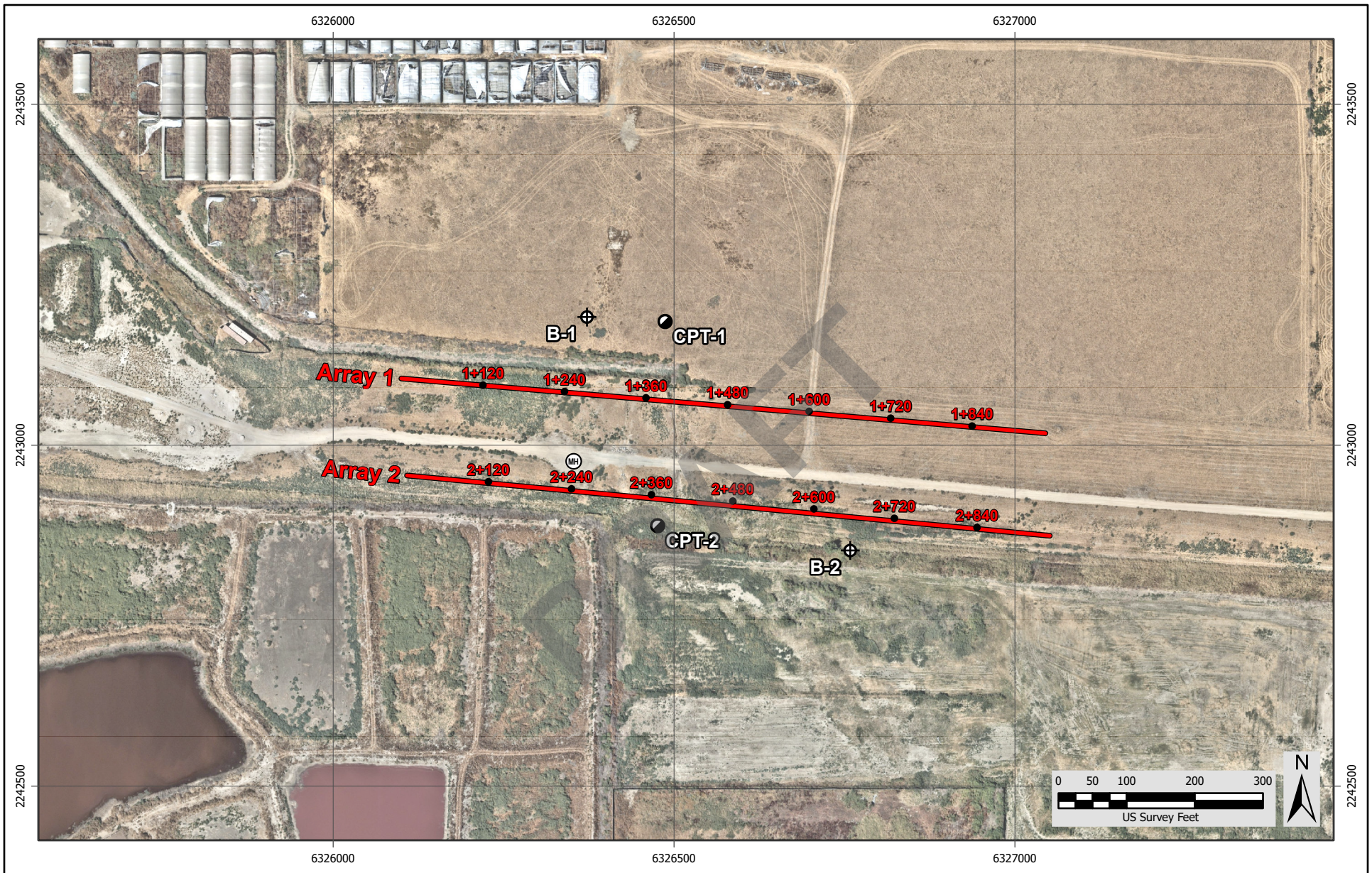


Seismic Surface Wave Array
Manhole
Sounding Location
Approximate Location of Client Borehole
Approximate Location of Client CPT

Notes:
Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
Base map source: Nearmap (8-2024)

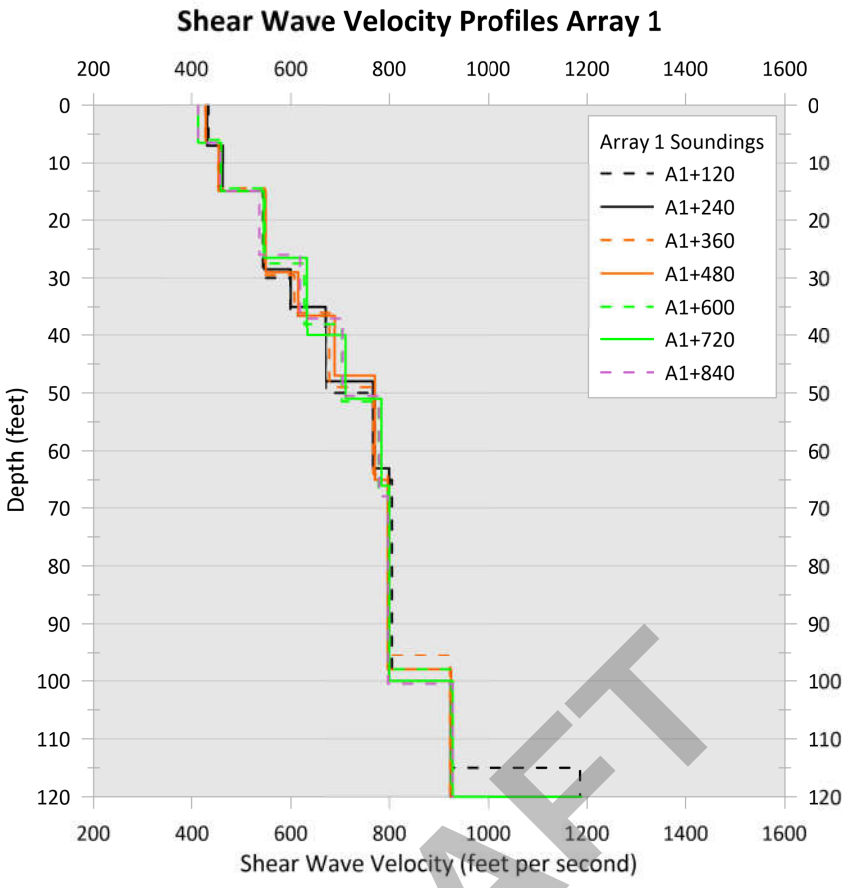
GEOVision geophysical services

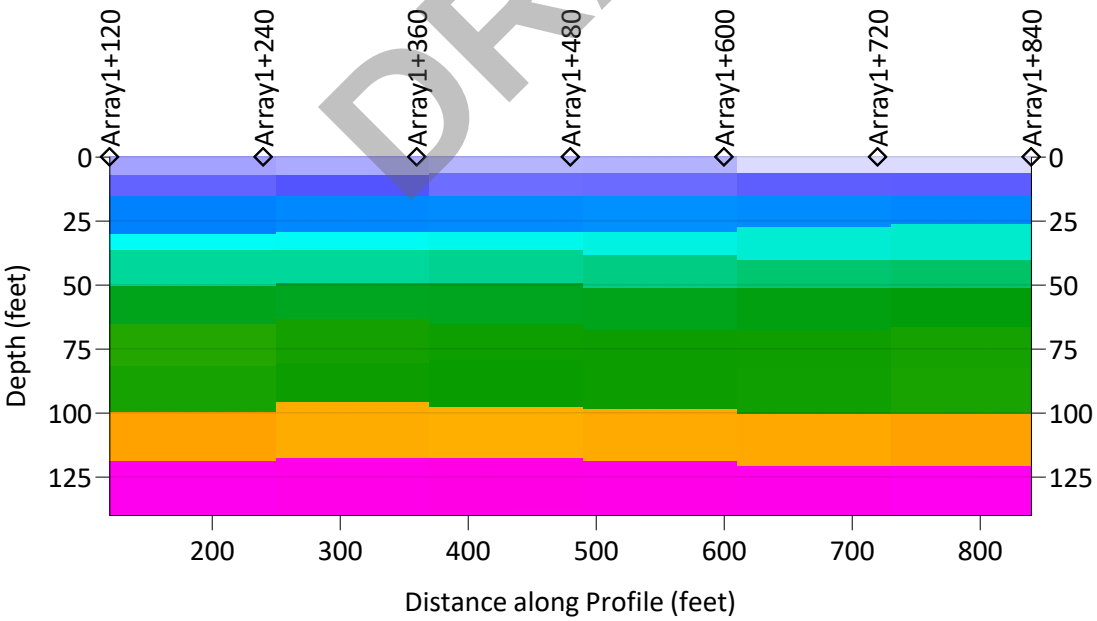
Date:	9/30/2024
GV Project:	24356
Developed by:	J Shawver
Drawn by:	T Rodriguez
Approved by:	J Shawver
File Name:	GV 24356

FIGURE 1
SITE MAP

SITE LOCATED NEAR MWD CROSSING
SAN JACINTO, CALIFORNIA

PREPARED FOR
KLEINFELDER, INC.

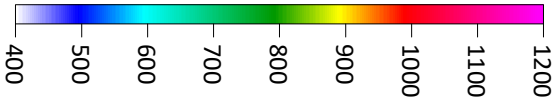




DRAFT

Note: 2x vertical exaggeration on cross-section

Shear Wave Velocity (feet per second)



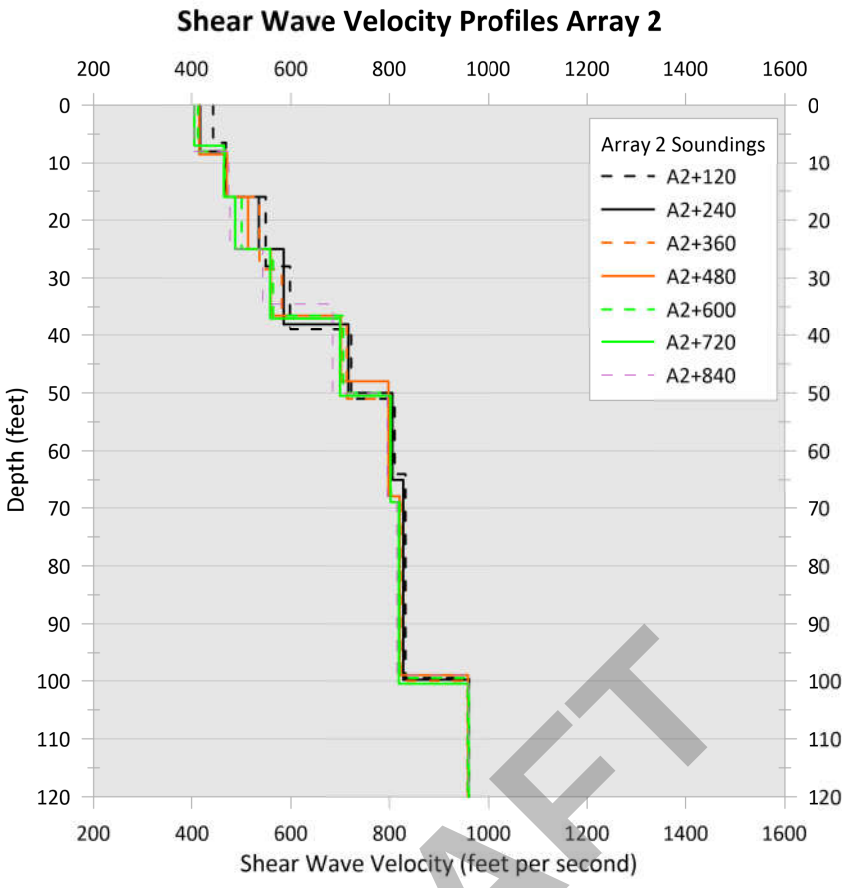
GEOVision geophysical services

Date:	09/30/24
GV Project:	24356
Developed by:	JBS
Drawn by:	JBS
Approved by:	JBS
File Name:	24356_f2.srf

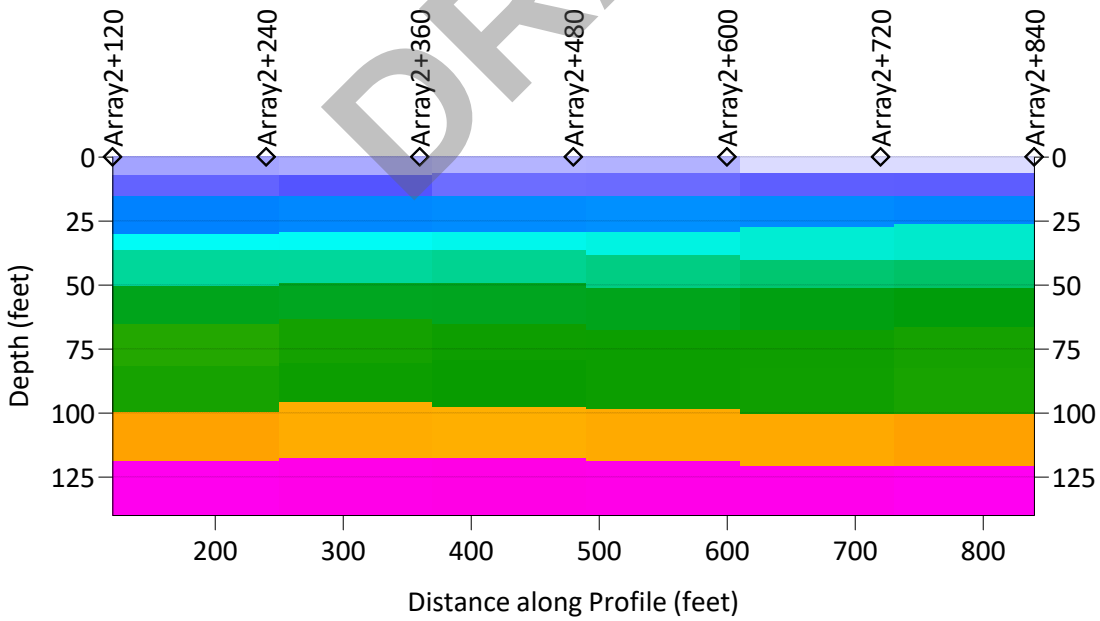
FIGURE 2
ARRAY 1 SHEAR WAVE VELOCITY PLOTS

SHEA MWD CROSSING
SAN JACINTO, CA

PREPARED FOR
KLEINFELDER

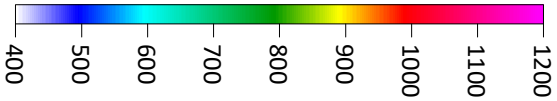


DRAFT



Note: 2x vertical exaggeration on cross-section

Shear Wave Velocity (feet per second)



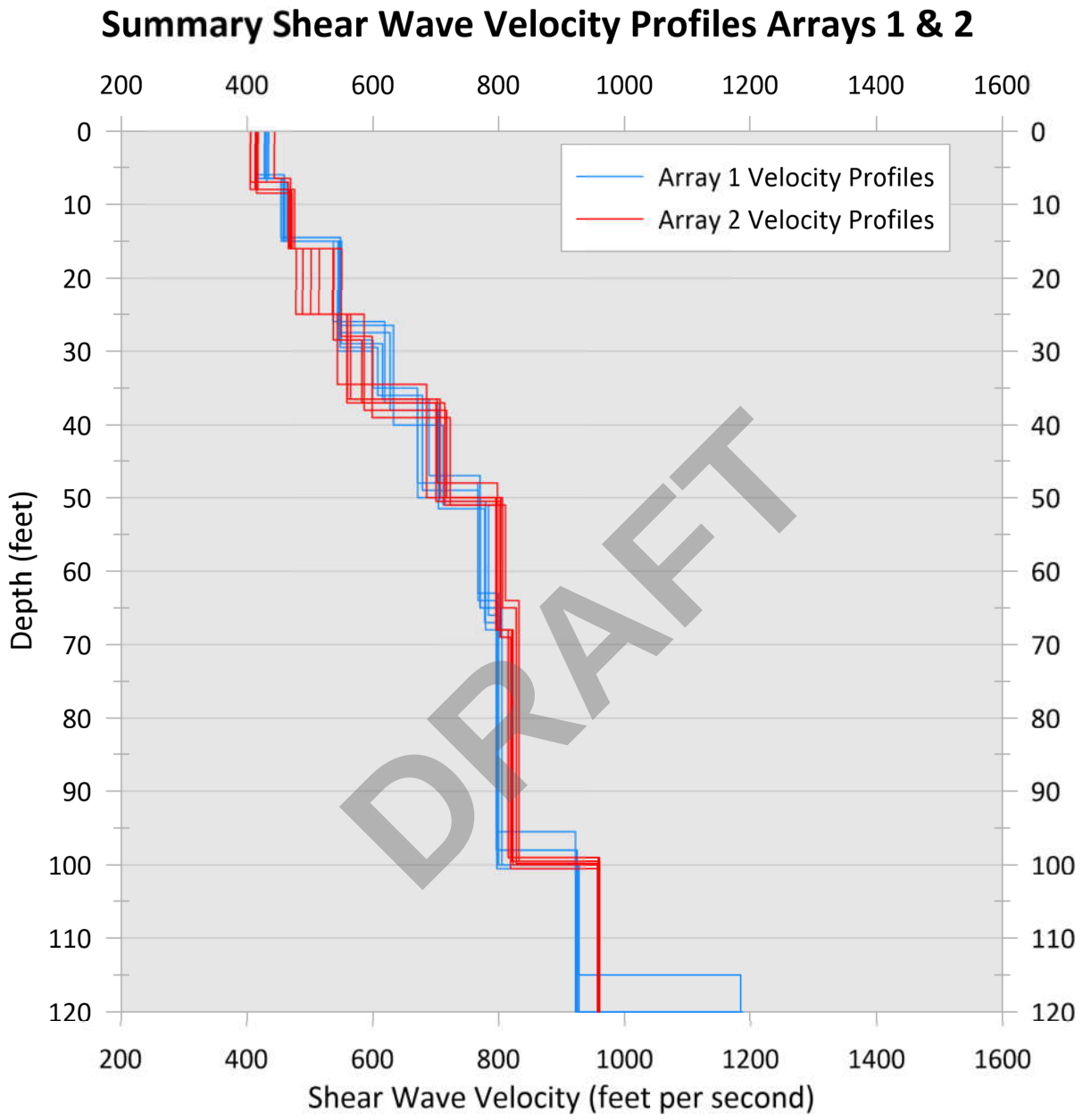
GEOVision geophysical services

Date:	09/30/24
GV Project:	24356
Developed by:	JBS
Drawn by:	JBS
Approved by:	JBS
File Name:	24356_f3.srf

FIGURE 3
ARRAY 2 SHEAR WAVE VELOCITY PLOTS

SHEA MWD CROSSING
SAN JACINTO, CA

PREPARED FOR
KLEINFELDER



GEOVision geophysical services	**FIGURE 4** **ARRAYS 1 & 2 SUMMARY VELOCITY**
Date: 09/27/24 GV Project: 24356 Developed by: JBS Drawn by: JBS Approved by: JBS File Name: 24356_f4.srf	**SHEA MWD CROSSING** **SAN JACINTO, CA** **PREPARED FOR** **KLEINFELDER**

APPENDIX D
LIQUEFACTION ANALYSIS

DRAFT

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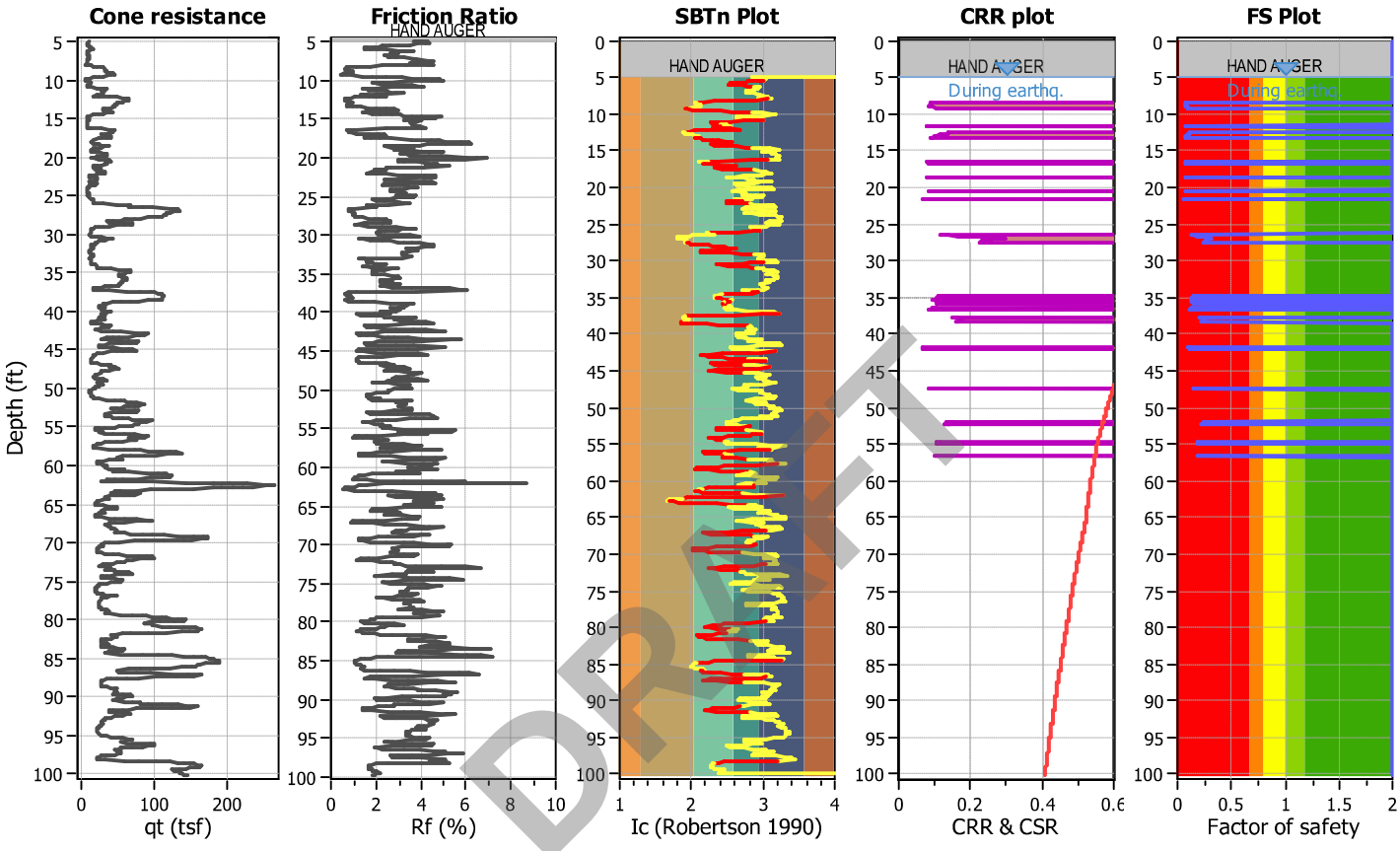
LIQUEFACTION ANALYSIS REPORT

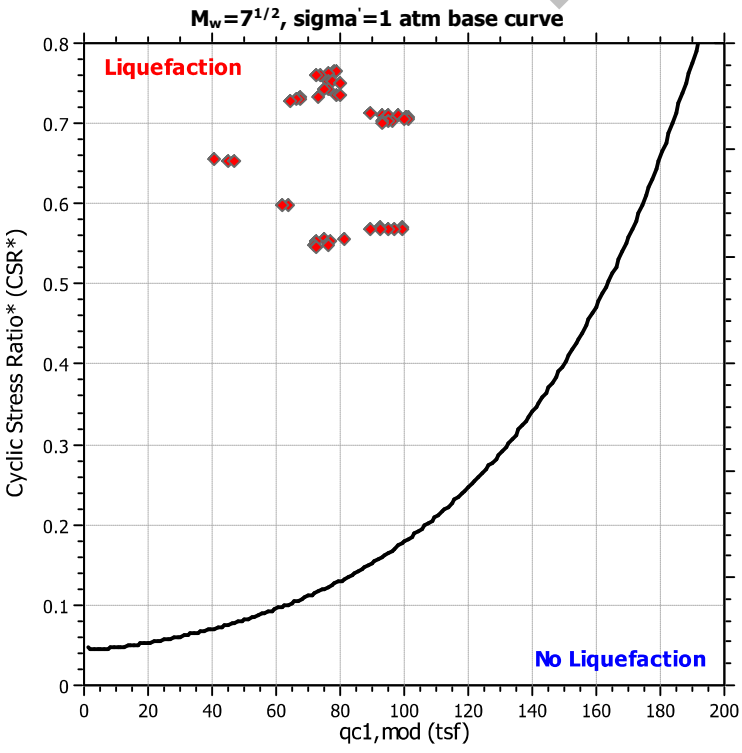
Project title : San Jacinto Line E Storm Drain **Location : San Jacinto, CA**

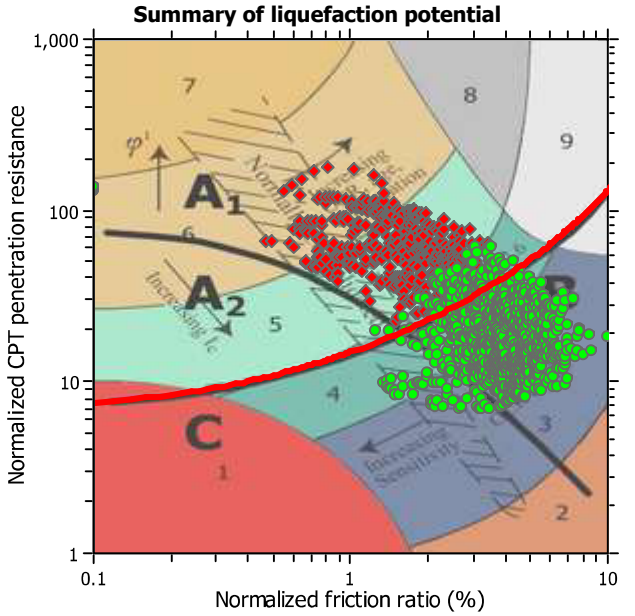
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	16.50 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	5.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	60.00 ft
Earthquake magnitude M_w:	8.10	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

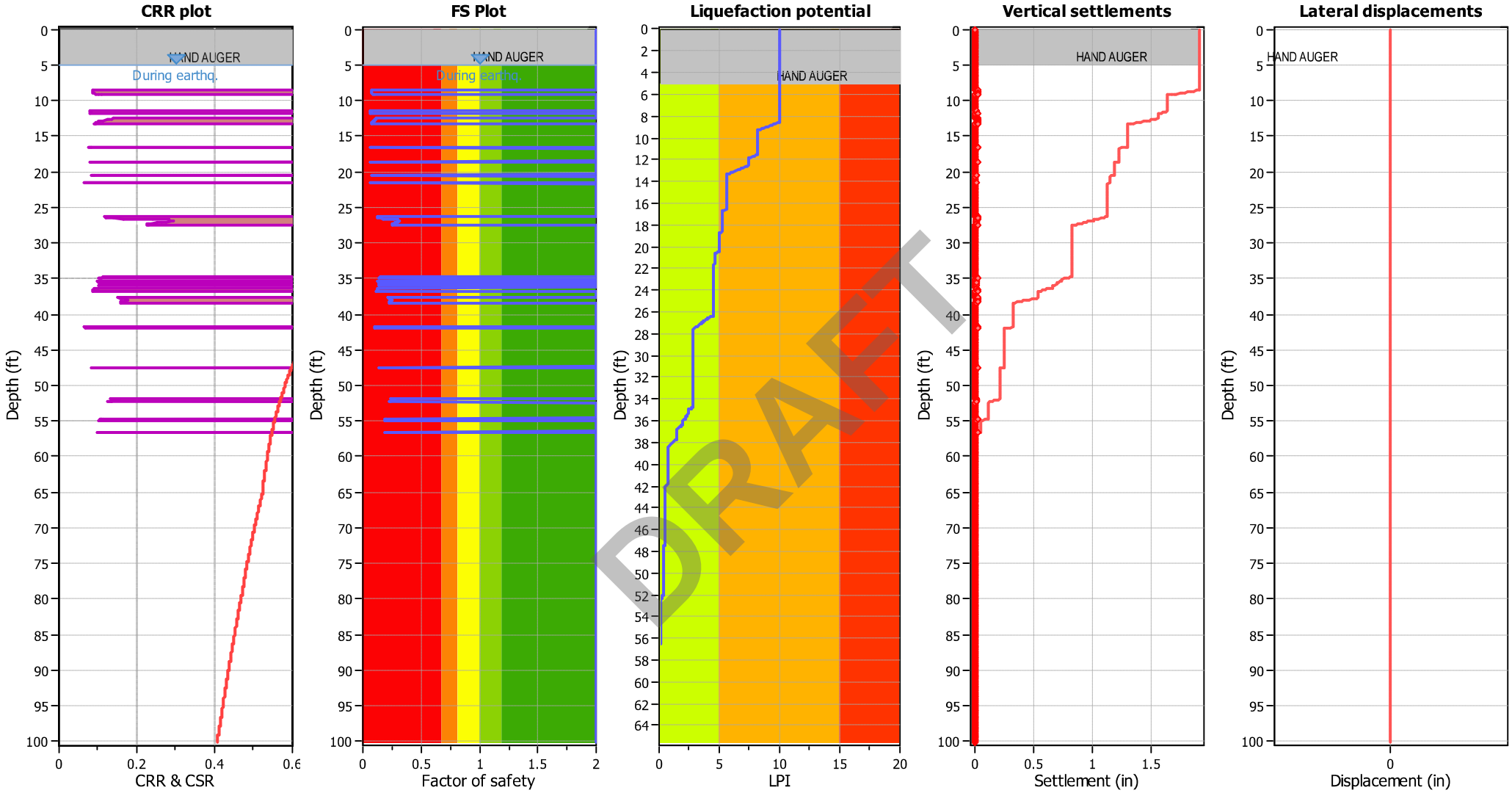






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	5.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	8.10	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	16.50 ft	Fill height:	N/A	Limit depth:	60.00 ft

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

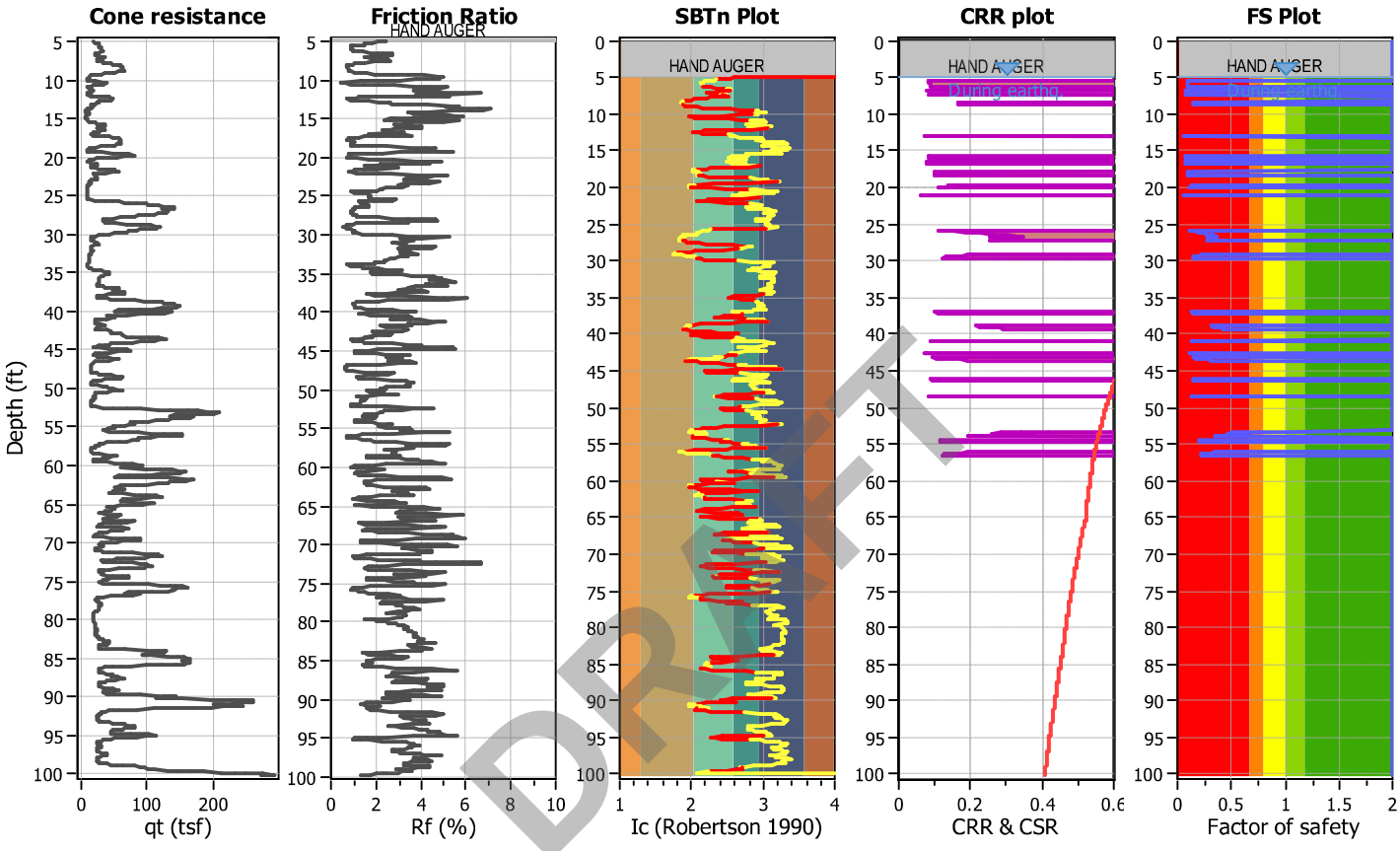
LIQUEFACTION ANALYSIS REPORT

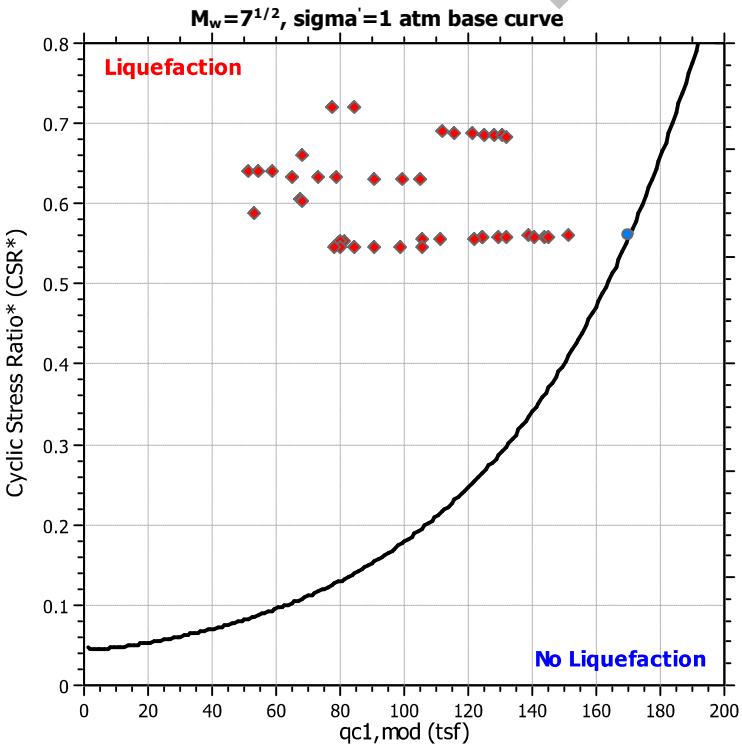
Project title : San Jacinto Line E Storm Drain **Location : San Jacinto, CA**

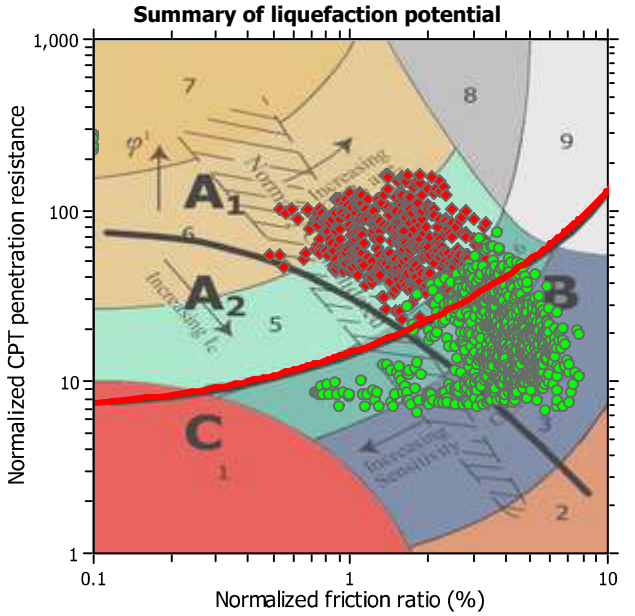
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	16.50 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	5.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	60.00 ft
Earthquake magnitude M_w:	8.10	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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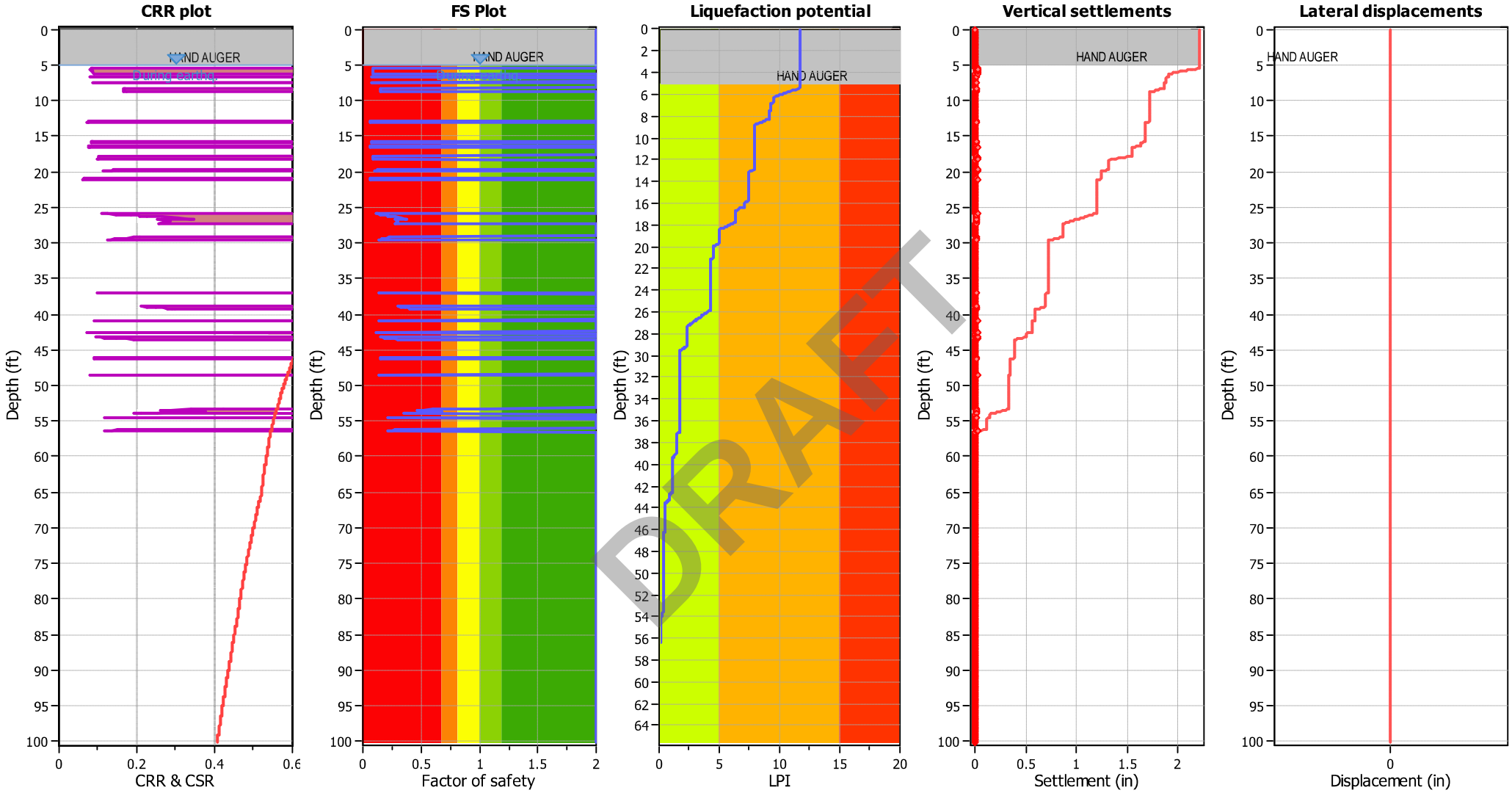
Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	5.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	8.10	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	16.50 ft	Fill height:	N/A	Limit depth:	60.00 ft

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- Almost certain it will liquefy
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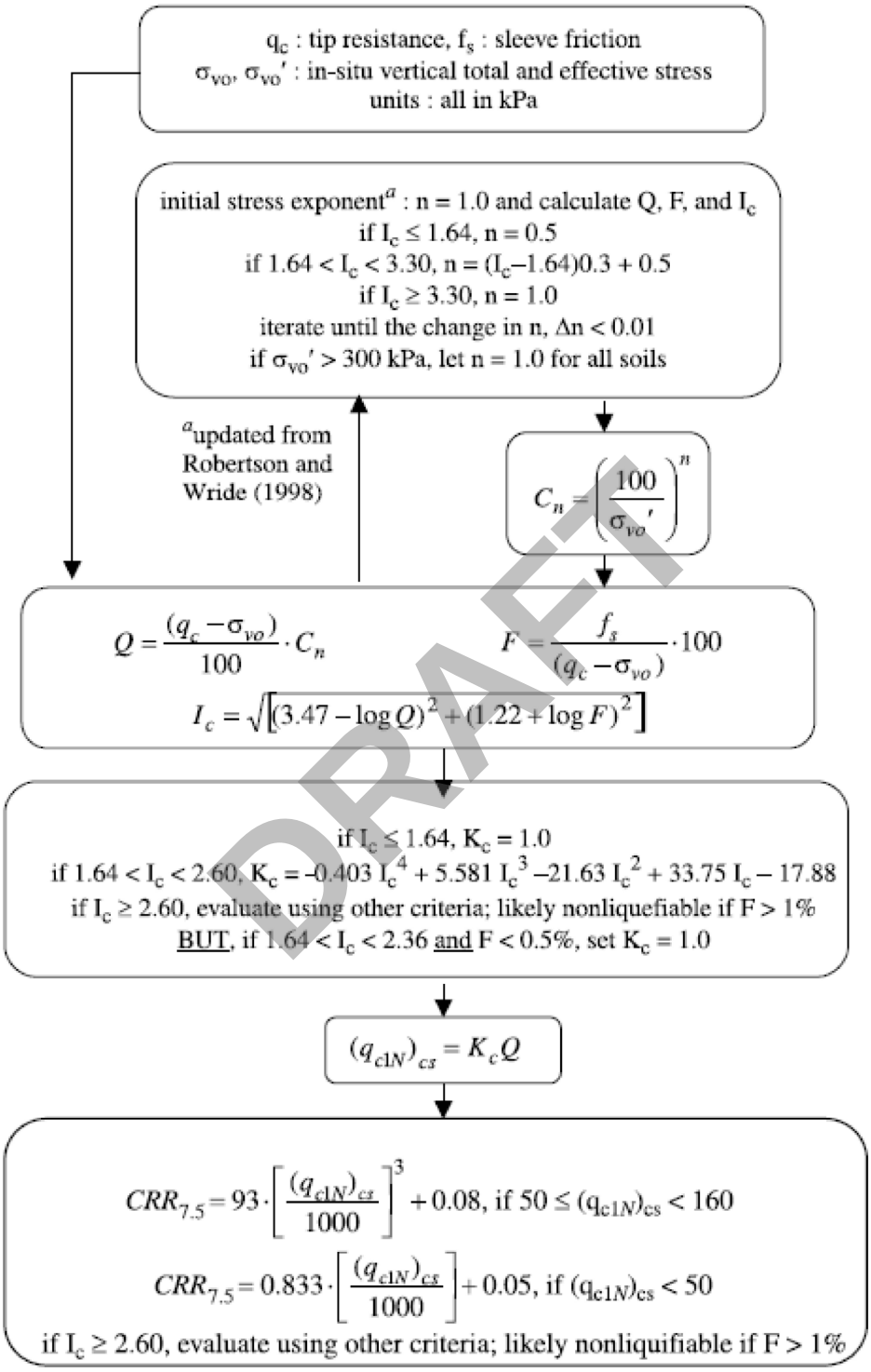
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



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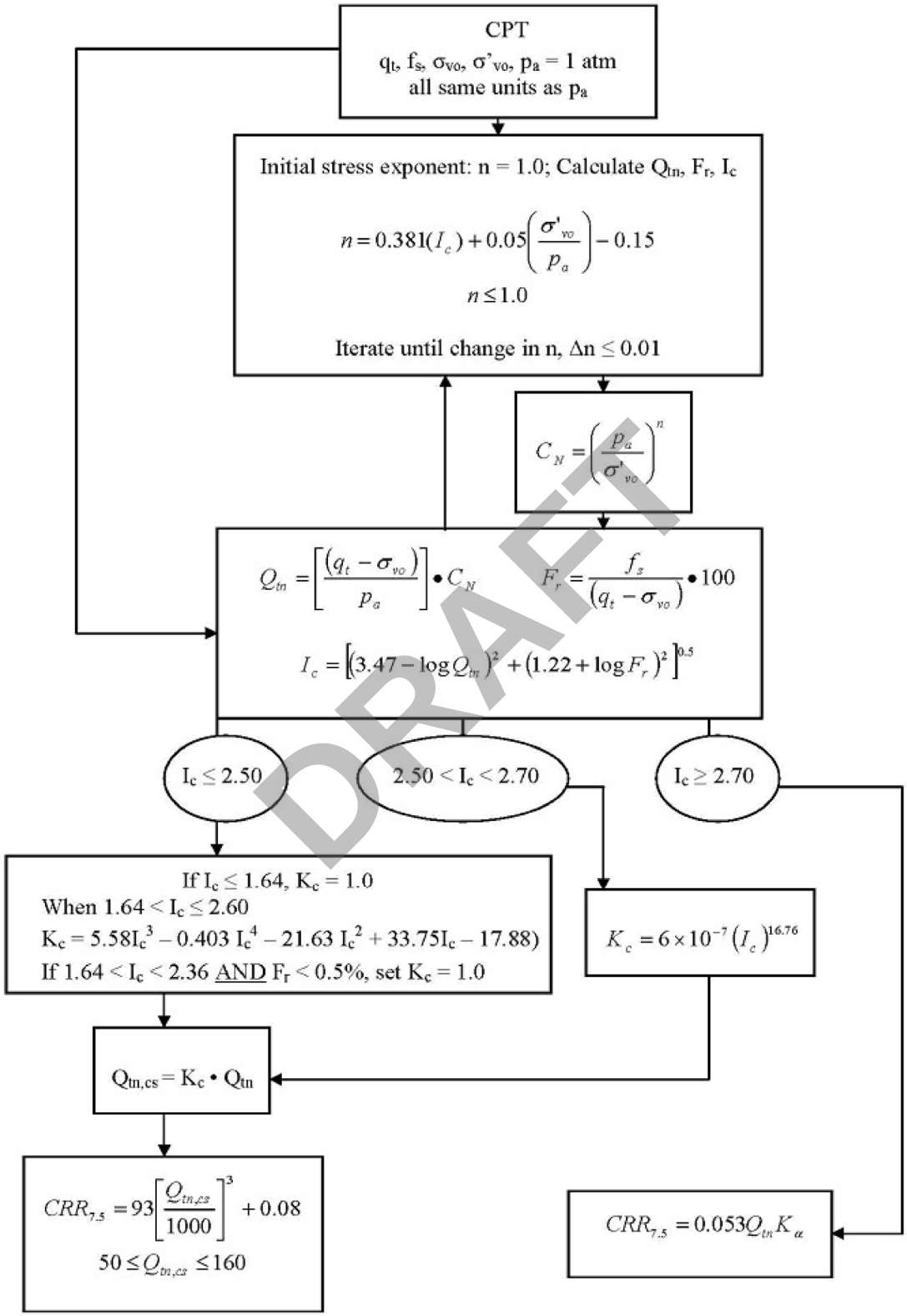
[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



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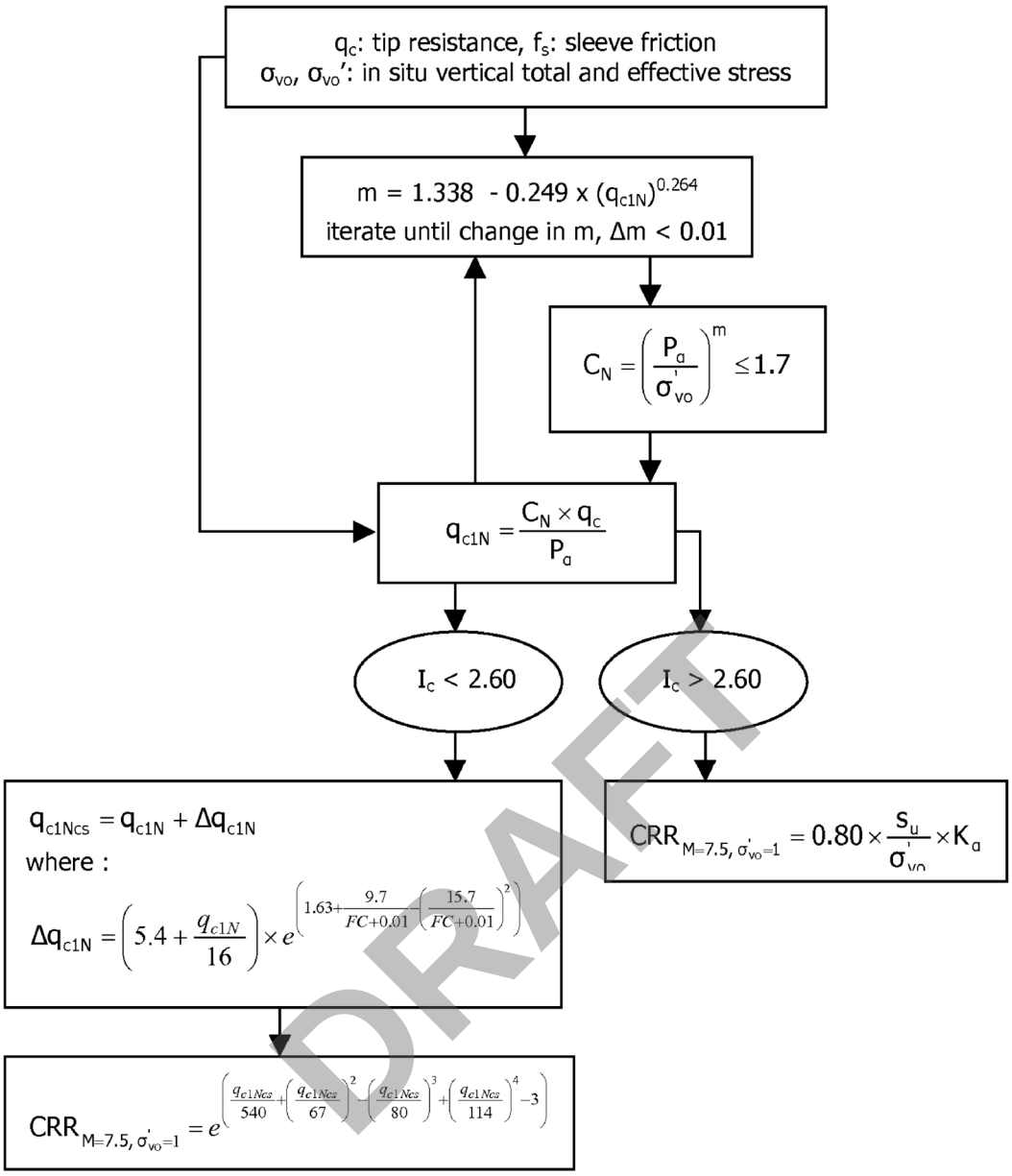
[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



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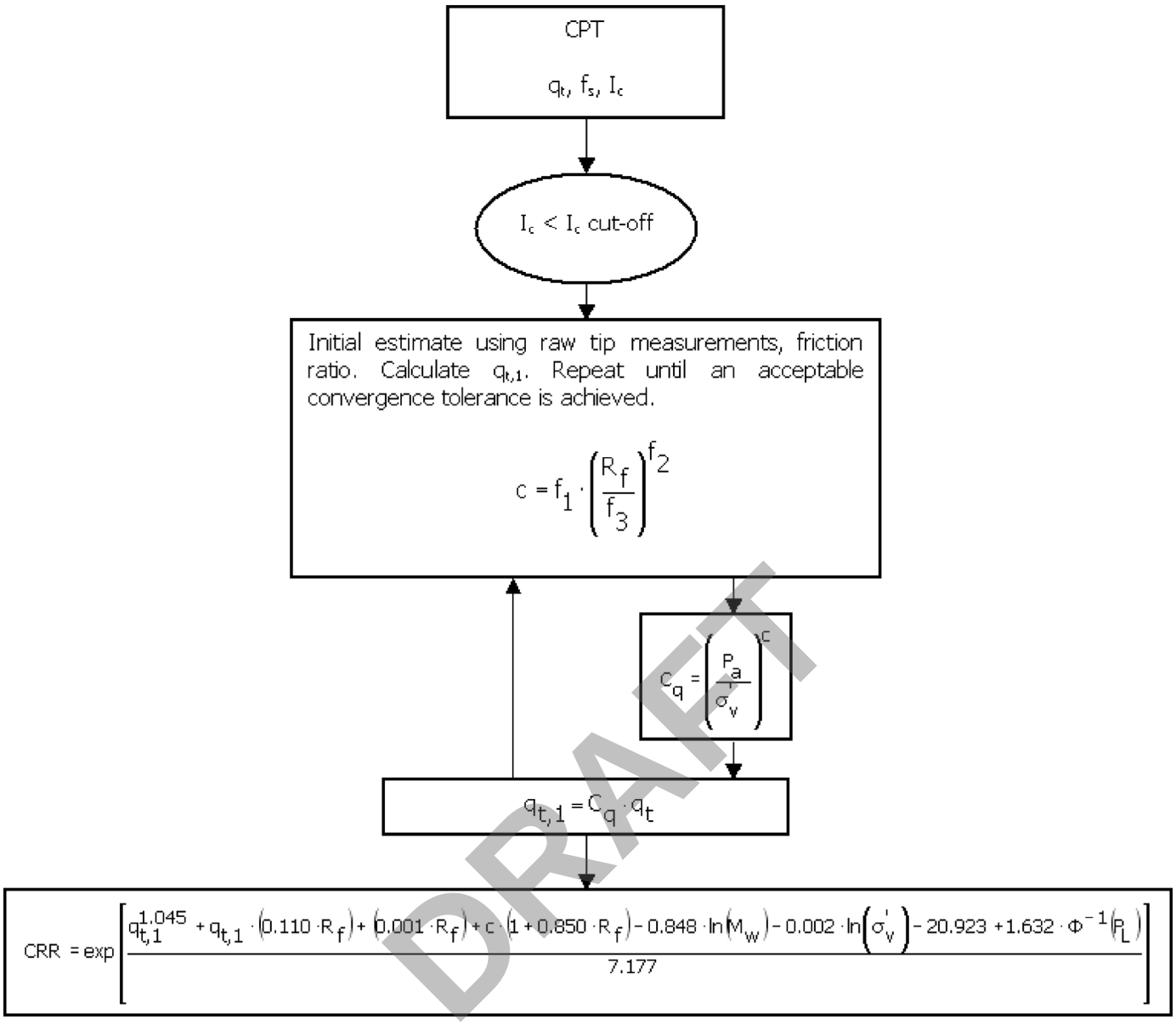
Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



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Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)

$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65 \frac{\sigma_v}{\sigma'_v} \frac{a_{max}}{g} r_d \frac{1}{MSF} \frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z) + \beta(z) \cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126 \sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118 \sin\left(\frac{z}{11.28} + 5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1 + \left(MSF_{max} - 1\right)\left(8.64 \exp\left(\frac{-M}{4}\right) - 1.325\right)$$

$$MSF_{max} = 1.09 + \left(\frac{q_{c1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v *and* σ_v *at start of earthquake shaking*

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113} + \left(\frac{q_{c1Ncs}}{1000}\right)^2 - \left(\frac{q_{c1Ncs}}{140}\right)^3 + \left(\frac{q_{c1Ncs}}{137}\right)^4 - 2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9 + \frac{q_{c1N}}{14.6}\right) \exp\left(1.63 - \frac{9.7}{FC+2} - \left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{Ne} \frac{q_c}{P_a}$$

$$C_{Ne} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

$$I_c = \left[\left(3.47 - \log\left(Q\right)\right)^2 + \left(1.22 + \log\left(F\right)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c - \sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \; with \; 0.5 \le n \le 1.0 \; per \; Robertson \; \& \; Wride \; (1998)$$

$$F = \left(\frac{f_s}{q_c - \sigma_{vc}}\right) \cdot 100\%$$

σ'_v *at time of CPT sounding*

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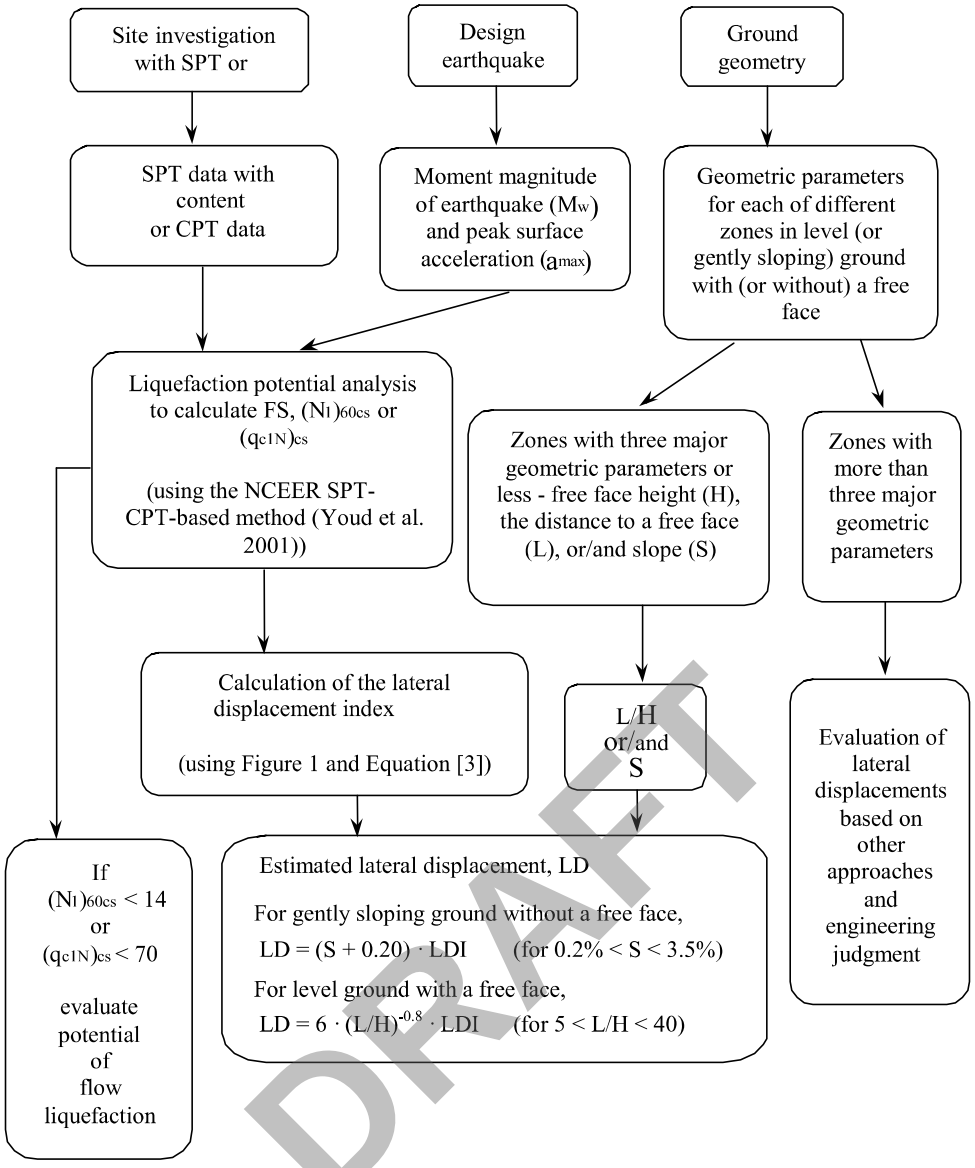
Procedure for the evaluation of liquefaction-induced lateral spreading displacements



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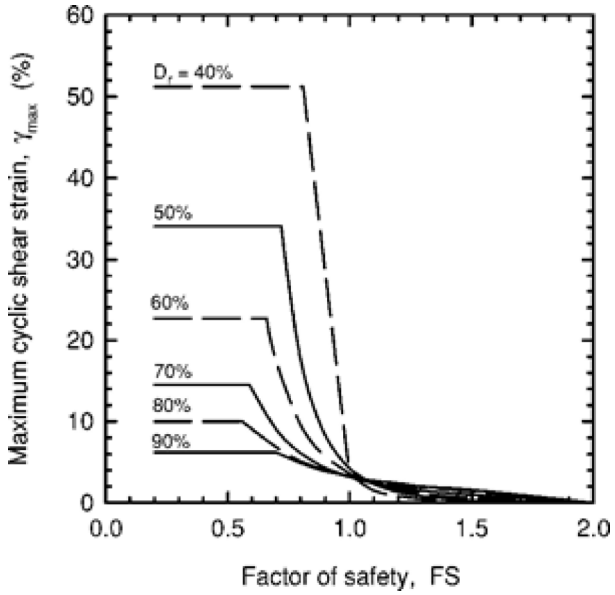
[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



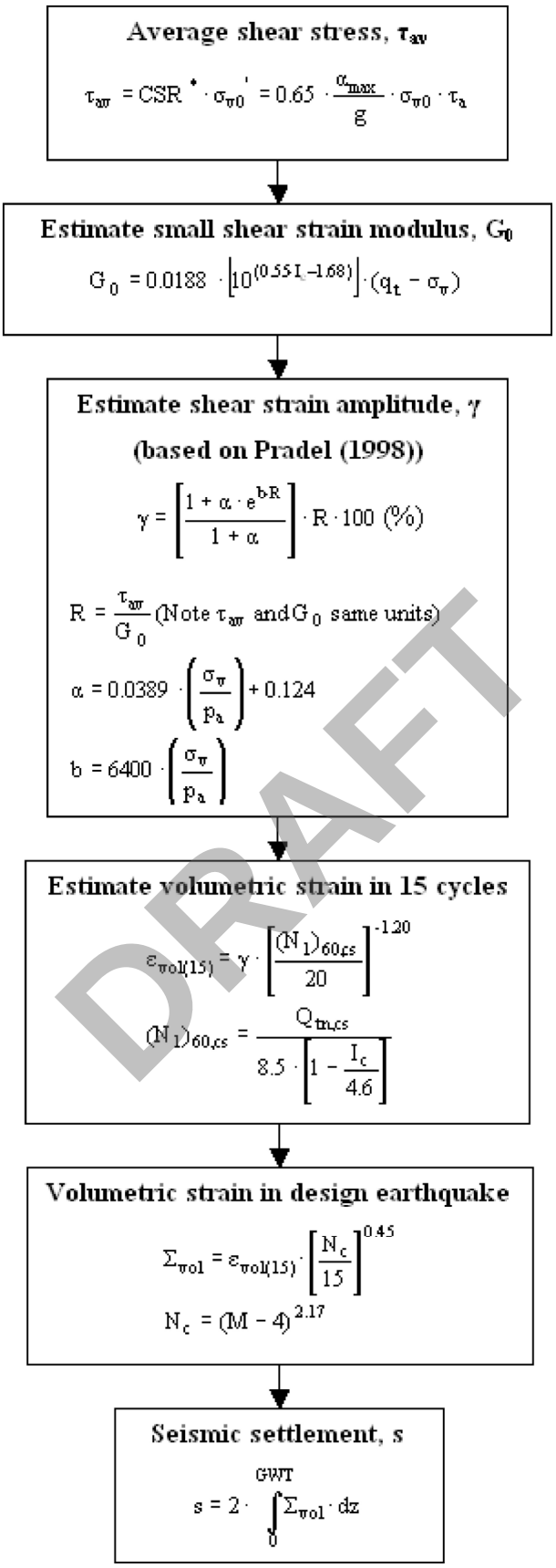
[1] **Figure 1**

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] **Equation [3]**

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



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Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high

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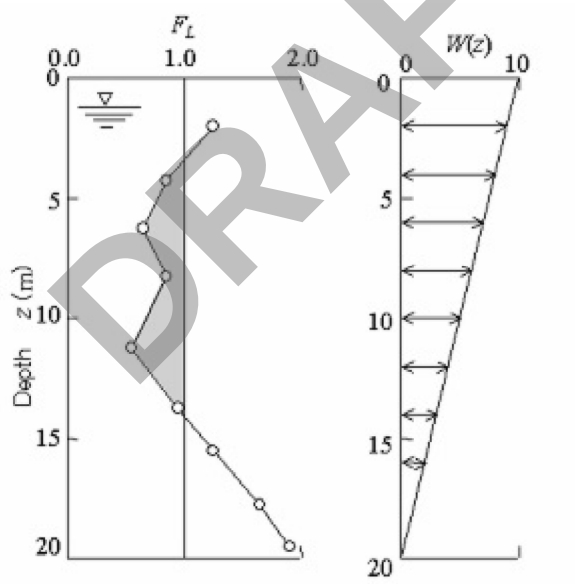

Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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APPENDIX E
NUMERICAL ANALYSIS OF PROPOSED CROSSING

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APPENDIX E:
TECHNICAL MEMORANDUM

February 13, 2025
Kleinfelder Project No.: 24002328.001A

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

Subject: **DRAFT Technical Memorandum: Numerical Analysis of Proposed Crossing**
San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

Dear Mr. Hays:

Kleinfelder is pleased to present this DRAFT Technical Memorandum detailing the 3D Numerical Analysis for the proposed crossing of the San Jacinto Line E Storm Drain over the Metropolitan Water District's (MWD) Casa Loma Barrel No. 1. This memorandum is presented as an appendix to this geotechnical report for the subject project. The geotechnical report discusses Kleinfelder's field investigation, laboratory testing, geologic setting and hazards (including faulting and seismicity), ground water discussion, and engineering conclusions and recommendations for various aspects of the project.

We understand that MWD requirements for induced displacement of the Casa Loma Barrel No. 1 are very stringent at ¼-inch per 100 ft tolerances. Given the importance of the Casa Loma Barrel No. 1 and MWD requirements, Kleinfelder has completed numerical modeling of the subsurface conditions and structures using the 3-D finite element program PLAXIS 3D Version 20.04.00.790 published by Bentley. This memorandum includes the results of our calculations, results, and recommendations regarding the proposed MWD Casa Loma Barrel No. 1 crossing structure and associated embankments for the flood-control structures. Discussed in this memorandum are:

- Project Description
- Preliminary Crossing Structure
- Subsurface Conditions & Soil Parameters
- Soil Constitutive Models
- Structural Components & Other Materials
- Model Construction, Boundary Conditions & Meshing
- Loading Conditions
- Model Staging
- Evaluation of Results
- Conclusions and Recommendations

This memorandum is subject to the limitations contained in our geotechnical report.

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770 First St., Suite 400, San Diego, CA 92101 p | 619.831.4600 f | 619.232.1039

PROJECT DESCRIPTION

We understand the project involves the design of an approximate 3-mile storm drain channel to be constructed in the City of San Jacinto. The new storm drain channel will be constructed near the existing ground surface and the majority of the alignment consists of earth embankment channels and several reinforced concrete box culverts. Storm water flow is generally south to north and in the northern portion of the alignment the proposed channel terminates at a proposed confluence basin.

In the vicinity of the MWD pipeline (Casa Loma Barrel No. 1), the channel transitions to a concrete channel with an approximate 160-ft base width with side slopes inclined about 15 to 17:1 (H:V). At the proposed crossing, the proposed channel and embankment cross-section is approximately 560-ft wide. A preliminary plan including contours of the proposed embankments and channel and a cross-section at the MWD pipeline crossing, dated 10/15/24 were provided by Albert A Webb Associates (Webb), shown in in Attachment A as Figure E1. CAD files and data used to construct these plans were also provided by Webb and utilized to construct surfaces for the 3D modeling.

Due to the low cover present over the MWD pipeline, the proposed construction also includes a bridge structure to facilitate possible equipment and vehicle loads, using a transfer slab on supporting foundations to limit induced displacement and stresses in the MWD pipeline. Two preliminary options were considered for the crossing structure: Option 1 - Shallow Spread Footings, and Option 2 – Deep Foundations consisting of cast-in-drilled hole (CIDH) shafts. Kleinfelder is the structural engineer for this proposed crossing structure and provided the structural loading and was consulted in selection and modeling of the structural elements, as discussed in later sections of this memorandum.

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PRELIMINARY CROSSING STRUCTURE

Two options were evaluated to support the proposed crossing structure: 1) a shallow foundation option and 2) a deep foundation option. Preliminary modeling of both solutions was conducted to evaluate the feasibility of the proposed construction. However, after preliminary modeling showed that the controlling induced displacement of the pipeline was primarily controlled by the embankment fills and flood loading, the pile option did not appear to be necessary for the crossing. In addition, difficult construction conditions, economic feasibility and other considerations have moved the preferred solution towards the shallow foundation option. As such, this memorandum focuses on the shallow foundation model development and results.

Additional discussion of the two options and selection considerations can be found in this geotechnical report and our separate structural report (Kleinfelder, 2024).

SUBSURFACE CONDITIONS & SOIL PARAMETERS

We reviewed the geotechnical borings, laboratory test data, and other geotechnical analyses completed by Kleinfelder for the project for relevant information to define the mechanical behavior, including correlations to stiffness and strength characteristics. The various correlations and select laboratory test results were plotted in depth profiles to evaluate and select the relevant parameters for the proposed soil constitutive models. Plots of the profiles are provided in Figures E2 to E5. Based on elevation data provided by Webb, the approximate average ground surface in the vicinity is about EL. 1449.5 ft. For the purposes of plotting the soil parameters versus elevation, we have used a ground surface of EL. 1450 ft.

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Groundwater levels appear to vary significantly throughout the region with potential for different regimes due to faulting and other geologic conditions, see the discussion in our geotechnical report. In the area of the proposed crossing, the groundwater elevations noted in our borings range from approximately 34.5 ft to 16.5 ft below ground surface. For the purposes of our analyses, we have assumed that the groundwater depth of 16.5 ft or EL. 1433.5 ft.

The soils logged in the borings near the proposed crossing and indicated by the soil behavior type CPT soil behavior type are predominantly silty sand to sandy silt with some interbedded silt and clay soils. Due to the non-plastic to low plasticity and interbedded deposition we expect that the soils will exhibit drained behavior and that if excess pore-pressures are produced they will likely dissipate within the time frame of the expected loading conditions. As such the model behavior of the soils is defined as drained and the effects of excess pore-pressure neglected.

After discussions with MWD, additional geophysical testing was conducted to measure the shear-wave velocity (V_S) and therefore, the stiffness of the subsurface conditions. The report from GEOVision detailing the data collection and processing is Appendix C of this geotechnical report. The average V_S profiles of the two arrays, one conducted north and one south of the MWD pipeline are shown on the soil property figures. The elastic modulus (E) calculated from the shear-wave velocity data using the relationship $G_{max} = \rho V_S^2$, where G_{max} is the maximum or low-shear strain (< 10^{-4} to 10^{-3} %) shear modulus and ρ is the soil mass density and Poisson's ratio derived from the soil strength. Additionally, to adjusted G_{max} from low shear strains (< 10^{-4} to 10^{-3} %) to strain magnitudes expected in the modeling (~0.1 to 1%), the V_S was divided by a factor of either 2 or 3 to calculate an implied G and subsequent E moduli and provide a reference for the values used in the constitutive models. Plots of these implied elastic modulus are shown on Figures E4a and E4b.

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SOIL CONSTITUTIVE MODELS

The constitutive models define the stress-strain behavior of the soil. The primary characteristics considered when selecting the soil constitutive model, included the ability of the constitutive model to:

1. provide a reasonable fit to the expected stress-strain behavior.
2. capture the depth/stress dependent stiffness characteristics evidenced by the in-situ and V_S data.
3. provide both unload and reload moduli.

Within PLAXIS, there are several constitutive models available. However, two were considered as part of this study: 1) the linear-elastic perfectly plastic (Mohr-Coulomb) model and 2) the hardening soil (Hardening) model. Each model requires several inputs that define the behavior, with the primary being the soil strength parameters (c = cohesion, ϕ = friction angle) and stiffness parameters (varies dependent on the model). Both models were considered for use in the 3D model.

The Mohr-Coulomb model presents the simpler model stiffness inputs with the stiffness behavior defined by the elastic modulus (E) and Poisson's Ratio (ν). As the elastic modulus does change with shear strain, care must be taken in selected this parameter for the appropriate stress/strain levels expected in the modeling. An option to vary the stiffness with depth/elevation is provided in PLAXIS and was utilized to better match the observed variation in stiffness with depth. One drawback of the Mohr-Coulomb model as implemented in PLAXIS, is that the definition of an unload/reload modulus is not allowed. The Mohr-Coulomb was utilized for the embankment fills, geofoam, and concrete volumes as discussed further below.

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The Hardening model is also a Mohr-Coulomb model, in that the strength behavior is governed by Mohr-Coulomb strength envelope. However, the model is different in that it incorporates hardening plasticity (e.g. decreasing stiffness with plastic straining) (Shanz 1998). This allows for the modeling of non-linear stress-strain behavior that is observed in soil laboratory testing, often called "hyperbolic soil" behavior and implemented by Duncan and Chang (1970). Shanz et. al. (1998 and 1999) built on the Duncan and Chang (1970) framework to make the required input parameters more easily defined and related to conventional geotechnical engineering properties, as well as more technical aspects that we would refer the reader to either the PLAXIS, FLAC, or source papers for more information. Specific to this study, the hardening model allows for a stress dependent stiffness definition and the non-linear hyperbolic stress-strain behavior observed in the laboratory testing. The implementation of this model also allows for the definition of an unload/reload modulus making the model well suited for excavation analyses. The Hardening model is used for the naturally deposited Sandy SILT to Silty SAND soils observed in the geotechnical investigation.

As a summary of the similarities and differences between the Mohr-Coulomb and Hardening model:

Model Aspect	Mohr-Coulomb	Hardening
Strength Envelope	Mohr-Coulomb	Mohr-Coulomb
Stiffness Dependency	Yes, through depth.	Yes, through stress.
Stress-Strain Behavior	Perfectly Elastic, Perfectly Plastic	Hyperbolic, Perfectly Plastic
Unload/Reload Modulus	No	Yes

Table E1 shows the input various input parameters selected for the models. As the goal of this study is to evaluate the induced displacements in the MWD pipeline, particular care was taken when selecting the various input parameters related to the stiffness of the soil models. Figure E6 is included to help show how the Hardening model input stiffness parameters relate to the stress-strain behavior. The stress-dependent E_{50} stiffness computed per Eq. 151 of the PLAXIS manual is plotted on Figure E4a. The initial modulus (E_i) shown on Figure E6 is also plotted on Figure E4a for comparison purposes computation per Eq. 136 of the PLAXIS manual. The stress-dependent elastic unload/reload modulus (E_{ur}) is likewise computed per Eq. 139 of the PLAXIS manual and plotted on Figure E4b. For comparison with the V_S data, the E_{50} represents an approximate dividing factor of 3.5 to the measured V_S data. Likewise, the E_i and E_{ur} for comparison are an approximate dividing factor of 2.65 to the measured V_S data.

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Table E1: Soil Constitutive Model Parameters for Silty SAND to Sandy SILT Soils

Parameter	Description	Hardening
E_{50}^{ref} (ksf)	Reference Secant Elastic Modulus at 50% of Strength Failure	180
E_{oed}^{ref} (ksf)	Reference Oedometer Modulus at 50% of Strength Failure	200
E_{ur}^{ref} (ksf)	Reference Unload/Reload Modulus at 50% of Strength Failure	600
m	Power for Stress Dependency of Stiffness	0.8
P_{ref} (psf)	Reference Stress for Stiffness (Used Atmospheric Pressure)	2116
K_0^{nc}	At-Rest Earth Pressure Coefficient for Normal Consolidation (Based on the Design Friction Angle)	0.5
R_f	Failure Ratio (Ratio of q_a / q_f in Figure E6)	0.9
v_{ur}	Poisson's Ratio for Unload/Reload Modulus	0.2
v	Poisson's Ratio (Based on the Design Friction Angle)	0.33
γ_{unsat} (pcf)	Dry Unit Weight	85

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Parameter	Description	Hardening
γ_{sat} (pcf)	Saturated Unit Weight	115
c (psf)	Cohesion	50
ϕ (deg)	Friction Angle	30
ψ (deg)	Dilatancy Angle	0
σ_t (psf)	Tensile Strength	0

Laboratory testing conducted on select soil samples were digitized and imported into PLAXIS for use in the soil test module, which simulates common types of laboratory tests in the finite element framework, to assist with the calibration of the soil constitutive model parameters and stress-strain behavior. Figures E7 to E9 show the results of the laboratory direct simple shear tests with the Hardening model. For reference, the equivalent elastic modulus calculated from the V_S /2 data is included on the figures.

The final selected parameters were selected to present a reasonable match to the shape and behavior of the laboratory testing, but the soil stiffnesses relied upon the correlations and Vs measurements as the soil samples used for laboratory testing were taken from thick-walled SPT samplers and were likely subjected to sample disturbance than would particularly affect the small stiffness behavior during laboratory testing. Otherwise, the soil parameters selected present a reasonable match to the laboratory testing based on our professional experience and judgment.

STRUCTURAL COMPONENTS & OTHER MATERIALS

The structural components modeled included the MWD pipeline and proposed crossing structure shallow footings, both of which are concrete. In discussion with MWD and Kleinfelder's structural engineering team, we understand that the compressive strength of the concrete to be 3000 psi and 3600 psi for each component, respectively. The compressive strengths are not directly used as inputs to the selected linear-elastic constitutive models and instead used to calculate the elastic modulus (E_C) following Eq. 19.2.2.1.b of ACI 318-19. To account for possible cracking, a 50% reduction was applied to the calculated E_C. Other necessary inputs include, Poisson's ratio was taken as 0.2, and unit weight taken as 150 pcf. Sensitivity analyses were performed for the concrete constitutive model parameters and no significant effect on the model results were found, likely due to the much larger relative stiffness of the concrete compared to the soils.

The thickness and dimensions of the MWD pipeline and proposed concrete footings were provided by information from Webb and Kleinfelder's structural team. The preliminary cross section of the MWD pipe and proposed shallow foundation concept used to construction the PLAXIS model are shown in Figure E10. The MWD pipeline was modeled as "plate" or shell elements with virtual thickness of 1 ft and necessary simplification to a circular section was made to model the pipeline. The MWD pipeline invert was placed at EL. 1432.85. The concrete footings were modeled using volume elements like the soil materials. The modeling including 1.5H:1V excavation extents anticipated during construction to install the footings. We understand that some minor revisions to the footing shape and possible excavation extents (i.e. using soil forming to reduce the excavation) will be incorporated into the final design to facilitate construction formwork and reduce the need for lateral bracing that may impact the MWD pipeline. Details and discussion of the structural analysis can be found in Kleinfelder's structural report (Kleinfelder, 2024). The proposed changes have been discussed with the project team and are not expected to impact the results of the PLAXIS modeling as 1) only small changes are expected to the footing

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loads and footing concrete volumes, and 2) the model results controlling the displacement are drive by the embankment fills and the 100-yr flood loads (discussed further in later sections).

Interface elements were included in the model to control the normal and shear behavior between the concrete footing and the adjacent soils, which allows for non-rigid connections between these elements. The interface parameters automatically derived based on the adjacent material with a manual input factor to reduce the shear strength of the soil, which should be determined based on the interfacing materials. Interface friction angles for fine sandy silt (non-plastic silt) presented in the NAVFAC (1982a) range from 17 to 19 degrees. Using an interface friction angle of 18 degrees and 30 degrees soil friction angle, this results in a reduction factor from the soil strength to soil-concrete interface strength of 0.56. This factor was applied for all soil materials.

In addition to the structural elements, the modeling utilized volume elements to represent the various embankment fills and other materials proposed materials needed to maintain the induced displacement criterion for the MWD pipeline. These consist of geofoam proposed to be placed below the crossing structure slab, lightweight flowable fill, consisting of lightweight cellular concrete, proposed as the primary fill material within the specified distance from the MWD pipeline alignment, and structural fill, consisting of soil material, for the remaining areas outside the crossing and assumed to consist of properly placed and compaction soils similar to the on-site soils. The Mohr-Coulomb constitutive model was selected for these materials as 1) significant unload/reload behavior is not expected (e.g. excavations) in these materials and 2) in-situ and laboratory testing was not available to confirm the stress-dependent behavior, nor that non-linear behavior exhibited by the Hardening model would be appropriate for these materials, and 3) the primary purpose of the fill volumes is to more accurately represent the added weight and resultant stresses on the model.

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The selected input parameters from available literature are presented in Table E2.

Table E2: Fill Material Constitutive Model Parameters

Parameter	Description	Structural Fill (Soil Material)	Lightweight Flowable Fill (LCC)[1]	EPS Geofoam (Underslab Fill)[2]
E (ksf)	Elastic Modulus	500	2140	216
v	Poisson's Ratio (Based on the Design Friction Angle)	0.33	0.3	0.15
γ_{unsat} (pcf)	Dry Unit Weight	127.5	30	2.4
γ_{sat} (pcf)	Saturated Unit Weight	127.5	30	2.4
c (psf)	Cohesion	50	5	1080
ϕ (deg)	Friction Angle	30	34	0
ψ (deg)	Dilatancy Angle	0		
σ_t (psf)	Tensile Strength	0		

1. LCC = Lightweight Cellular Concrete, parameters estimated from Legatski (1994) and Tiwari, et. al. (2017)
2. Parameters taken as EPS-39 Geofoam.

MODEL CONSTRUCTION, BOUNDARY CONDITIONS & MESHING

Model boundary conditions for static analyses were not altered from the default PLAXIS conditions, which consist of fixed displacements in all directions for the bottom of the model, fixed displacements normal to the lateral extents, and the surface of the model is free in all directions. The horizontal boundaries were

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set such that along the pipeline (the approximate model x-direction) the model extended about 55 ft beyond the extents of the proposed fills. Roughly perpendicular to the pipeline (the approximate model y-direction) the model was extended to about 70 ft from the closet distance to the centerline of the pipe alignment. Based on our review of the induced displacements and stresses due to the fills and loads, the model boundary conditions appear to be at a sufficient distance to have not significantly influenced the model results in the vicinity of the pipeline (the area of interest).

Geometric objects were constructed in PLAXIS to represent the embankment fills, pipeline, footings, and excavations. The embankment point cloud data was provided in AutoCAD files provided by Webb. The point cloud data was imported using the related feature in PLAXIS, which discretizes the data into a triangular irregular network (TIN) to provide an elevation surface. This surface was then laid on the average approximate ground surface within the model boundaries to generate the fill volumes for the embankments and channel alignment. The use of the average approximate ground surface was a necessary simplification because of issues with the merging of the existing and proposed surfaces caused by floating point precision of intersecting planes. Based on our review of the existing elevation data, we expect that this necessary simplification should have overall minor impact on the results of the modeling as the existing surface was relatively flat, particularly in the area around the pipeline, and by using the average, the relative ± elevation differences should be roughly offsetting. Other geometric objects were constructed in the model using the simpler polygonal tools in PLAXIS to match the proposed structural footing and excavation dimensions and elevations and existing pipeline alignment.

Meshing of the model was completed using PLAXIS's internal meshing routines and control parameters prescribed such that elements around areas of interest (e.g. the footings, excavations, and pipeline), were approximately 2 ft in size. Elements away from the areas of interest were gradually increased in size by the PLAXIS routines to allow for more efficient computations. Figure E11 shows a plan view of the model mesh. The meshed geometry was evaluated to ensure the meshing routines produced reasonably sized and shaped elements. Some small and elongated elements were generated but were deemed acceptable as they were generally located towards the model boundaries and edges of the fills and not expected to significantly impact the results.

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LOADING CONDITIONS

Several loading conditions were considered during our evaluation and were provided by Kleinfelder's structural team, including:

- Water Load in the Pipe (Initializing Condition)
- Dead Loads of the Bridge Slab
- Water Load on the Bridge Slab & Modeled Channel
- Live Loads of Equipment on the Bridge Slab

We understand from discussion with MWD that this portion of the pipeline alignment the water inside the pipe is gravity flowing. Therefore, the water load was included in the model to better reflect the actual conditions. The water load was incorporated as a volume material with the parameters shown in Table E3 to better represent the weight and stress distribution to the model. An interface was included between the pipe and the elements to eliminate rigid connections between the water and pipe elements.

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Table E3: Water Constitutive Model Parameters

Parameter	Description	Water
K (ksf)	Bulk Modulus	43,170
v	Poisson's Ratio (Based on the Design Friction Angle)	0.499
γ (pcf)	Unit Weight	62.4
Su (psf)	Shear Strength[1]	5
σ_t (psf)	Tensile Strength	0

1. A minimal amount of shear strength was given to the water material to allow the model to converge.

More detailed discussion of the loads applied by the proposed crossing structure can be found in Kleinfelder's structural report (Kleinfelder, 2024). We note that minor differences in the applied slab dead load (~3%) shown in our structural report due to the slight changes in the footing geometry, extending the crossing slab. However, we don't anticipate that these will present significant changes to the PLAXIS model results as the worst-case displacement conditions are controlled by the embankment placement and 100-yr flood loading. The 100-yr flood elevation has not changed and due to the inclusion of the surface load, the overall model loading in this condition would not change. Table E4 shows the loading conditions applied to the PLAXIS model. Based on the rough profile dimensions and elevations show on Figure E1, we anticipate that the anticipated 100-yr flood load and embankment loads using light weight fill will add stresses at the existing ground surface in the range 200 to 300 psf. These loading conditions were incorporated into our model staging discussed further below.

Table E4: Footing Loads from Transfer Slab

Loading Condition	Description	Applied Load
Dead	Dead Load of Slab	2.65 k/ft
Water[1]	100-yr Flood Load on Slab	3.5 k/ft
Live Load	Excavator Transverse[2,3]	5.54 k/ft
	Excavator Longitudinal[2,4]	36.47 k

1. The 100-yr flood load was also included as surface load applied across the proposed channel formed by the embankments. The surface load utilized PLAXIS features to apply a 62.4 pcf vertical load increment from the reference elevation of 1453.47 ft (the provided 100-yr flood elevation) at the MWD alignment.
2. When the live loads were applied, they were only applied to the upstream crossing structure footing.
3. Transverse load was applied of a 13.17 ft length and placed in three locations along the bridge (left side, centered, and right side), as provided by the structural team.
4. Longitudinal load was applied as a point load at three locations along the bridge (left side, centered, and right side), as provided by the structural team.

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MODEL STAGING

Once the constitutive models for the various components were defined and the geometries created, the model staging and sequencing were developed in PLAXIS. Construction staging was utilized in PLAXIS to initiate existing stresses and strains within the model, including the existing MWD pipeline. This was followed by staging of excavations, footing sequencing, backfilling, and various loading conditions. The construction staging followed these steps:

- Step 0: Initial Phase - This step is used to initiate stresses into the model and displacements/strains are reset following this step.
    - 0.a: PLAXIS K_0 Routine & Gravity Loading

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    - 0.b: Activation of MWD Pipe – the MWD pipe is "wished" into place and external interface is activated.
    - 0.c: Add Water Inside the MWD Pipe – the water is "wished" into place and interface activated.
- Step 1: Excavate & Place Footings – This represents construction sequencing used to limit the uplift of the MWD pipe. The crossing structure is divided into 1/3 sections and excavation and placing of the footings is done on both side of the pipe simultaneously to limit lateral displacements of the MWD pipe. See the conclusions and recommendations section for more discussion.
    - 1.a: Excavate Center 1/3
    - 1.b: Construct Center 1/3 Footing
    - 1.c: Excavate Left 1/3
    - 1.d: Construct Left 1/3 Footing
    - 1.e: Excavate Right 1/3
    - 1.f: Construct Right 1/3 Footing
- Step 2: Backfill Footings – This represents the backfilling of the constructed footings. The crossing structure will be backfilled with medium weight flowable fill/LCC to limit induced vibrations that may impact the MWD pipeline. The structural design of the backfill requires that the LCC has similar unit weight and strengths to the existing soils for overturning and confinement. Therefore, the model sequencing backfills with the existing soil.
- Step 3: Place Channel Embankments – This represents the fill placement to construct the channel embankments.
- Step 4: Apply Dead Loads from Slab – This represents the construction of the transfer slab.
- Step 5: Apply Various Loads – This represents the various loading conditions applied to the footings by the loads on the transfer slab and the 100-yr flood load. We note that these loading conditions are not expected to occur at the same time and are therefore branches in the analysis tree.
    - 5.a: 100-yr Flood Load
        - 5.a.1: Remove 100-yr Flood Load
    - 5.b: Transverse Excavator on Left
    - 5.c: Transverse Excavator on Center
    - 5.d: Transverse Excavator on Right
    - 5.e: Longitudinal Excavator on Left
    - 5.f: Longitudinal Excavator on Center
    - 5.g: Longitudinal Excavator on Right

Figures E12 to E30 show a view of the model for each of these steps.

EVALUATION OF RESULTS

Based on discussions with MWD, we understand that the following results are desired to evaluate the impact of the proposed construction on the MWD pipeline:

- Vertical Displacement Profiles
- Lateral Displacements
- Longitudinal Stress Profiles (Extreme Fiber)
- Hoop Stress Profiles (Extreme Fiber)

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The requested results are presented for select load cases in the figures outlined in Table E5.

Table E5: Summary of Profile Results

Modeling Stage	Results Shown	Figure #
Step 1: Full Length Excavation	Vertical Displacement (Crown & Invert)	E31
Step 1a-f: Staged Excavations	Vertical Displacement (Invert Comparison)	E32
	Vertical Displacement (Crown & Invert at Each Stage)	E33 to E38
	Lateral Displacement (Spring Lines at Each Stage)	E39
Step 3: Place Channel Embankments	Vertical Displacement – Full Weight vs Light Weight Comparison (Crown & Invert)	E40
	Lateral Displacement (Spring Lines)	E41
Step 4-5a.1: 100-yr Flood Loading	Vertical Displacement (Crown Comparison)	E42
	Vertical Displacement (Crown & Invert)	E43 to E45
	Lateral Displacement (Spring Lines)	E46
Step 5.b to 5.g: Various Equipment Load Cases	Vertical Displacement (Crown Comparison)	E47
PLAXIS Pipe Axis and Stress Derivation	N/A	E48
Step 1.e, 3, 5.a	Longitudinal Stress (Crown)	E49 to E51
	Longitudinal Stress (Invert)	E52 to E54
	Hoop Stress (Crown)	E55 to E57
	Hoop Stress (Invert)	E58 to E60
	Hoop Stress (Downstream Spring Line)	E61 to E63
	Hoop Stress (Upstream Spring Line)	E64 to E66

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Excavations for Footings

Initial construction sequencing considered the potential that footing excavations may be made on one side of the pipe then the other. Modeling results of this scenario showed that the lateral induced displacement from excavating on one side then the other exceeded the allowed tolerances before combining with the potential uplift. Therefore, during conversations with the design team and contractors the limitation of simultaneous excavation was discussed and determined that simultaneous excavation would be possible and not overly burdensome to the construction effort and additional refinements and results for the "unbalance excavation" scenario are not included.

Figure E31 shows the vertical displacement results for the full-length excavation. The results indicate that the Hardening model exceeds the ¼ inch per 100-ft differential tolerance. As such, additional consideration was given to sequencing the excavation and construction of the footing into 1/3 lengths where a portion of the footing is excavated then constructed before additional excavation is completed. Figure E32 shows the results of the 1/3-staging sequence for the pipe invert, which shows the higher vertical displacements. The full-length excavation is shown for reference.

Figures E33 to E38 show the results of the vertical displacement results for the staged excavations (Step 1a to 1f, respectively). The results are shown for the crown and invert to evaluate the potential squashing of the pipe. Again, the full-length excavation is shown for reference. Vertical displacement results after backfilling of the footing show that the uplift of the pipe is reversed and the displacements nearly return to zero, showing some pipe settlement due to the added footing weight.

Figure E39 shows the resulting lateral displacement profiles at the pipe spring lines for each construction sequencing step. The results from the full-length excavation are shown for reference. We note that only minor changes were observed between the excavation and footing placement, so many of the profiles are overlapped. Maximum estimated lateral displacements are on the order of 0.07 inches.

Full Weight vs Light Weight Fill

Initial considerations for the proposed embankments revolved around the embankment material. Figure E40 shows the vertical displacement results using full weight fill, consisting of soil structural fill as defined in our geotechnical report, for the full extents of the model domain at both the pipe invert and crown. Maximum predicted displacements are on the order of 5/8 to 3/4 inches with differentials over a 100 ft span of up to about 5/8 inch, which exceed the acceptable tolerances. Therefore, lightweight flowable fill will be required in the proximity of the MWD pipeline.

Based on the induced displacements of the full weight fill, the lightweight material's unit weight was selected to be 30 pcf. We anticipate that the most readily available material is a lightweight cellular concrete (LCC) and developed the constitutive model parameters based on this material, as discussed previously. We selected a distance of 50 feet from the edge of the MWD pipe alignment as the area in which the LCC will be required. This was a combination of engineering judgement and to provide adequate distance such that vibratory compaction equipment needed to place and compact structural fill would present minimal impact to the pipe. Figure E40 also shows the vertical displacement results using the lightweight fill, which met the ¼-inch over 100 ft criteria.

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Figure E41 shows the lateral displacement results at the pipe spring lines using the full weight and light weight fill.

Dead, Live & 100-yr Flood Loads

Figure E42 shows the progression from Step 3 with the lightweight fill to Step 5.a.1, which follows the possible loading sequence of a 100-yr flood load being applied after construction of the crossing structure. For clarity, these figures are shown just for the pipe crown, which shows more displacement (dashed lines in Figure E40). The peak displacement induced by the 100-yr flood load is about 0.4 inches. The unloading phase indicates that no permanent displacement of the pipe is expected after the 100-yr flood loading. This is likely due to the low stresses added stresses during the peak flood load, about 250 psf based on the bridge and flood elevations. This load added stress results in only small strain development in the soil constitutive models, where the loading modulus of the Hardening model is closer to the initial elastic modulus (Ei) in Figure E4a. Inspection of the Ei in Figure E4a and the unload/reload modulus (Eur) in Figure E4b indicates that these moduli are similar for most of the profile depth. Therefore, it appears that the results seen in Figure E42 are in-line with the expected model behavior.

Figures E43 to E45 show the results for both the invert and crown in Steps 4, 5.a, and 5.a.1, respectively, to evaluate the pipe squashing. Figure E46 shows the results lateral displacements for the various steps during the 100-yr flood sequence at the pipe spring lines.

Figures E47 show the vertical displacement results for the remaining equipment load cases, including Steps 3 and 4 for reference at the pipe crown. We note that the induced vertical displacements from the equipment loads are very similar to the slab dead load and each other and are overlapping on the presented plots. Additionally, the displacements are much less than the peak displacement exhibited by the 100-yr flood load. Therefore, for simplicity we have not included the lateral displacement or pipe crown vs invert results.

The displacement results show that the ¼-inch over 100 ft criteria are met, provided the assumptions regarding the proposed materials, extents, and sequencing are met.

Stress Profiles

We understand that MWD wishes to evaluate the predicted stresses from the explicit modeling of the pipe. The results provided by PLAXIS for shell elements are the axial, shear, and bending moment forces per unit length along three local axes. The local axes of the pipe shell element correspond with Axis 1 – Longitudinal, Axis 2 – Hoop, Axis 3 – Perpendicular to the Shell. Figure E48a shows these local axes from the model. These results were used in conjunction with the element thickness to calculate the various requested stresses in the pipe following bending stress equations, shown in Figure E48b. Based on these calculations, at any given profile (e.g. the longitudinal stresses at the pipe crown) there are three possible stresses that can be reported:

- Axial Stress
- Combined Stress (Axial + Bending)
- Combined Stress (Axial - Bending)

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As the MWD Casa Loma Barrel is constructed of concrete, we have focused the results on the "tension side" combined stress (axial + bending) as this will present the more positive or more tensile stresses in the pipe elements at the subject location.

To emphasize the model conditions expected to have the most significant impact on pipe stresses due to induced displacements, we present the stress results for Steps 1.e, 3, and 5.a. As the pipe stresses are initialized during Step 0.c, but not reset, each plot contains the initial stress after adding the water into the pipe to evaluate the induced changes at each stage.

Figures E49 to E54 show the longitudinal fiber stresses for each selected step at the invert and crown model results. Likewise, Figures E55 to E60 show the hoop fiber stresses at the invert and crown, and Figures E61 to E66 shows the hoop fiber stresses at the pipe spring lines. We note that some chattering is present in the stress data. Based on a response from PLAXIS support, they believe this is an artifact caused by the extrapolation of the stress/force data from the internal gaussian stress points to the points at which the data is extracted (generally at the nodes of the elements). PLAXIS stated that artifact would not affect the estimated pipe deflections. It is possible that reduction of the pipe element mesh may reduce this noise but would likely still be present to some degree due to the triangular elements. Based on the subsequent discussion with MWD, it was decided not to further refine the pipe mesh.

CONCLUSIONS AND RECOMMENDATIONS

Based on the analyses completed, the proposed flood channel and associated embankments/crossing structure are expected to induce less than the required ¼" inch over 100 ft displacement tolerance required by MWD, provided the recommendations contained in this memorandum and geotechnical report, and Kleinfelder's structural engineering report are followed. The key recommendations and assumptions utilized in the modeling that must be implemented in the design and construction of the crossing are:

- Excavations will not be completed at a time when MWD has emptied the pipeline (i.e. it is not in-service).
- The crossing structure footings are constructed following the 1/3 sequence of excavation and footing placement.
    - Excavation of the subsequent 1/3 shall not progress until the footing for the previous 1/3 is in-place.
    - Excavation slopes and benches shall not be flatter than 1.5H:1V.
- Excavation and footing construction sequence shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean:
    - Elevations in excavations on either side shall not be more than 1 ft different.
    - The concrete footings shall be poured on both sides at the same time.
- Excavations shall not be backfilled until the full footing construction sequence is completed.
    - Backfill will consist of a flowable fill material (e.g. LCC) with a unit weight of approximately 85 pcf which does not require high vibration compactor equipment during placement.
    - Backfill shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean elevations of the backfill on each side shall not be more than 1 ft different.

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- Lightweight flowable fill shall be used for embankments within 50 ft from the edge of the MWD pipe. Embankment fill shall consist of lightweight flowable fill material (e.g. LCC) not to exceed a unit weight of 30 pcf and does not require compaction to limit vibration impacts.
- Embankment fill shall be placed such that the elevation difference across (upstream to downstream sides) the MWD pipe is not greater than 1 ft at any time until final grades are established.
- The channel section shall limit the 100-yr flood event to a peak water elevation of 1453.47 ft.

Additional construction considerations, such as subgrade preparation for footings and fill placement are discussed in the geotechnical report.

LIMITATIONS

Kleinfelder has been provided information by and discussed the modeling evaluation with representatives of MWD, Webb, and Alabasi (the contractor), which were used in developing our model geometries, parameters, sequencing and assumptions. The results of this evaluations are in part reliant on provided information and feasibility of the construction limitations. Actual geometries and conditions will be different than those evaluated and engineering judgement is necessary to interpret and apply the analysis results to the realities of the project conditions. Kleinfelder should be notified of any changed conditions or plans that are in conflict with the assumptions and project understanding detailed in this analysis. Failure to notify Kleinfelder of changes and, therefore, inappropriately applying our conclusions and recommendations to the project are at the responsibility of those entities.

This technical memorandum is also subject to the limitations contained within our geotechnical report prepared for the project.

Respectfully submitted,

KLEINFELDER

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W. Troy Covill, PE* (Licensed in UT)
Project Professional

Majid Talebi, Ph.D., PE, GE
Sr. Principal Engineer

Attachments: References
Appendix A – Analysis Figures

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REFERENCES

Kleinfelder, Inc. (2024). *Structures Report, San Jacinto Line E Storm Drain, San Jacinto, California.* Kleinfelder Project No. 24002328.001A, dated November 1, 2024.

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ATTACHMENT A
ANALYSIS FIGURES

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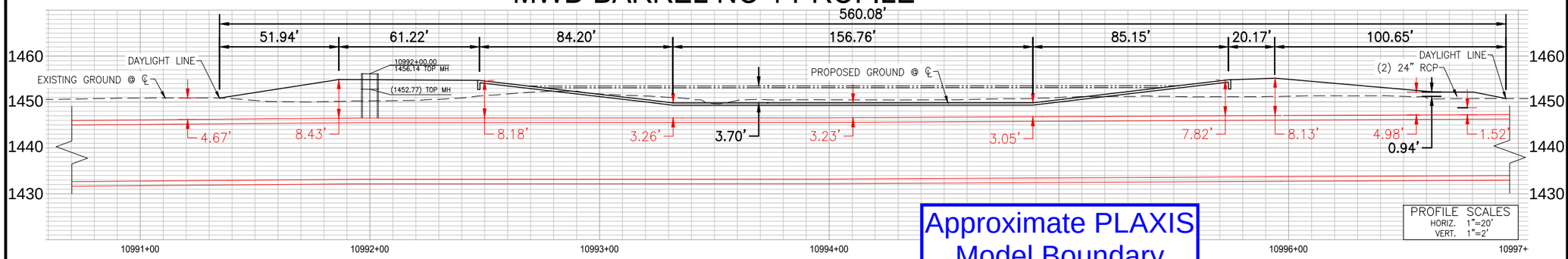
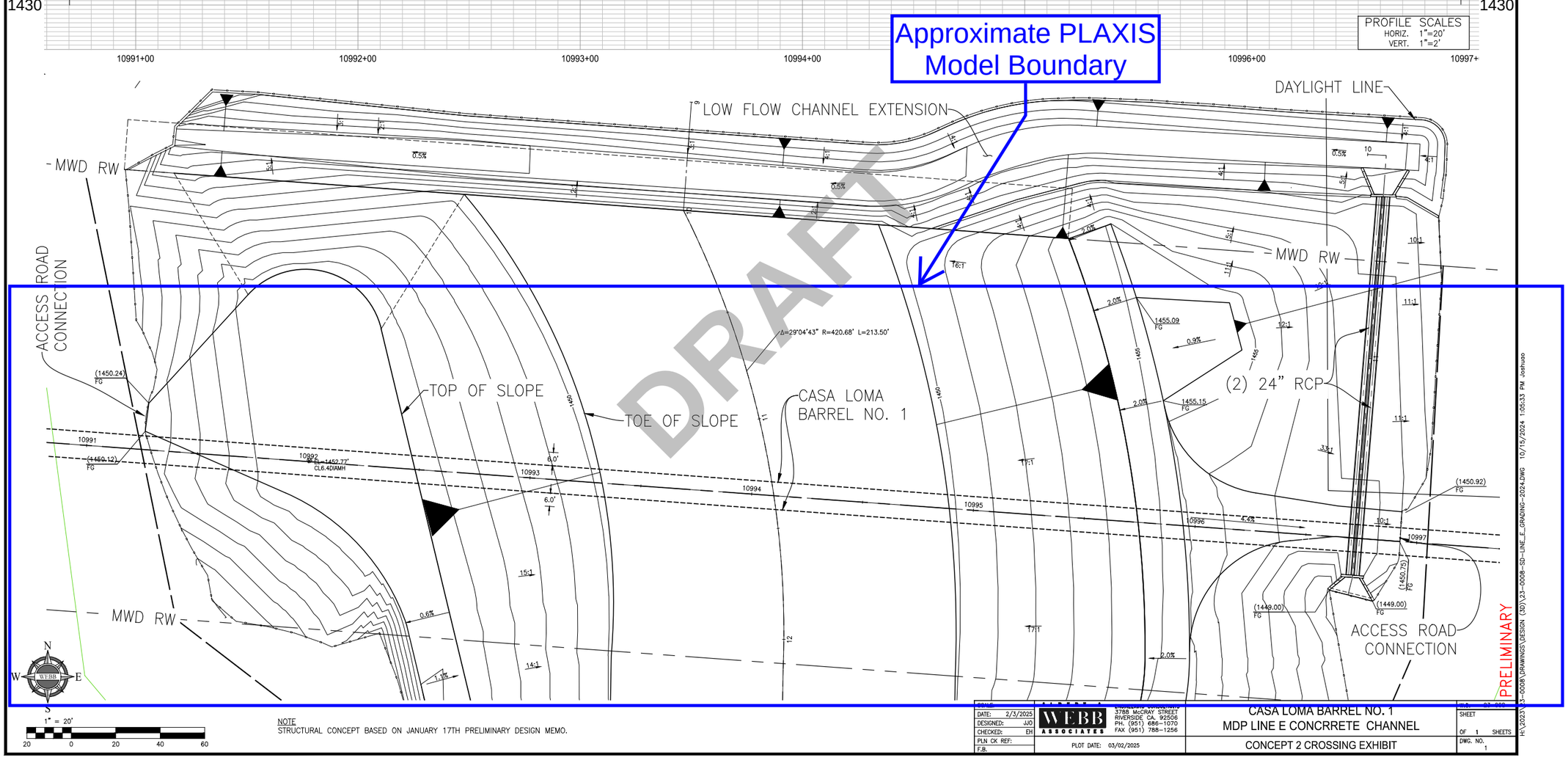
MWD BARREL NO 1 PROFILE





NOTE
STRUCTURAL CONCEPT BASED ON JANUARY 17TH PRELIMINARY DESIGN MEMO.

DATE: 2/3/2025	WEBB ASSOCIATES	CASA LOMA BARREL NO. 1	SHEET
DESIGNED: JJO	3788 McCRAY STREET RIVERSIDE, CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	MDP LINE E CONCRRETE CHANNEL	OF 1 SHEETS
CHECKED: EH			DWG. NO. 1
PLN CK REF:	PLOT DATE: 03/02/2025	CONCEPT 2 CROSSING EXHIBIT	
F.B.			

PRELIMINARY

H:\2023\24-0008\DRAWINGS\DESIGN (30)\24-0008-SD-LINE_E_GRADING-2024.DWG 10/15/2024 1:05:33 PM Joshuao

Notes:
1. Original plan provided by Albert A. Webb Associates (Webb), dated 2/3/2024.
2. The original plan is scaled to 40% of original to facilitate reporting, shown scale should be adjusted as required.

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CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Preliminary Embankment & Channel Contour Plan and cross-Section at MWD Barrel No. 1

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E1

Layer		Depth (ft)	Elevation (ft)	$(N_1)_{60}$	φ' (deg)	C' (psf)	Su (psf)	E_{50} (Vs/3) (ksf)	E_{50} (Vs/2) (ksf)	$\sigma`_p$ (psf)	C_{ce}	C_{re}	C_V (ft^2/day)	γ (pcf)	Vs (ft/sec)
Layer Design Values															
andy SILT to SILT (Unsaturate	Top	0	1450	10	30	50	-	125	281.25	5000	-	-	-	85	400
	Bottom	16.5	1433.5	10	30	50	-	209.15	470.59	5000	-	-	-	85	500
Sandy SILT to SILT (Saturated	Top	16.5	1433.5	10	30	50	-	209.15	470.59	5000	-	-	-	115	500
	Bottom	100	1350	10	30	50	-	635	1428.75	16200	-	-	-	115	900
-	Top	100	1350	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-

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Design Ground Water Depth = 16.5
Design Groundwater Elevation = 1433.5

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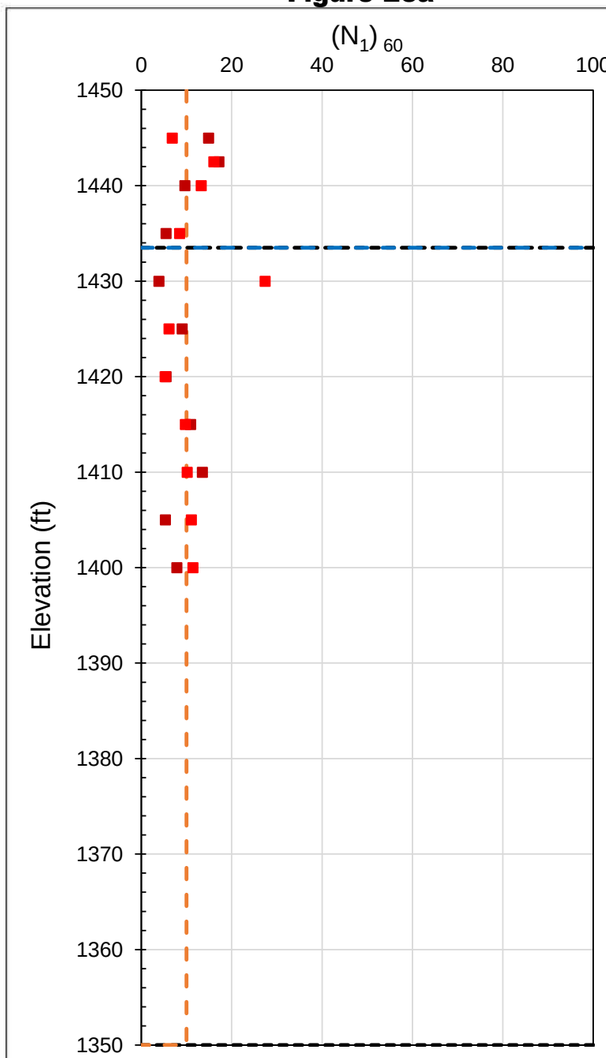
Design Stratigraphy and Soil Properties (1 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

E2

Figure E3a



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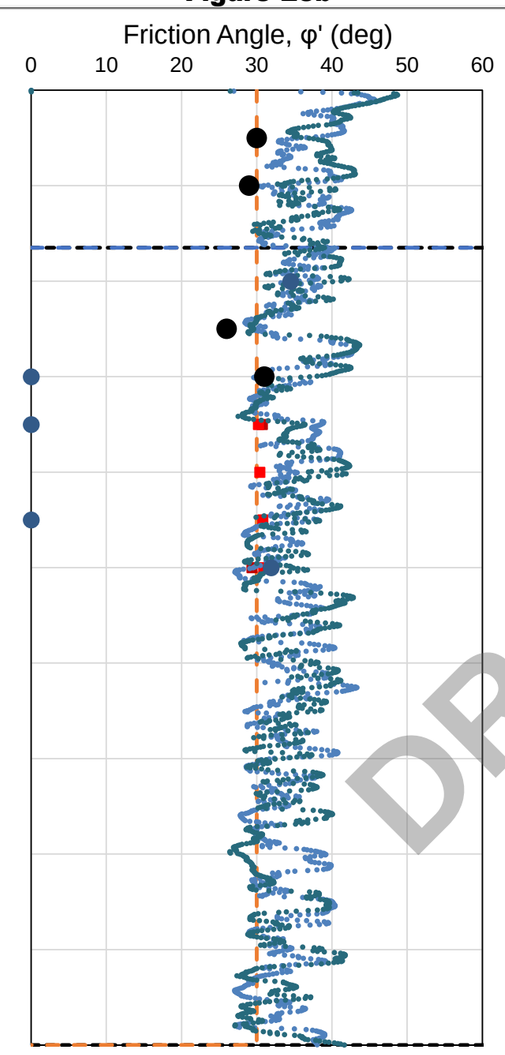
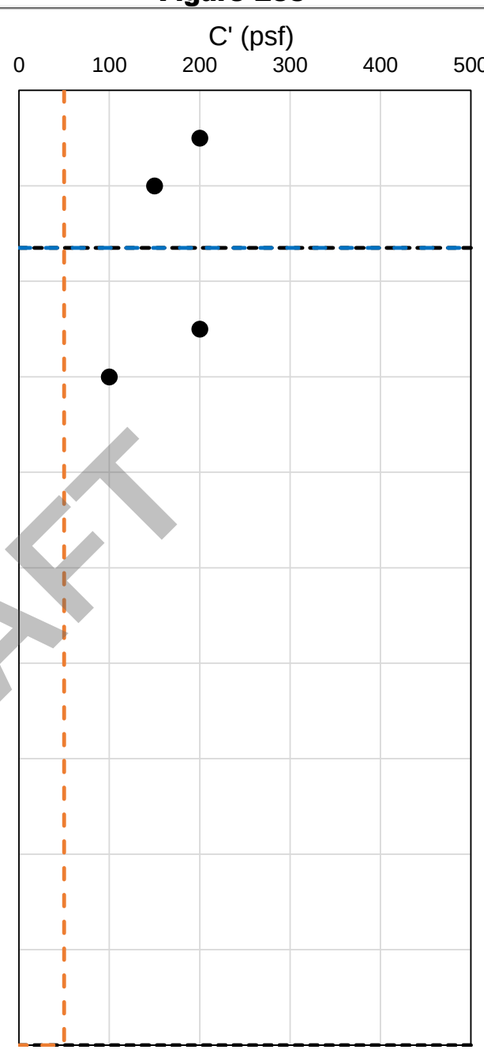


Figure E3c



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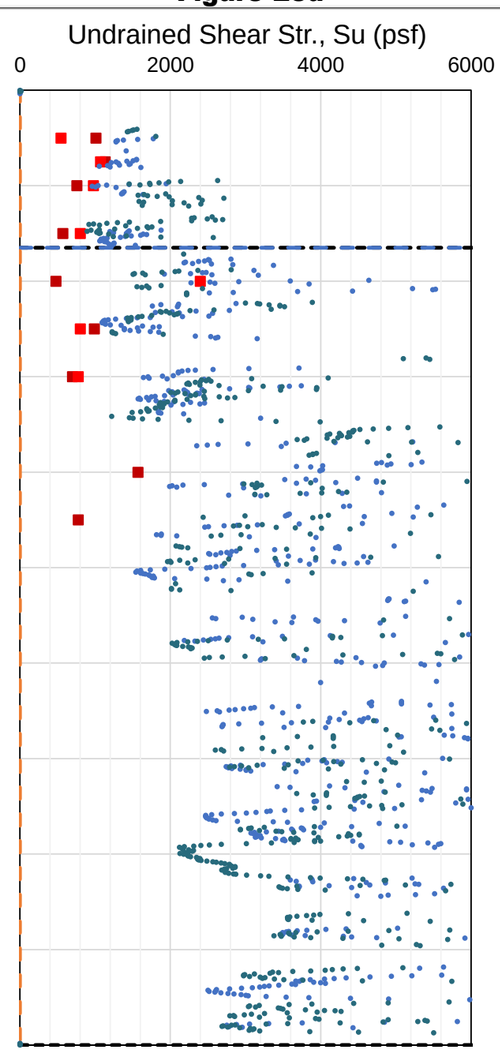

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Design Value

Design Groundwater Elevation

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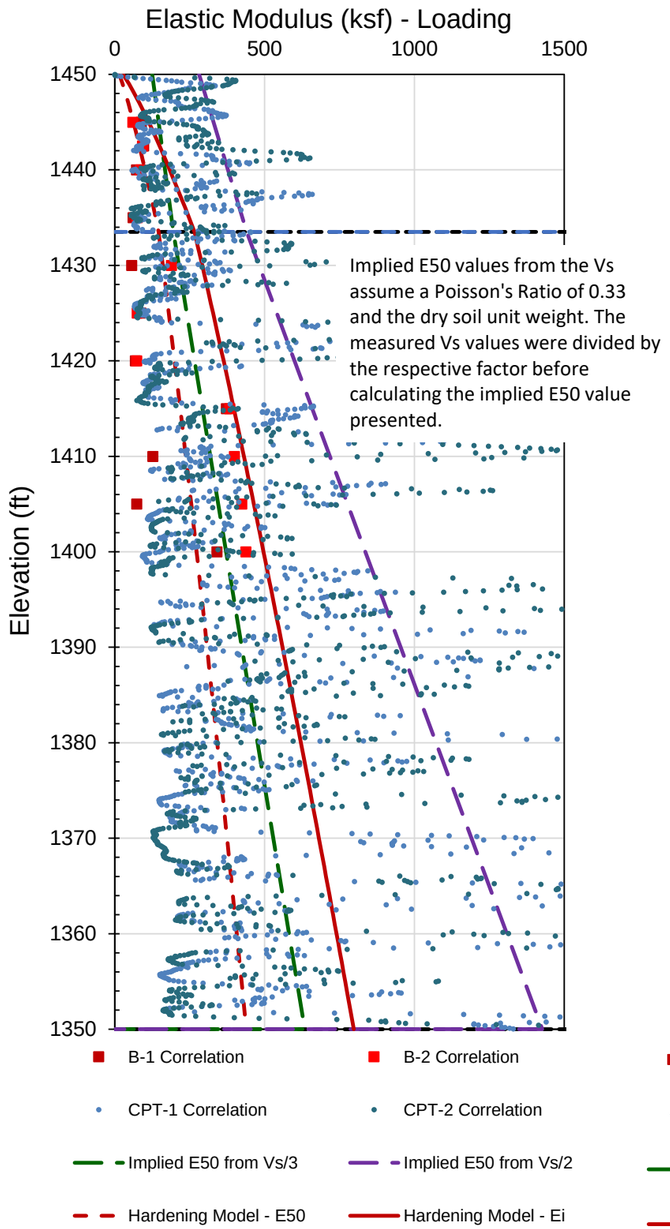
Design Stratigraphy and Soil Properties (2 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1
San Jacinto, California

APPENDIX: **E3**

361.6349 657.5181 632.4435

Figure E4a



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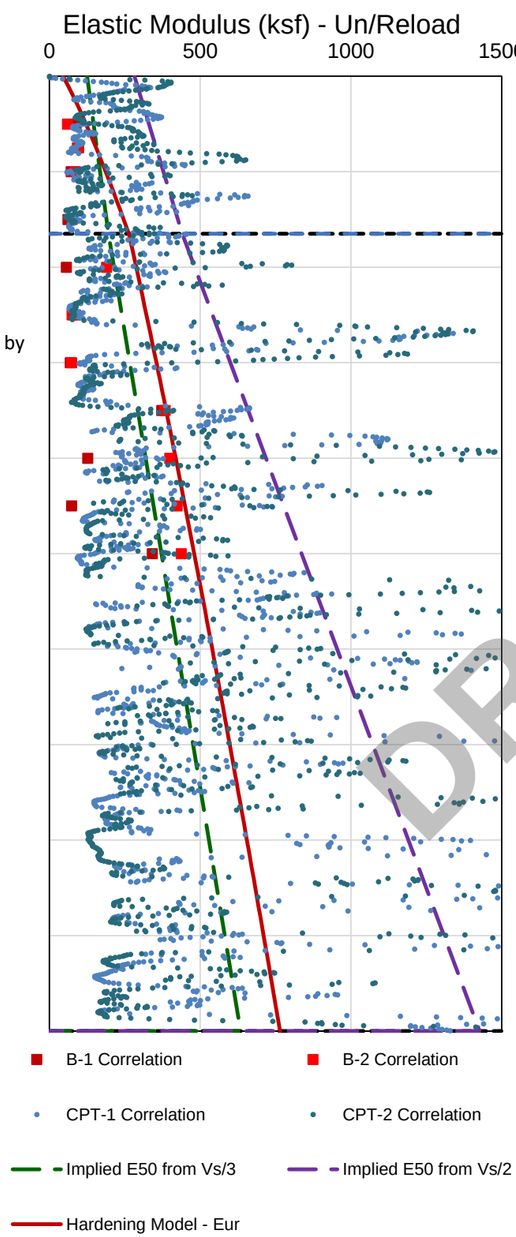

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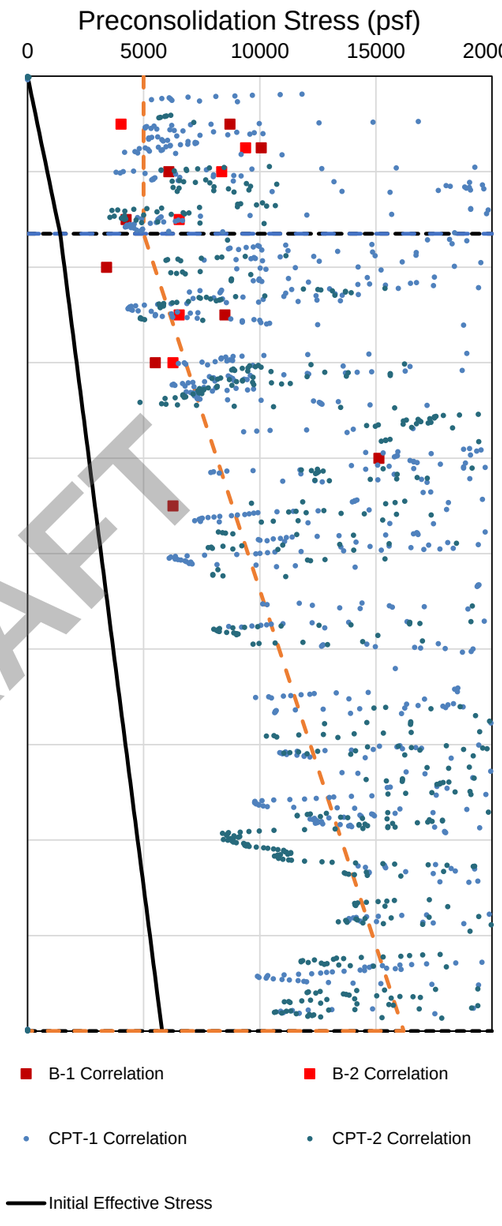

Figure E4d

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Design Value

Design Groundwater Elevation

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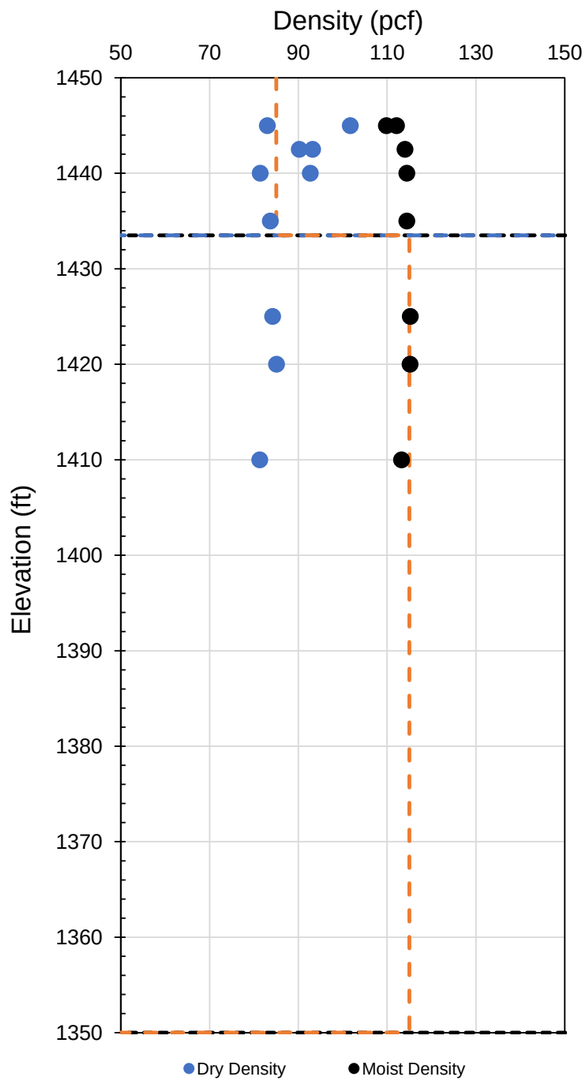
Design Stratigraphy and Soil Properties (3 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1
San Jacinto, California

APPENDIX:
E4

Figure E5a



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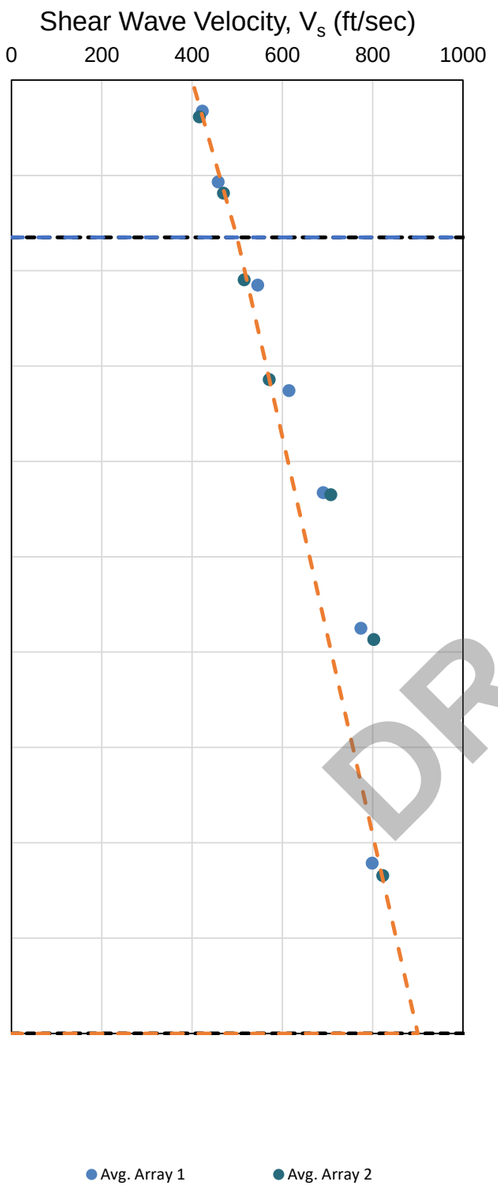

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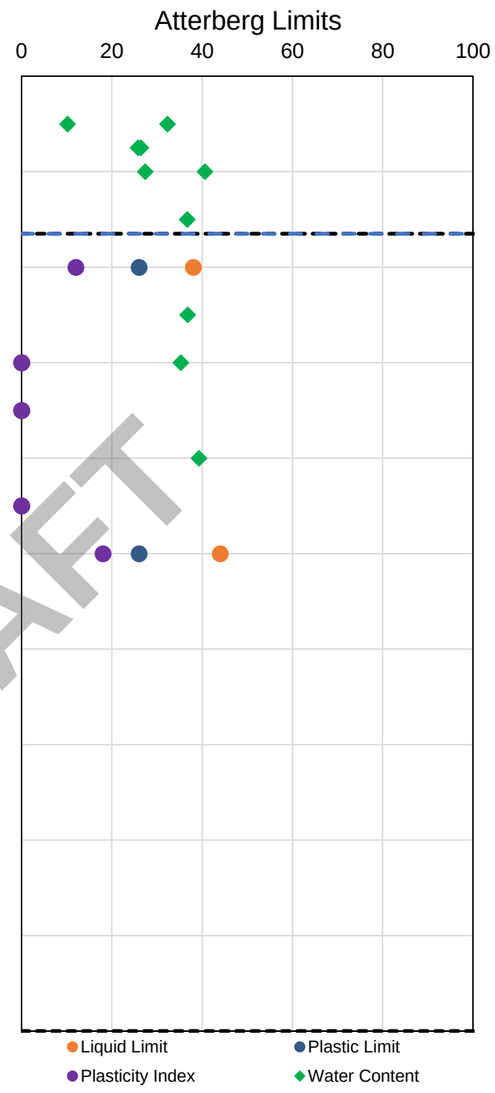

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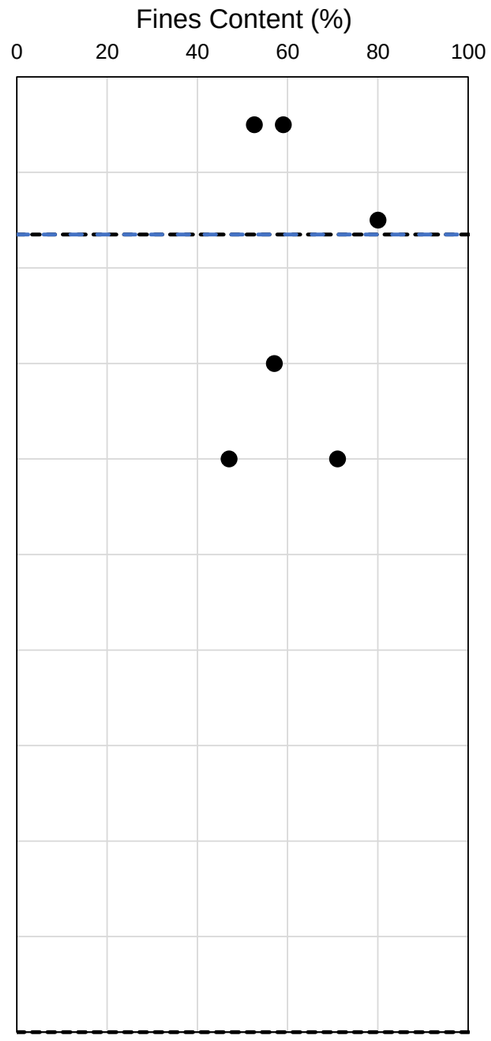

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Design Groundwater Elevation

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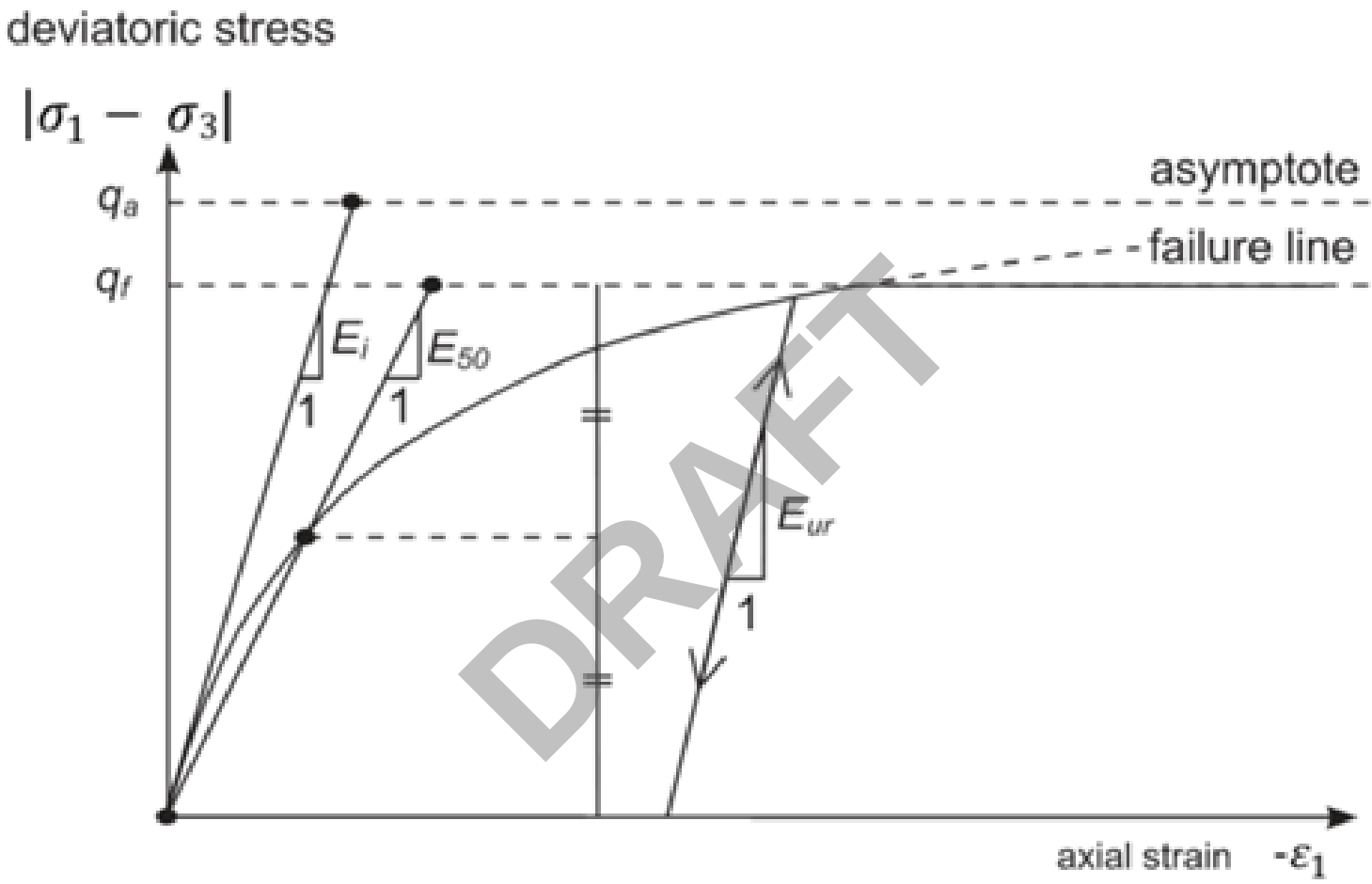
Design Stratigraphy and Soil Properties (4 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1
San Jacinto, California

APPENDIX:

E5



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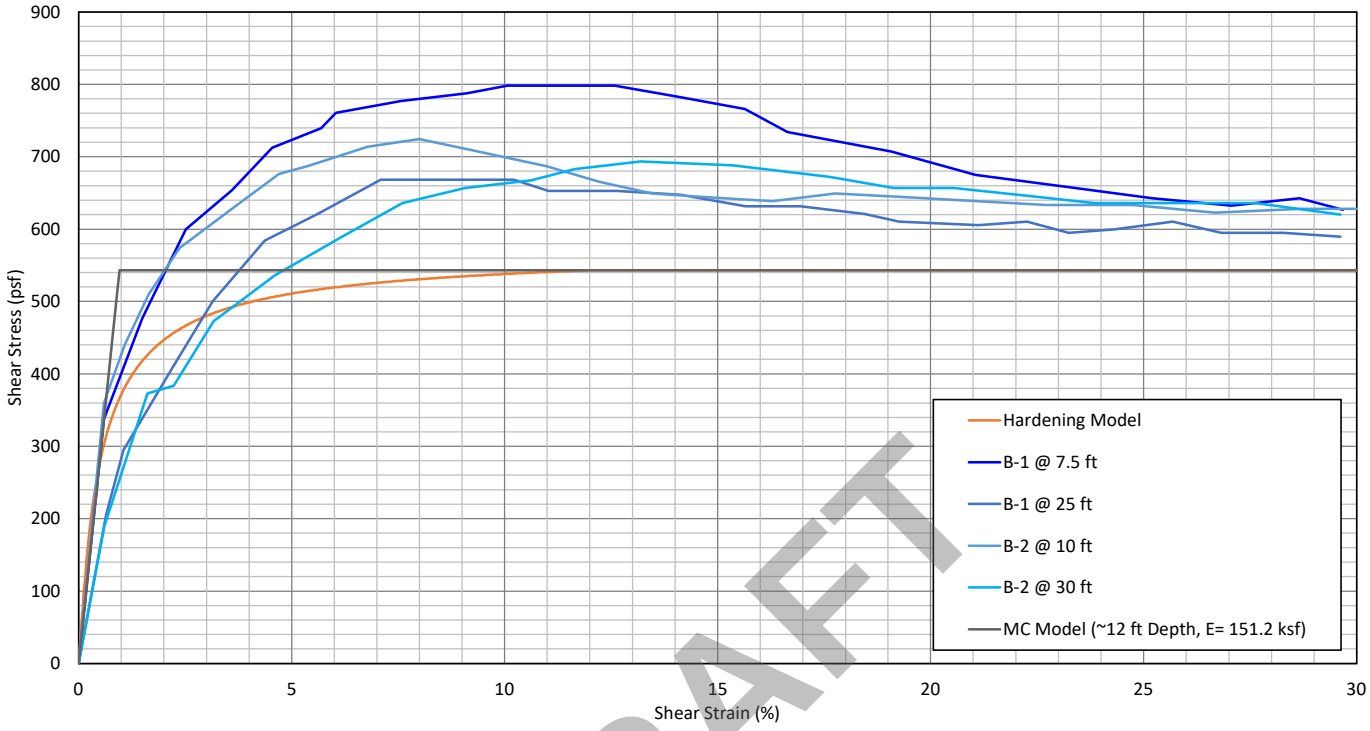
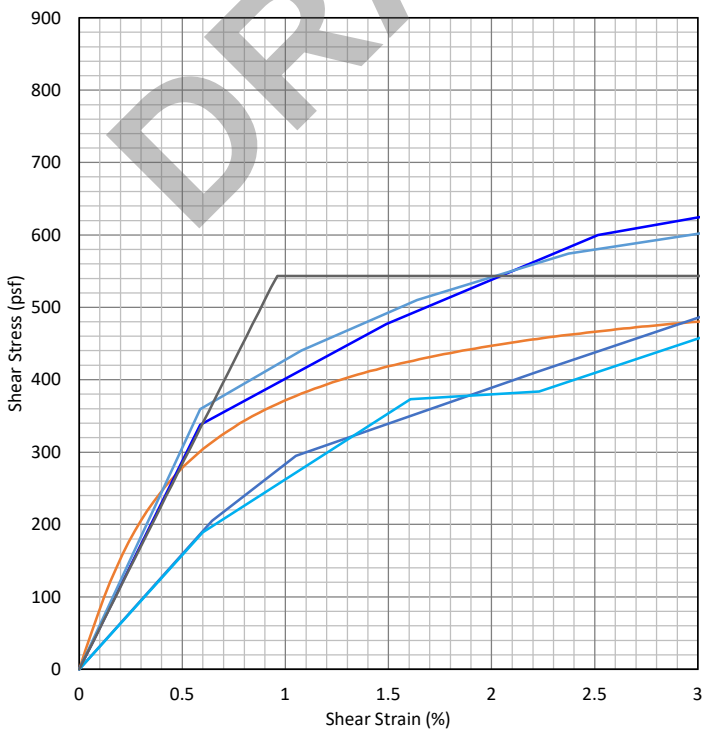
Stress-Strain Behavior of Hardening Model and Definition of Various Moduli (Taken from PLAXIS Manual)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:

E6





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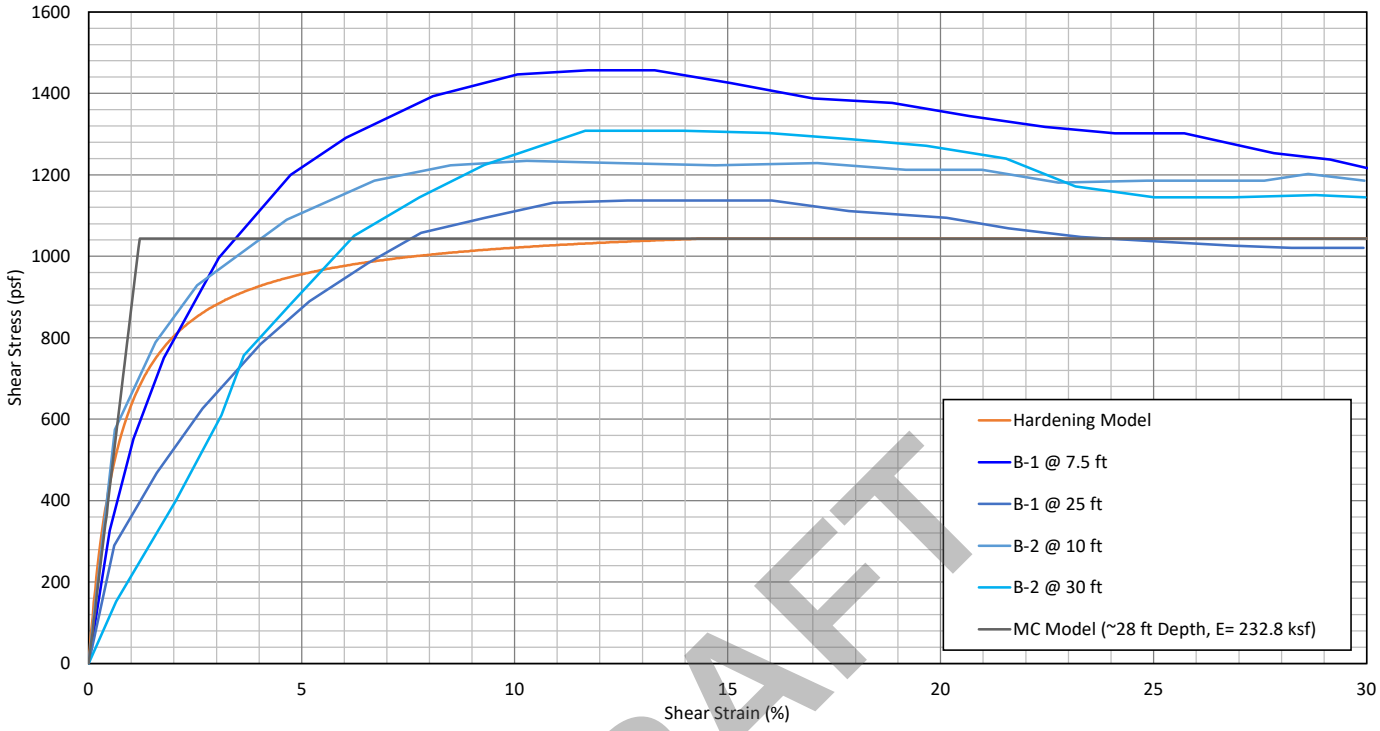
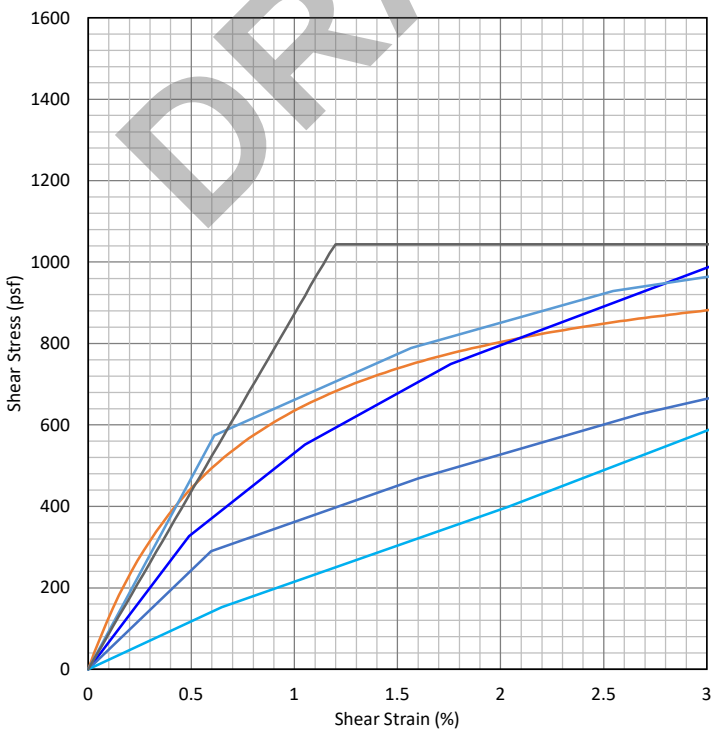
FILE NAME:	ANALYSIS FIGURES

Constitutive Model Calibration
Direct Simple Shear Test
Normal Stress - 1 ksf (1 of 3)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E7





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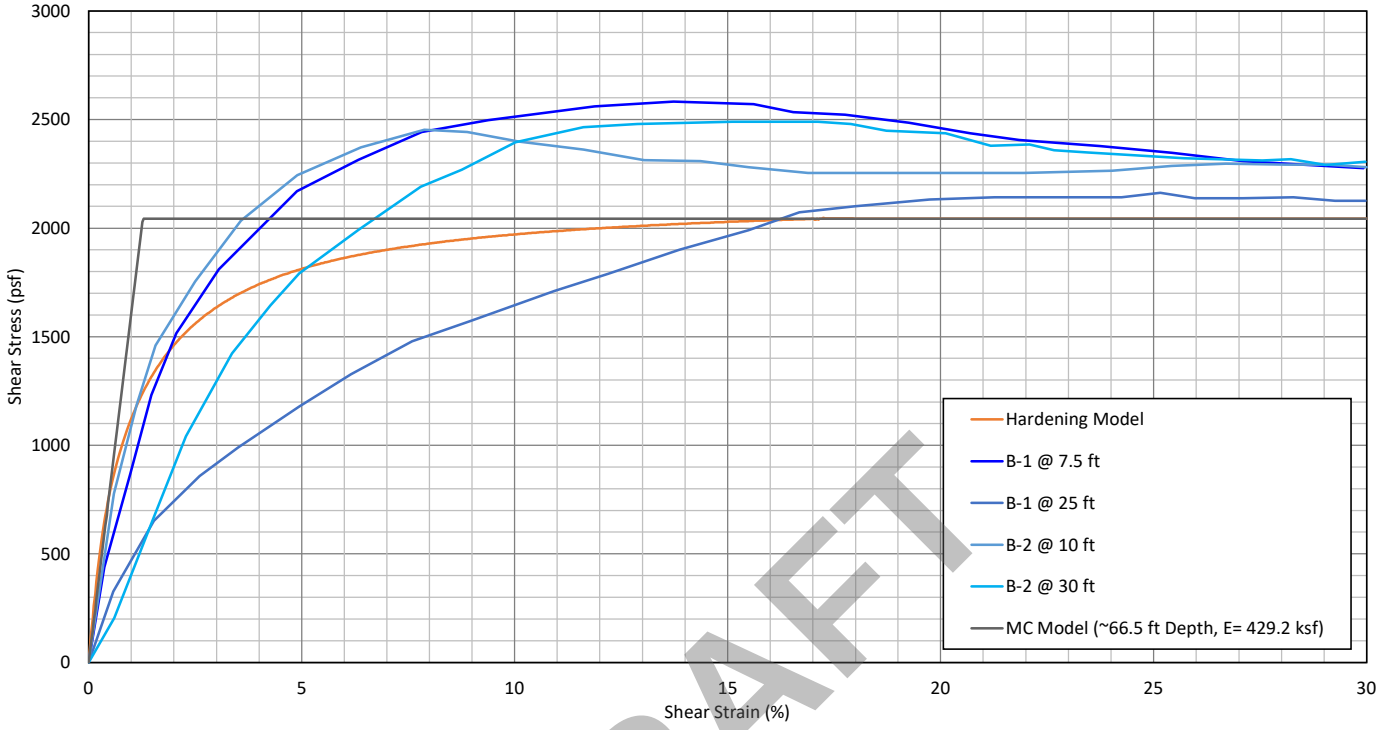
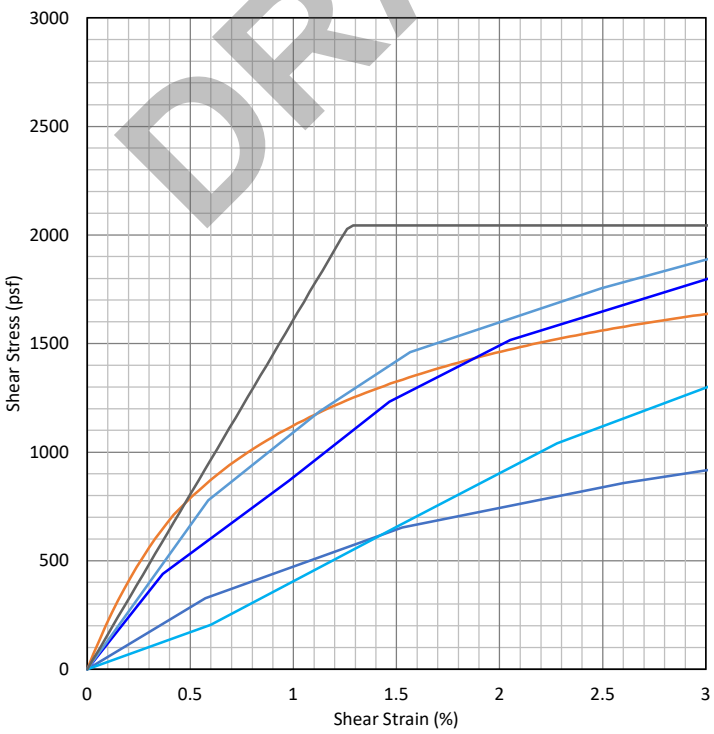
Constitutive Model Calibration
Direct Simple Shear Test
Normal Stress - 2 ksf (2 of 3)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E8





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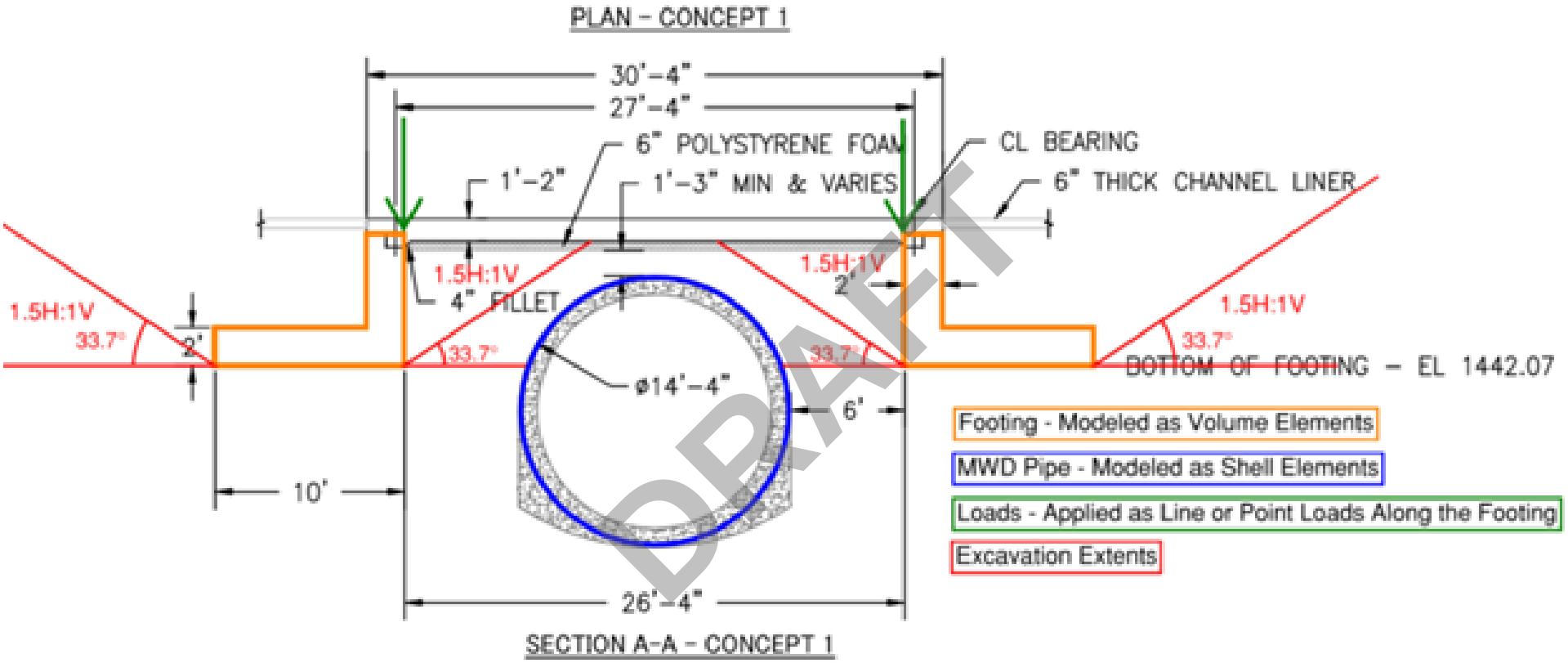
Constitutive Model Calibration
Direct Simple Shear Test
Normal Stress - 4 ksf (3 of 3)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E9



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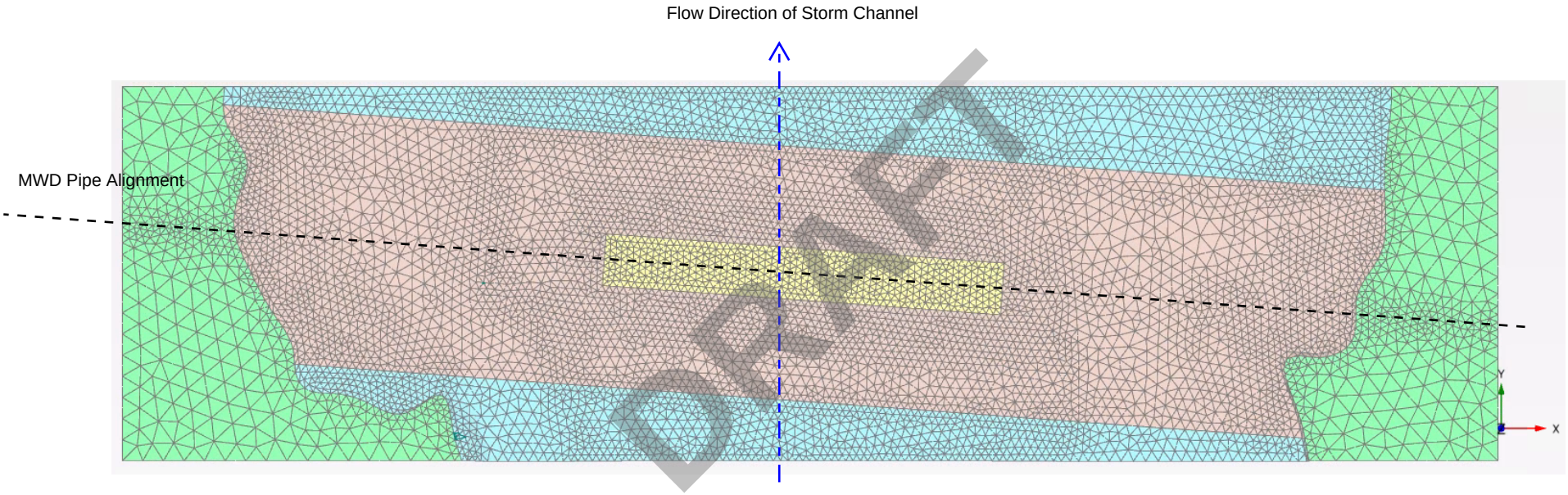
Preliminary Crossing Concept Cross-Section with Modeling Concepts for PLAXIS

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E10



APPROXIMATE SCALE (1" = 80')

0 40 80 160

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FILE NAME:	ANALYSIS FIGURES

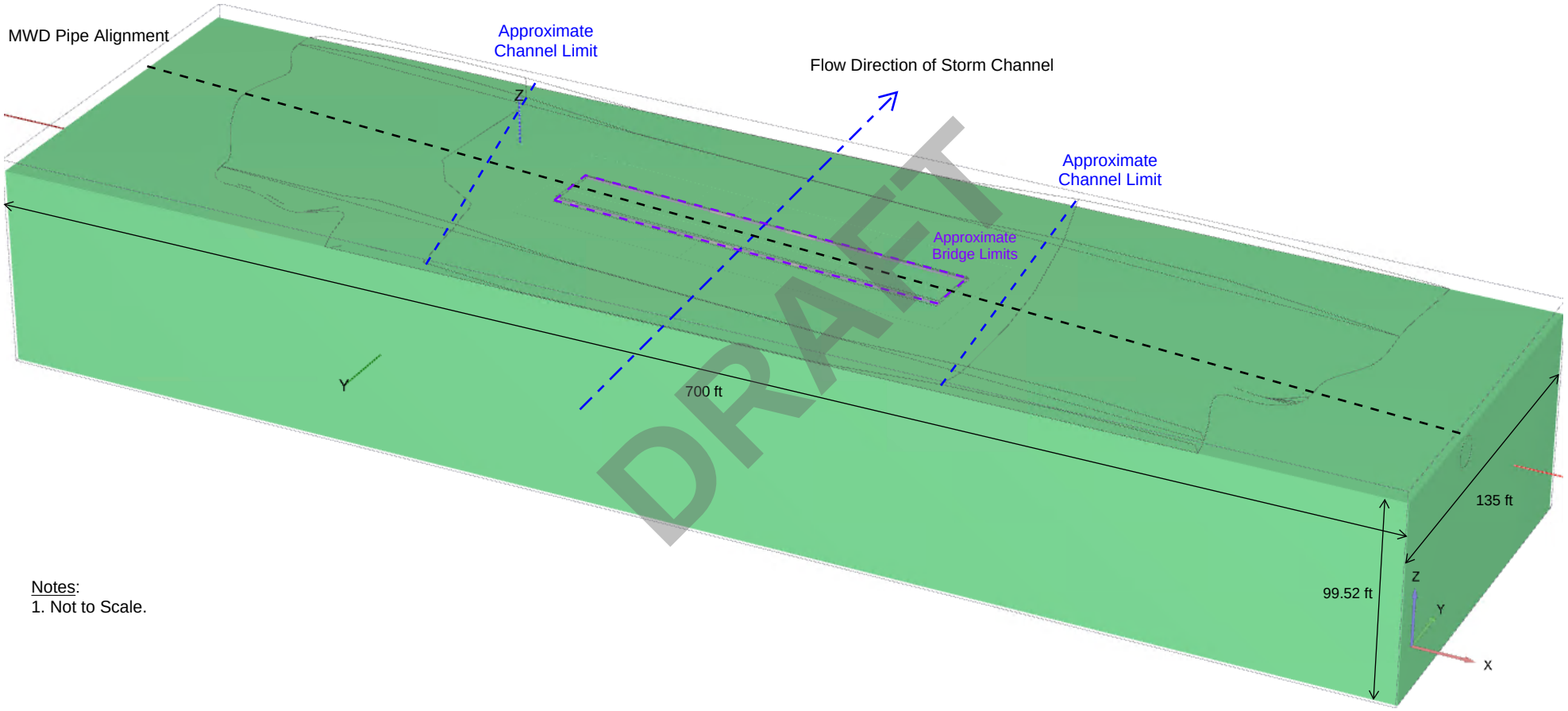
Plan View of Model Mesh

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:

E11

Step 0.a: Initial Phase - PLAXIS K_0 Routine & Gravity Loading



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Notes:
1. Not to Scale.

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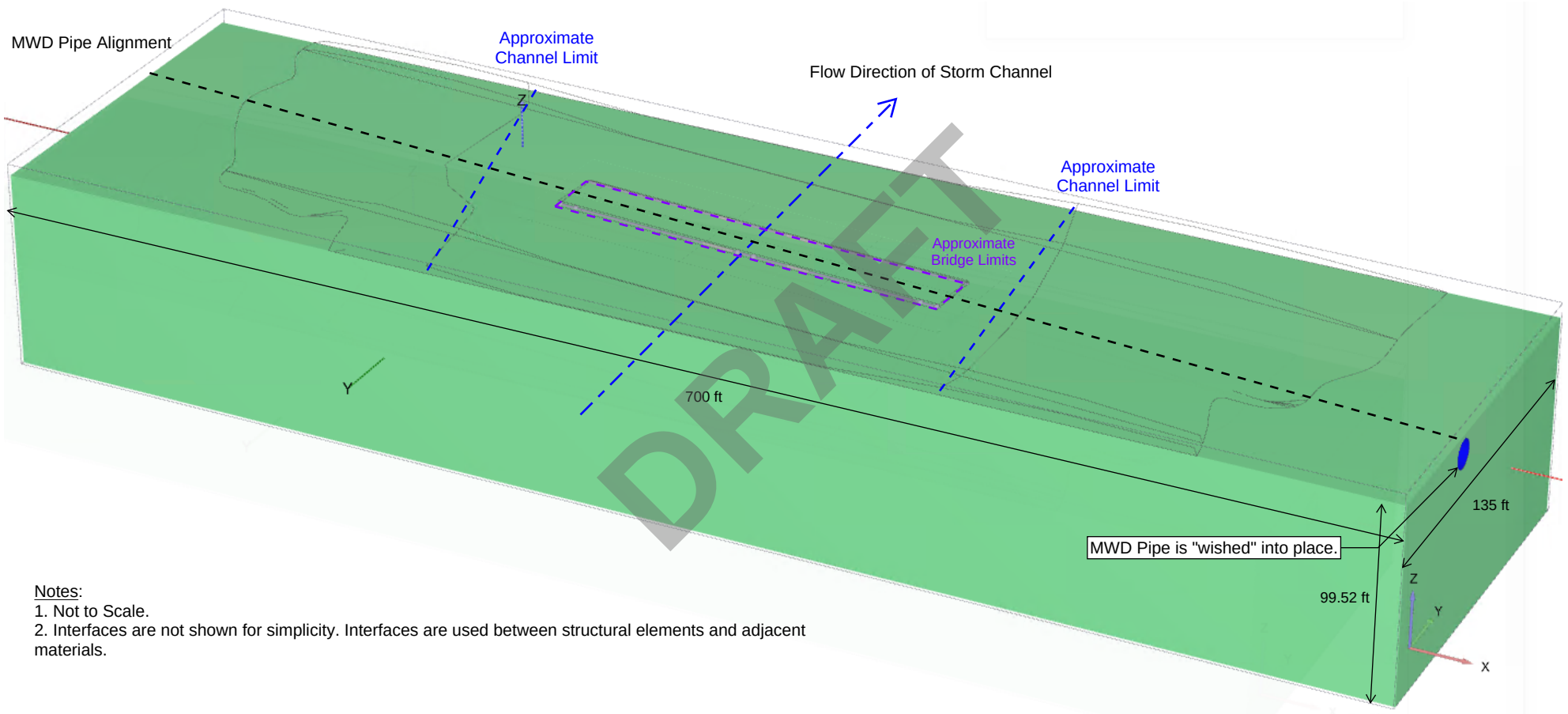
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 0.a: PLAXIS K_0 & Gravity Loading

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E12

Step 0.b: Initial Phase - Activation of MWD Pipe



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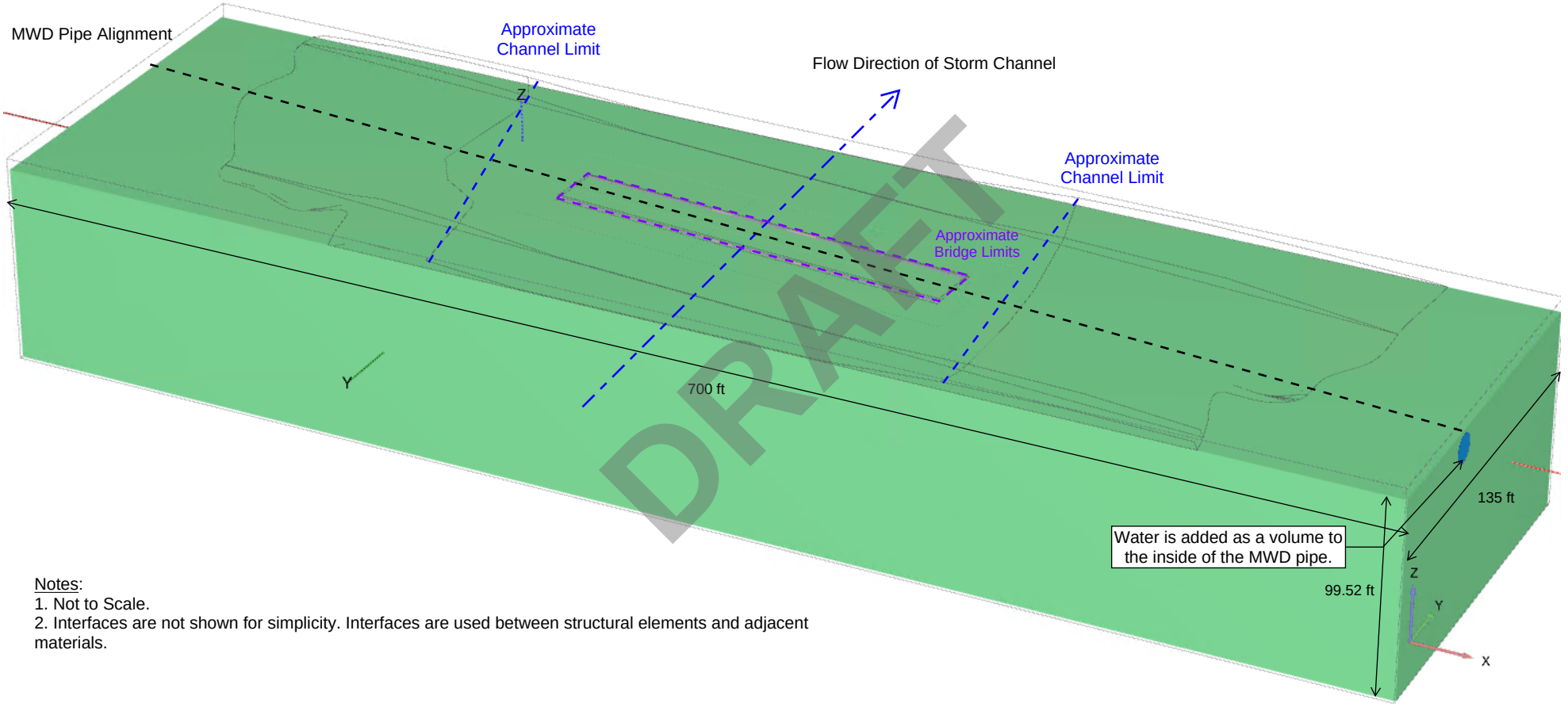
DRAWN:	10/2024
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 0.b: Initial Phase - Activation of MWD Pipe

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E13

Step 0.c: Initial Phase - Add Water Inside the MWD Pipe



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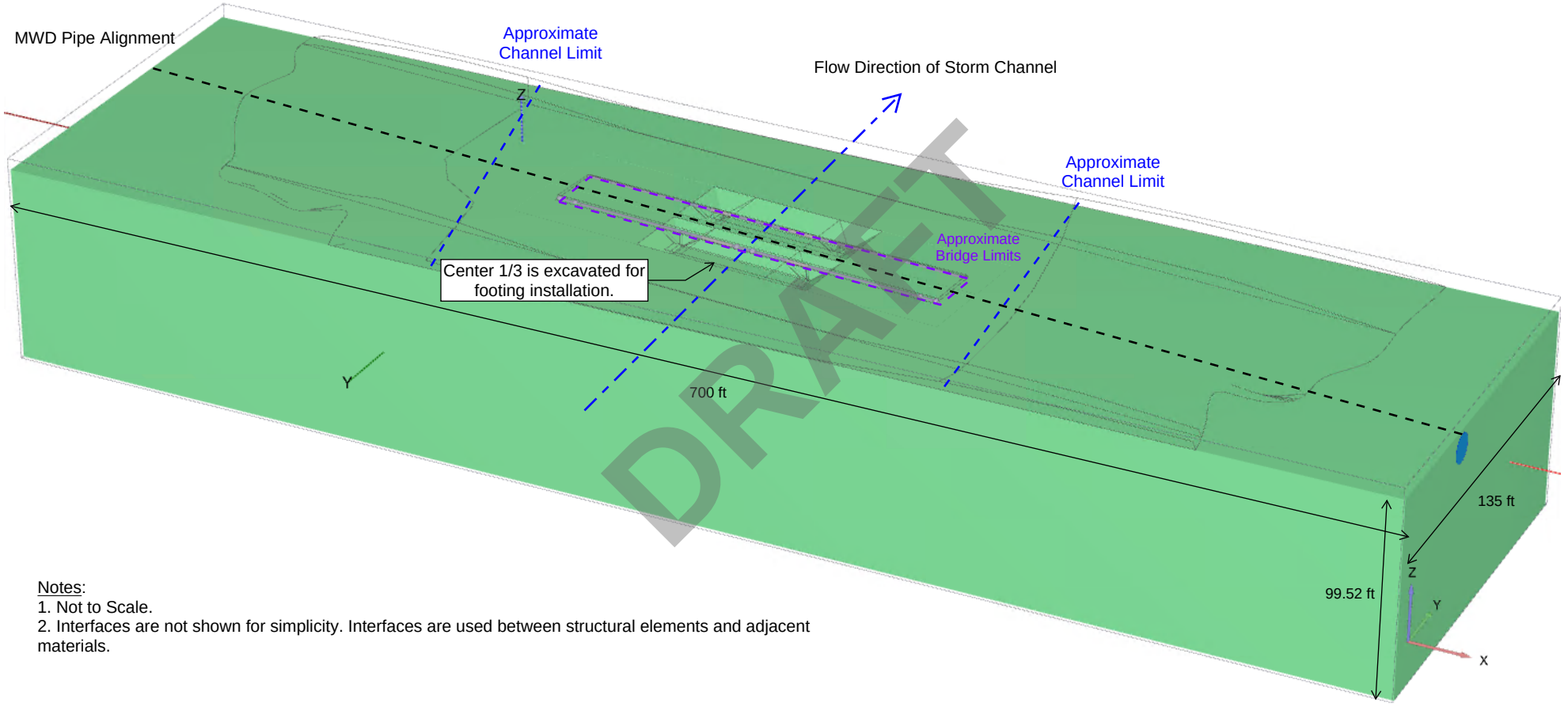
Model Staging
Step 0.c: Initial Phase - Add Water Inside the MWD Pipe

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E14

Step 1.a: Excavate & Place Footings - Excavate Center 1/3



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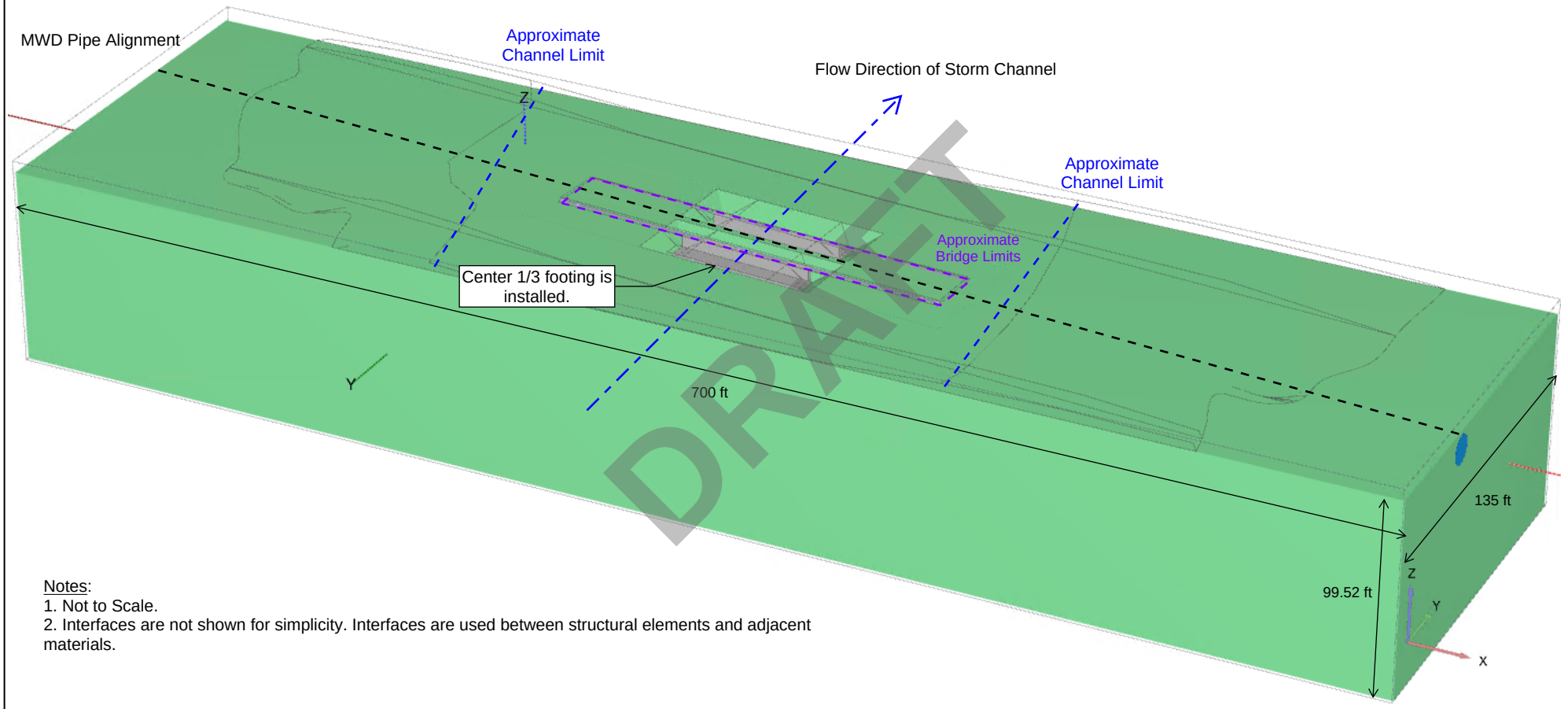
Model Staging
Step 1.a: Excavate & Place Footings - Excavate Center 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E15

Step 1.b: Excavate & Place Footings - Construct Center 1/3 Footing



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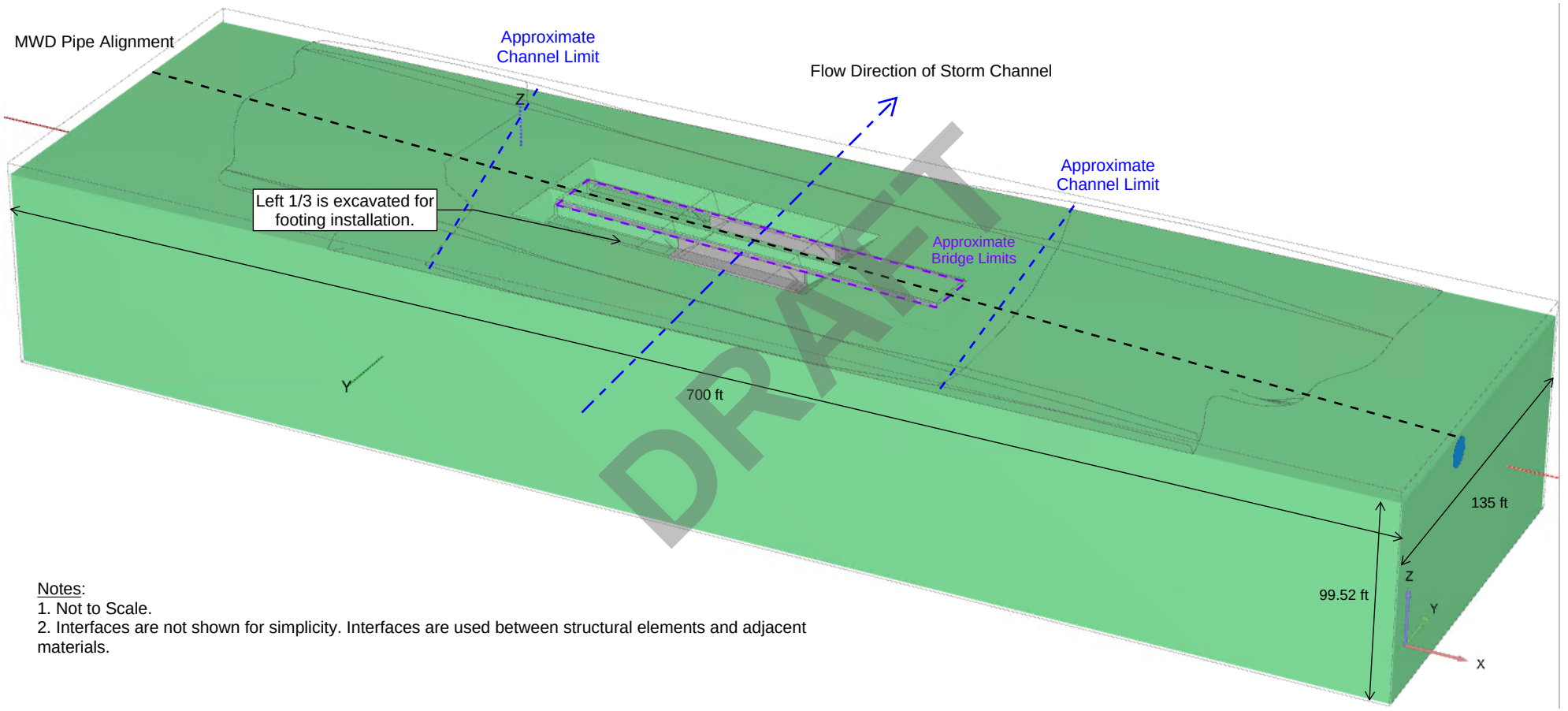
Model Staging
Step 1.b: Excavate & Place Footings - Construct Center 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E16

Step 1.c: Excavate & Place Footings - Excavate Left 1/3



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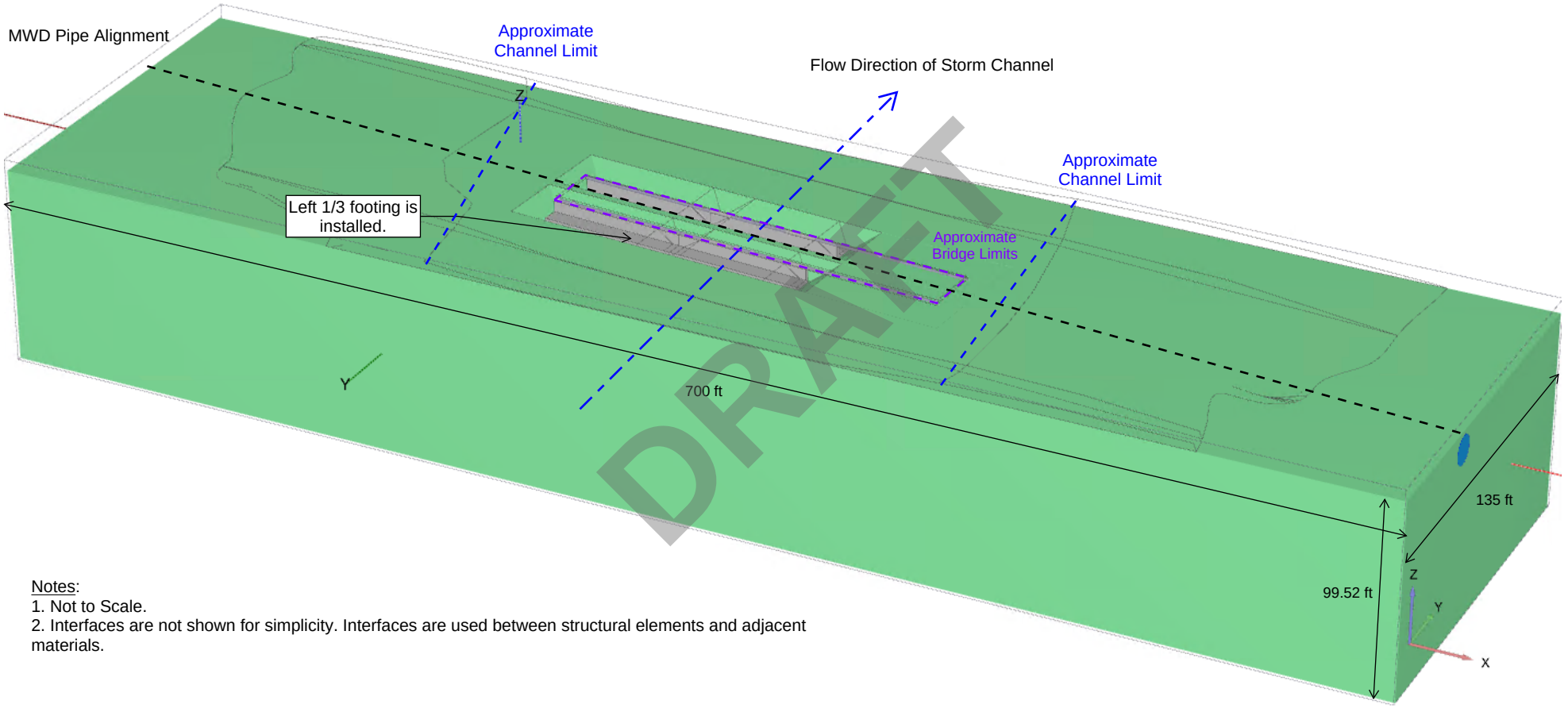
Model Staging
Step 1.c: Excavate & Place Footings - Excavate Left 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E17

Step 1.d: Excavate & Place Footings - Construct Left 1/3 Footing



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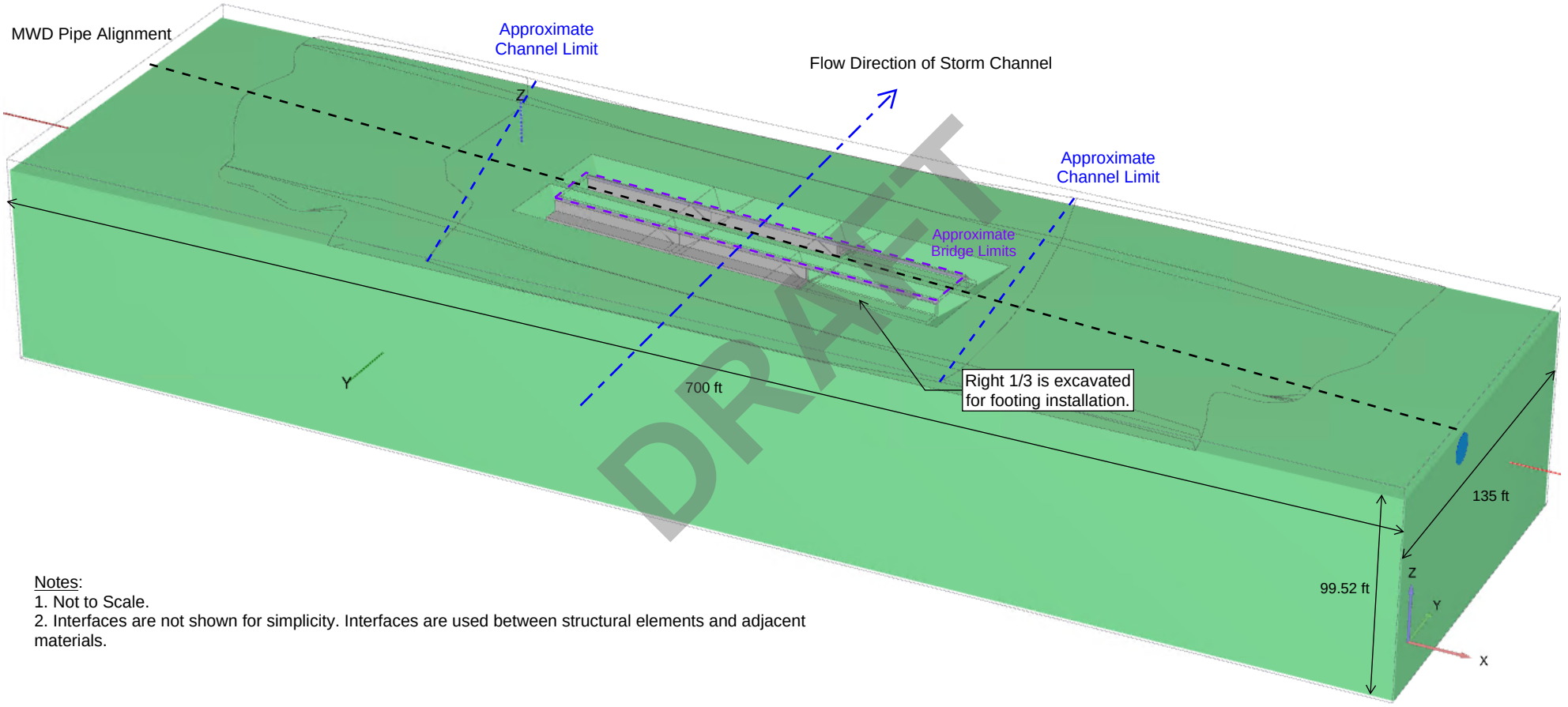
Model Staging
Step 1.d: Excavate & Place Footings - Construct Left 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E18

Step 1.e: Excavate & Place Footings - Excavate Right 1/3



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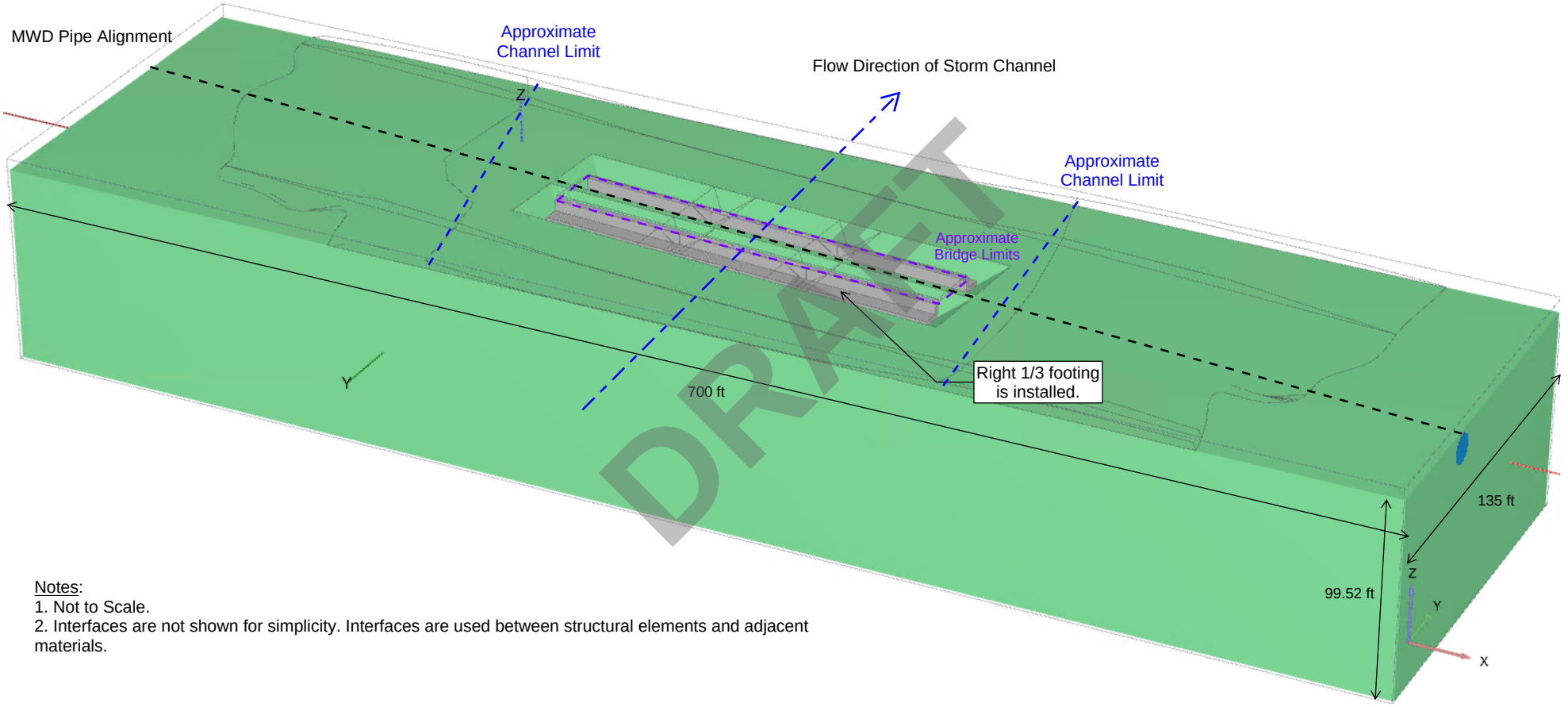
Model Staging
Step 1.e: Excavate & Place Footings - Excavate Right 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E19

Step 1.f: Excavate & Place Footings - Construct Right 1/3 Footing



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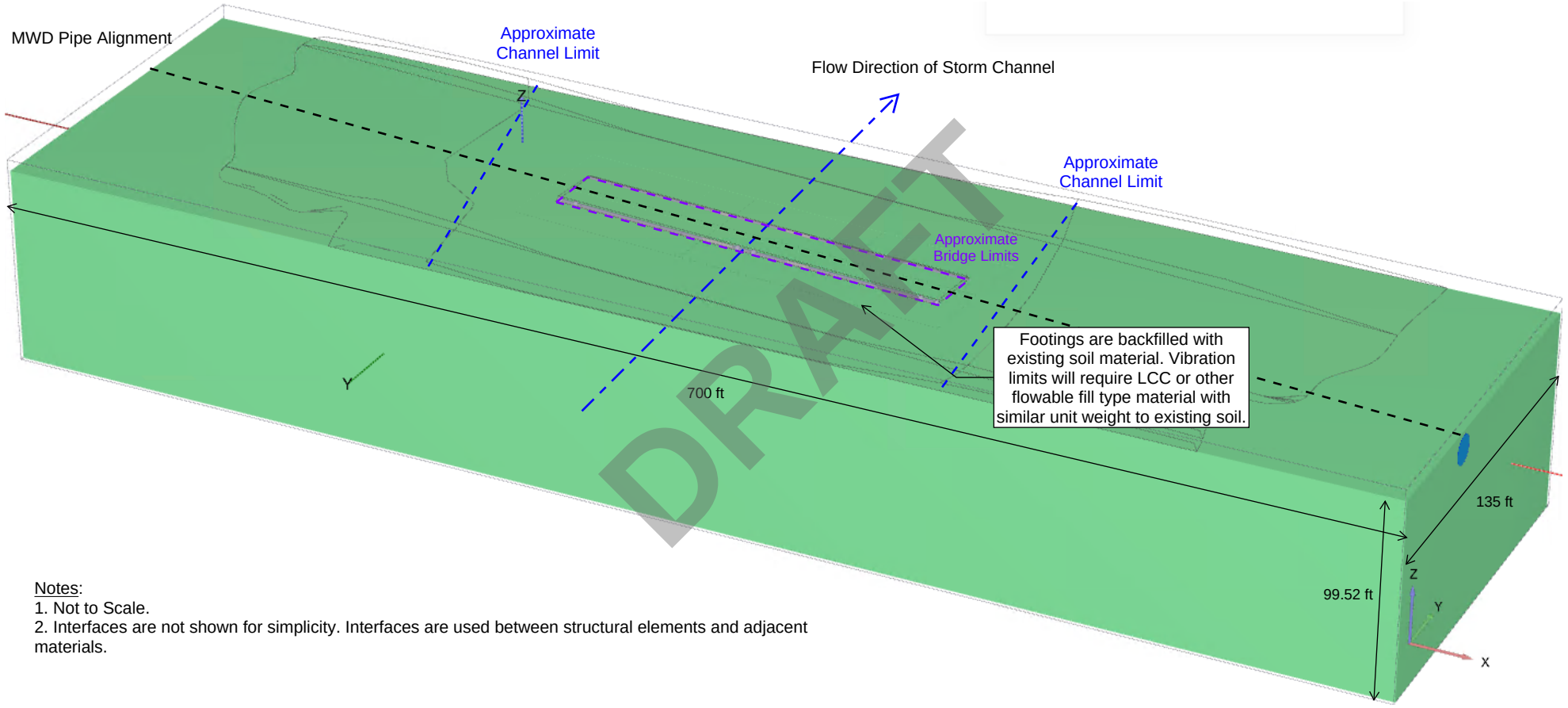
Model Staging
Step 1.f: Excavate & Place Footings - Construct Right 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E20

Step 2: Backfill Footings



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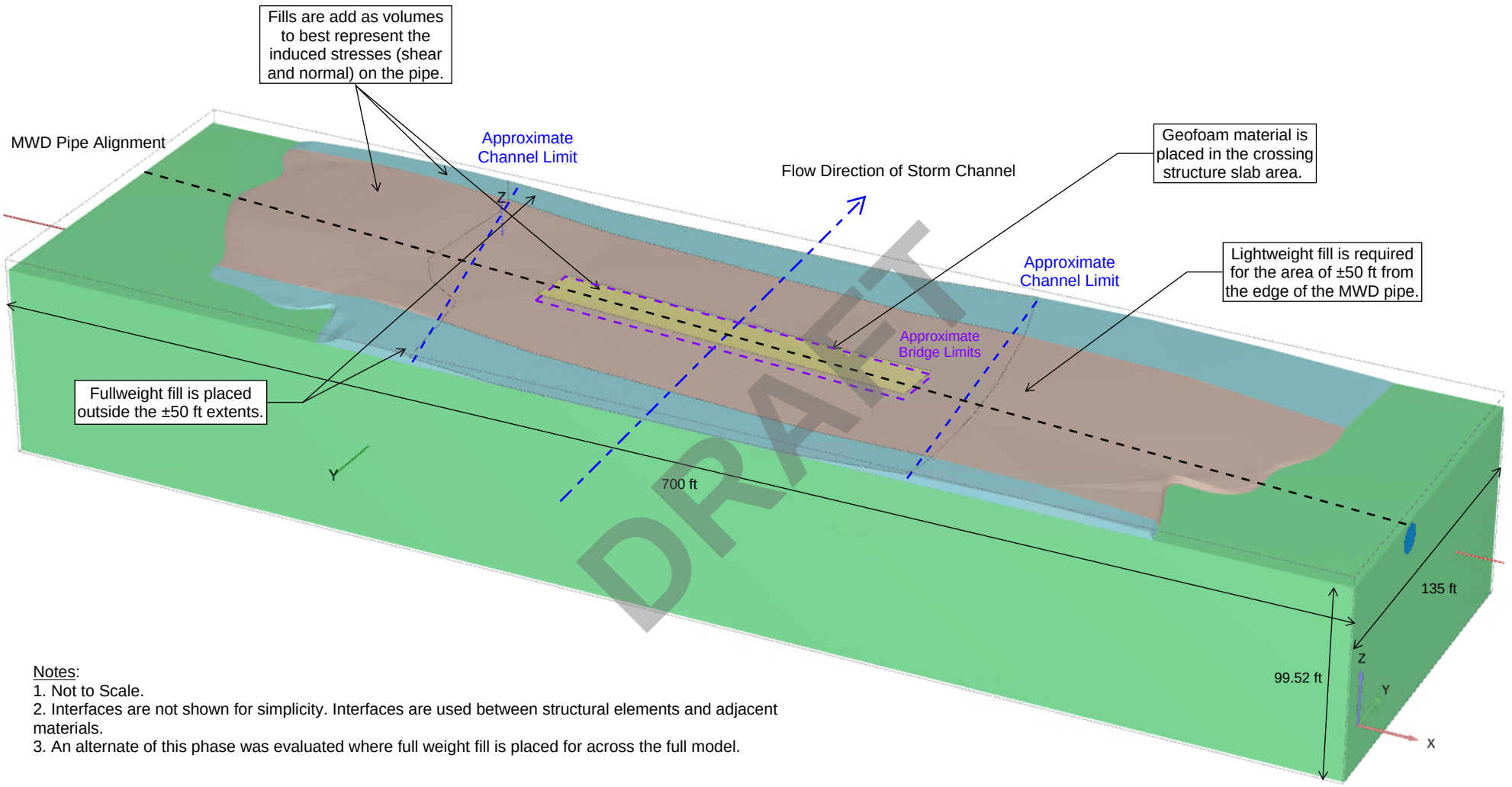
Model Staging
Step 2: Backfill Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E21

Step 3: Place Channel Embankments



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3. An alternate of this phase was evaluated where full weight fill is placed for across the full model.

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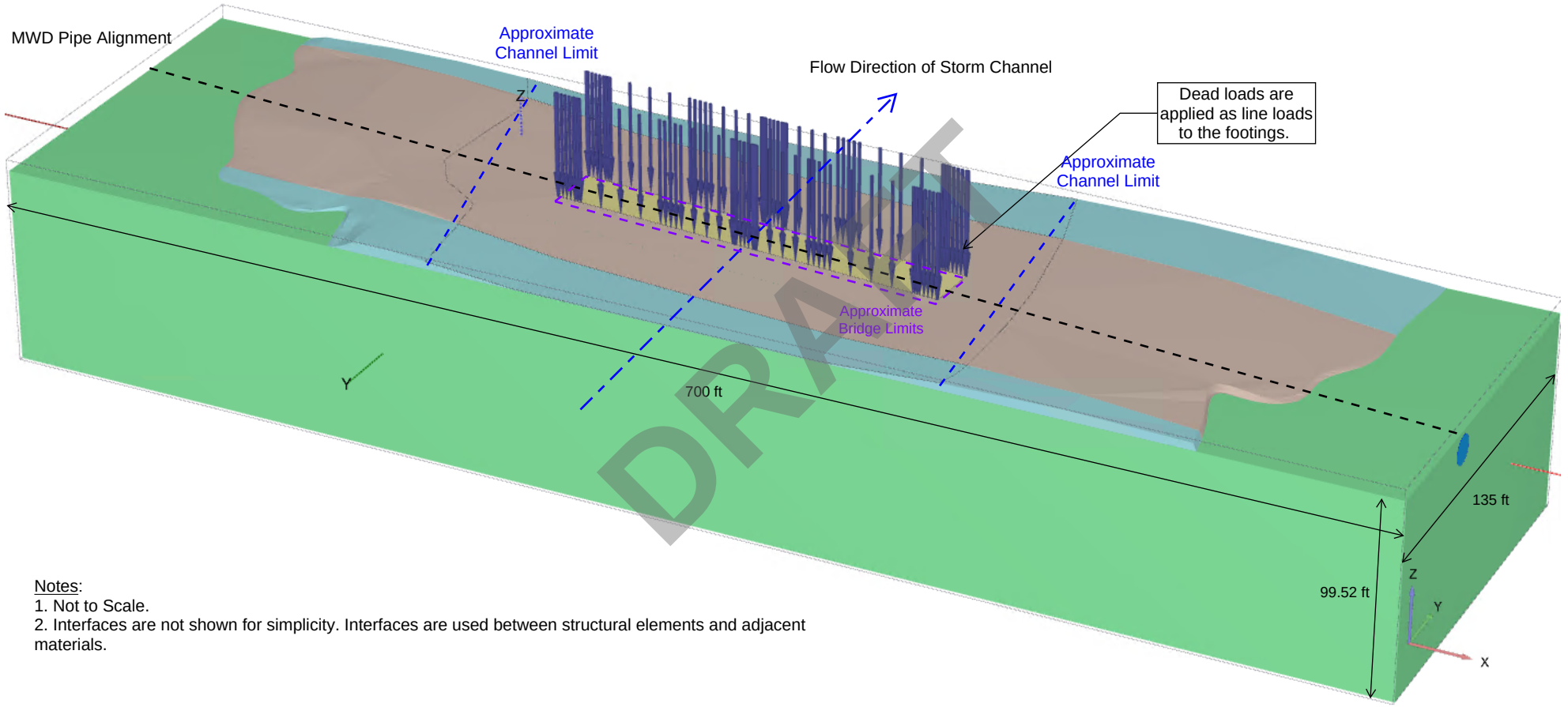
Model Staging
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E22

Step 4: Apply Dead Loads from Slab



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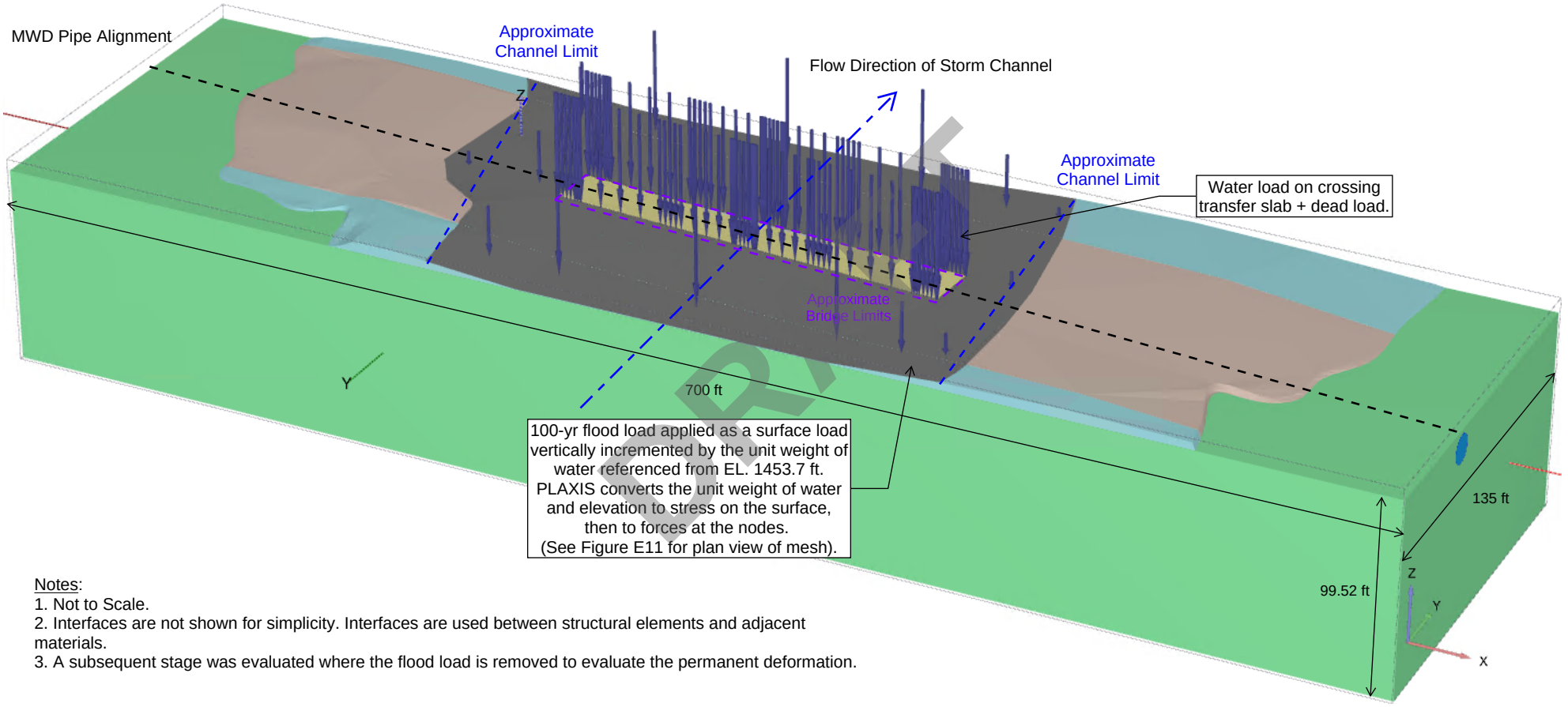
Model Staging
Step 4: Apply Dead Loads from Slab

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E23

Step 5.a: Apply Various Loads - 100-yr Flood Load



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3. A subsequent stage was evaluated where the flood load is removed to evaluate the permanent deformation.

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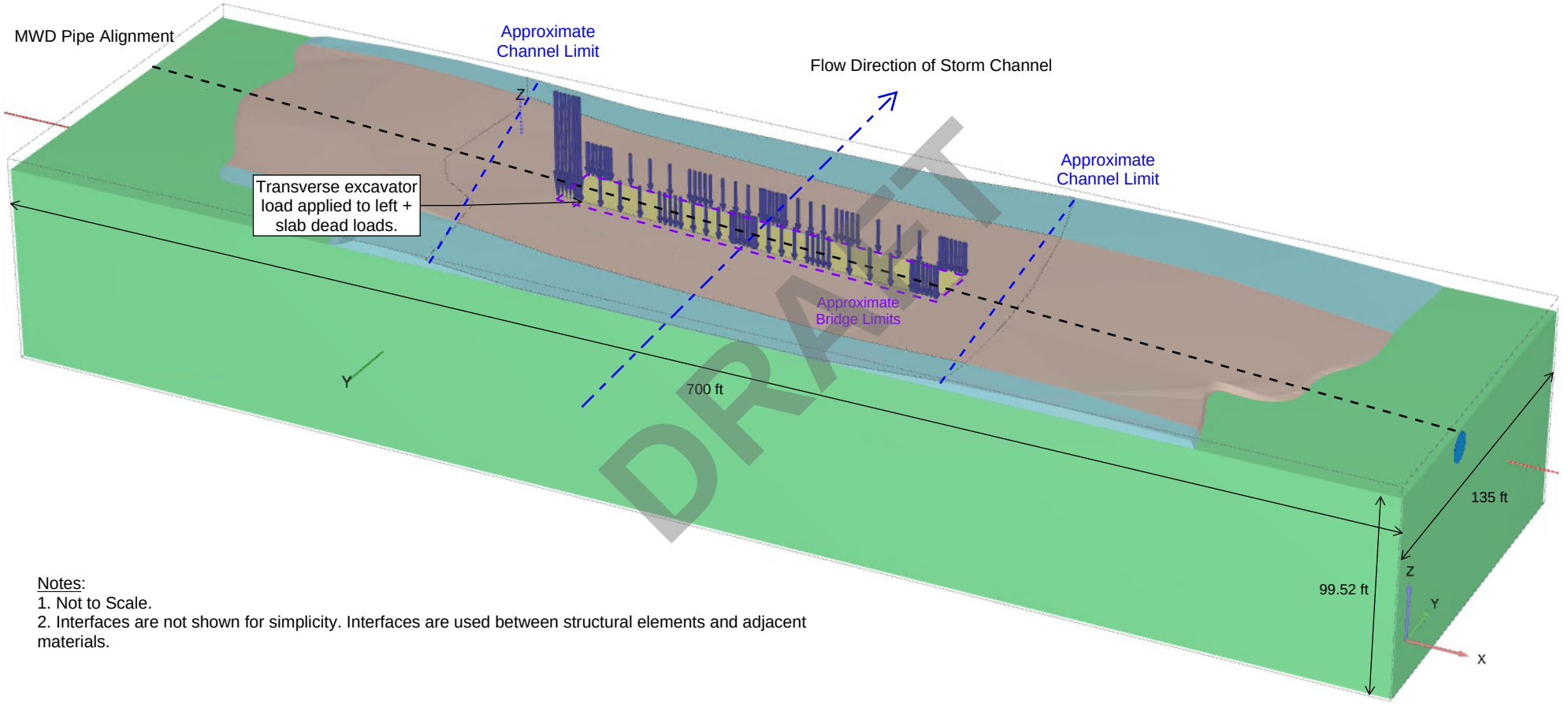
Model Staging
Step 5.a: Apply Various Loads - 100-yr Flood Load

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E24

Step 5.b: Transverse Excavator on Left



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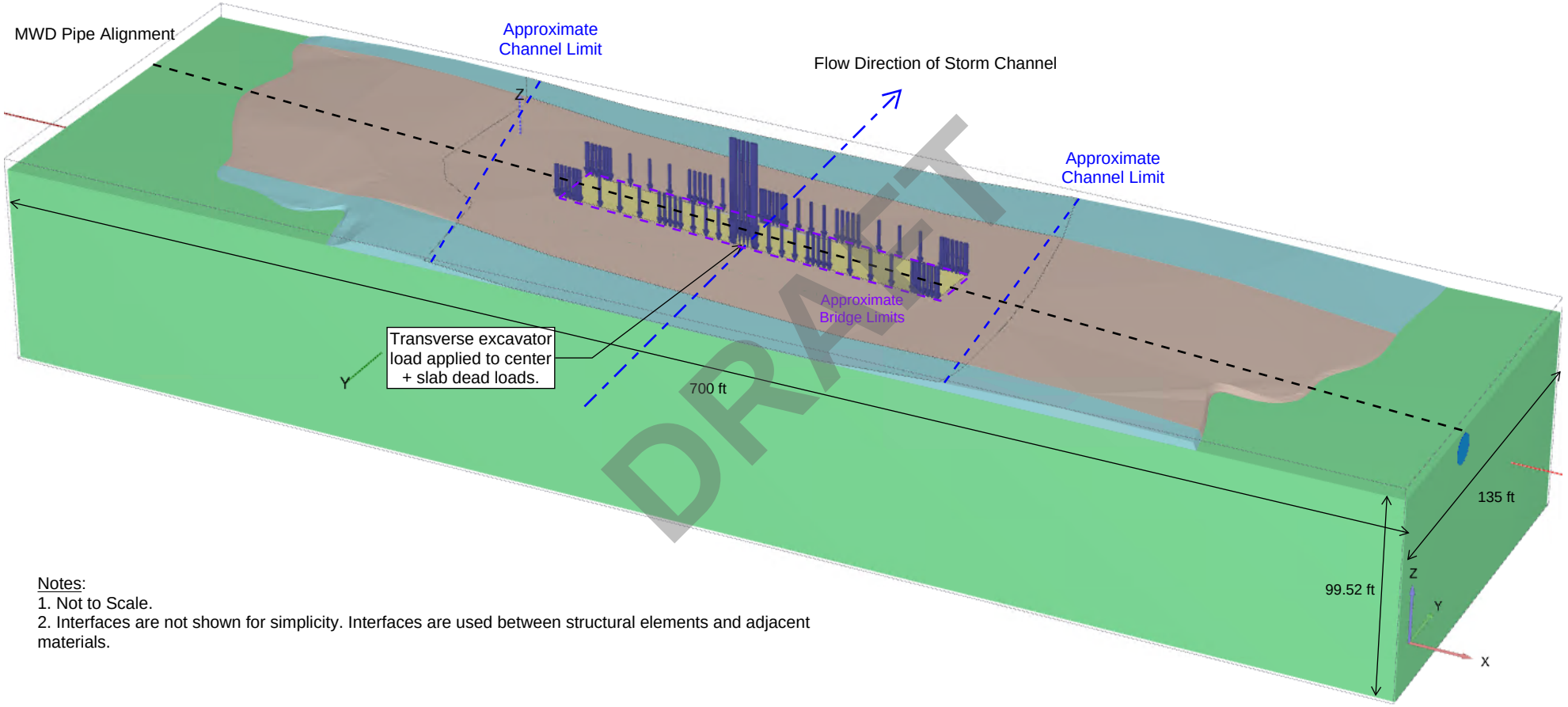
Model Staging
Step 5.b: Transverse Excavator on Left

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E25

Step 5.c: Transverse Excavator on Center



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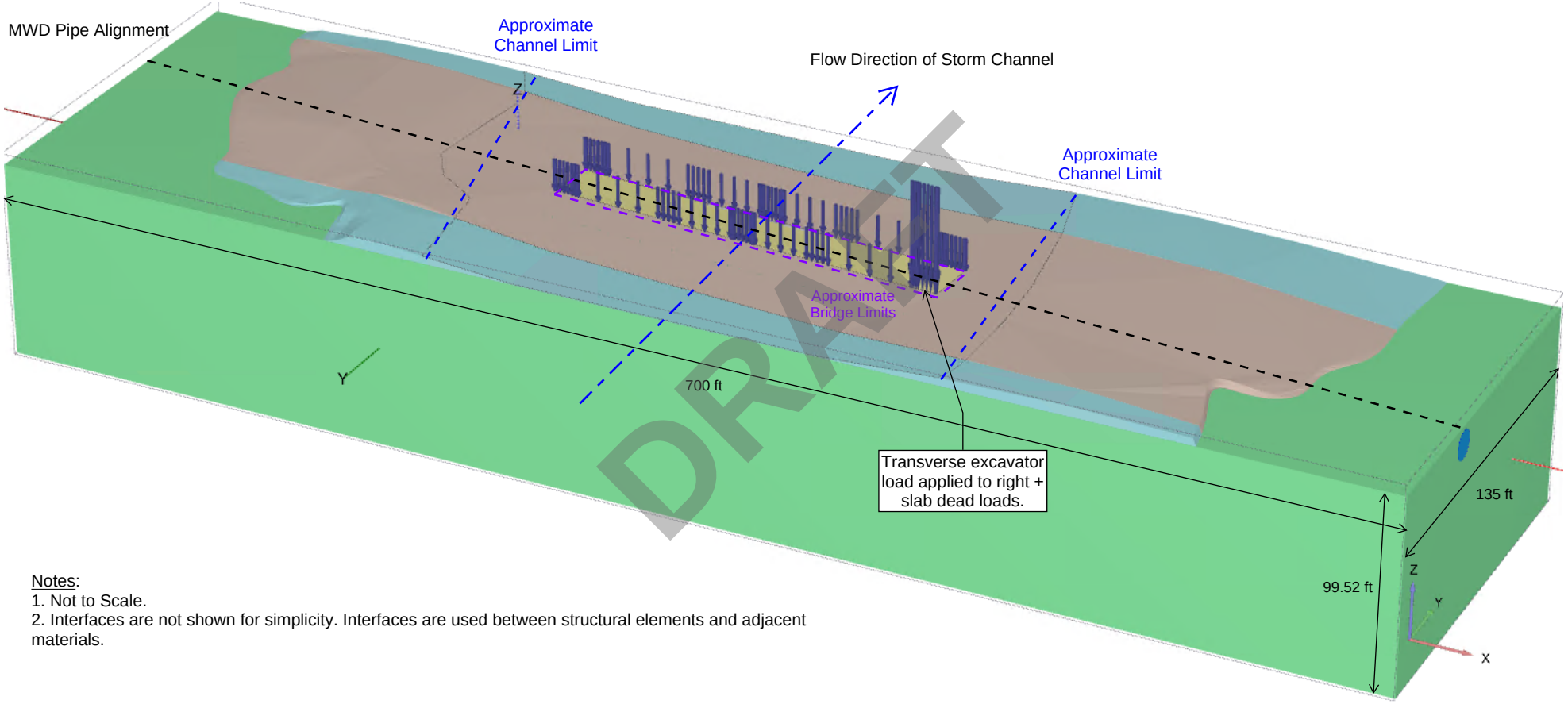
Model Staging
Step 5.c: Transverse Excavator on Center

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E26

Step 5.d: Transverse Excavator on Right



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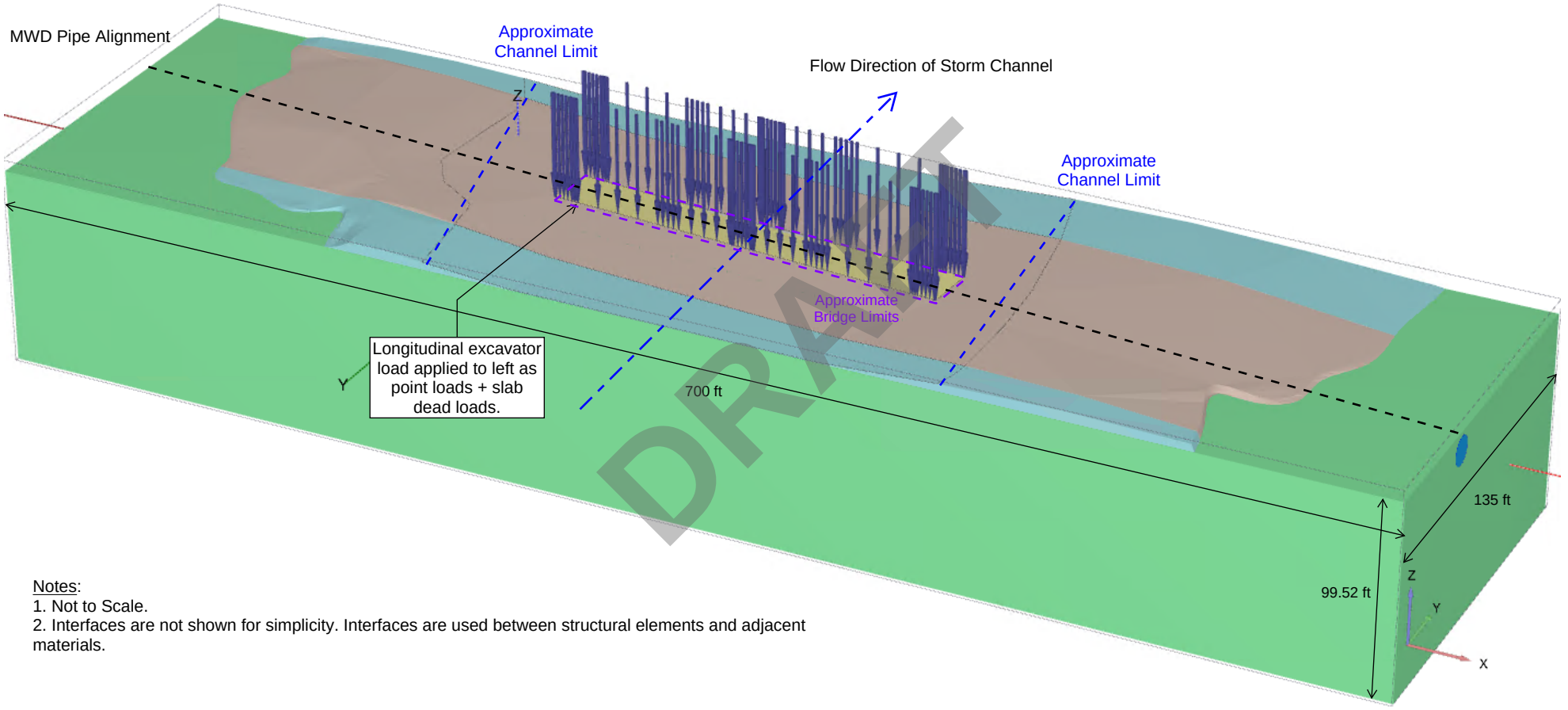
Model Staging
Step 5.d: Transverse Excavator on Right

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E27

Step 5.e: Longitudinal Excavator on Left



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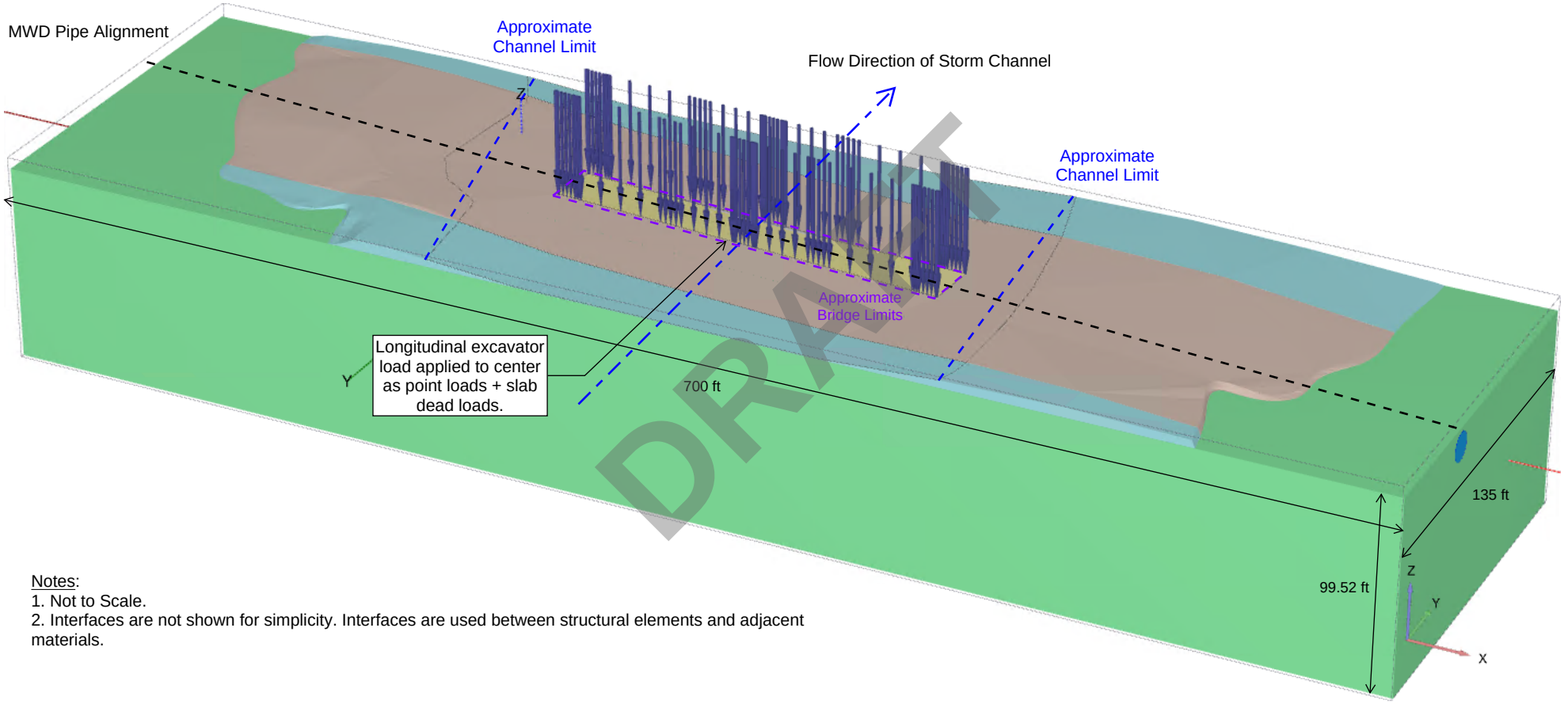
Model Staging
Step 5.e: Longitudinal Excavator on Left

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E28

Step 5.f: Longitudinal Excavator on Center



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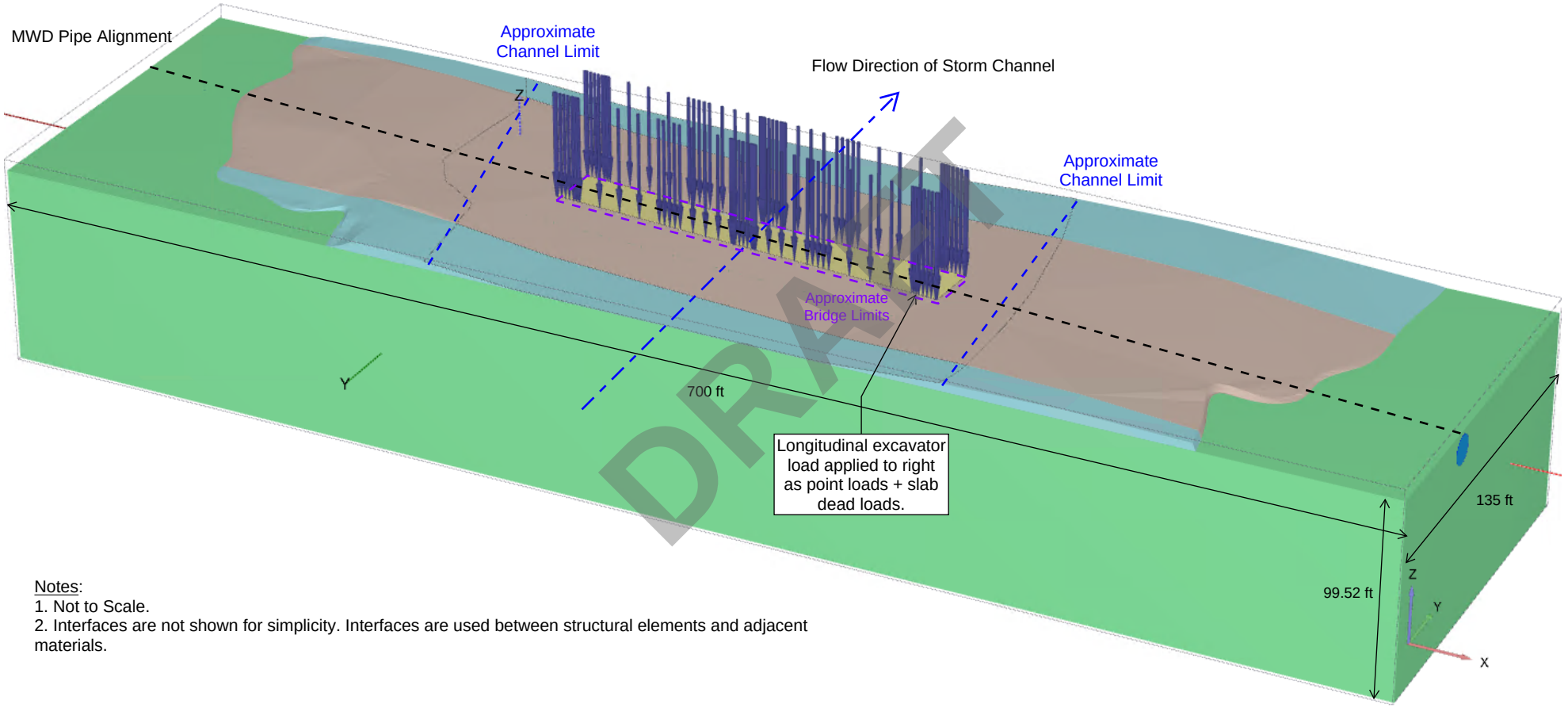
Model Staging
Step 5.f: Longitudinal Excavator on Center

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E29

Step 5.f: Longitudinal Excavator on Right



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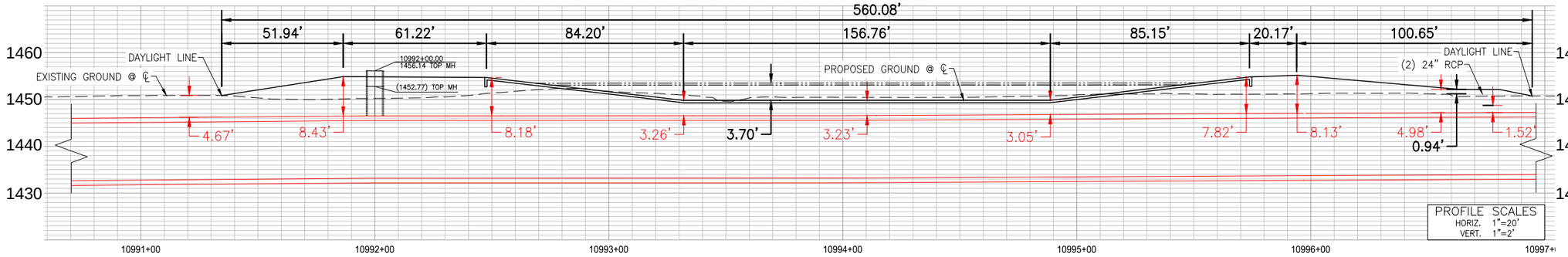
Model Staging
Step 5.f: Longitudinal Excavator on Right

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E30

MWD BARREL NO 1 PROFILE



Notes:
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2. Scale is modified for reporting purposes (40% of original).
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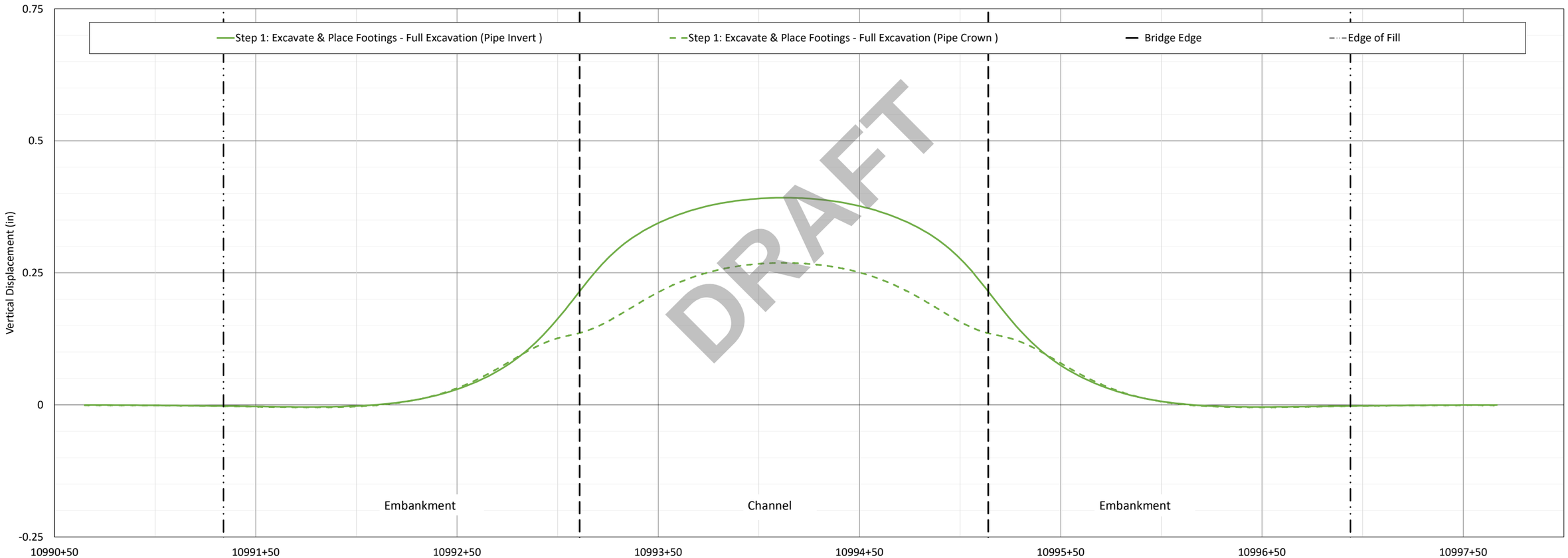
Vertical Scale: 1" = 5'



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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

VERTICAL NOT TO SCALE

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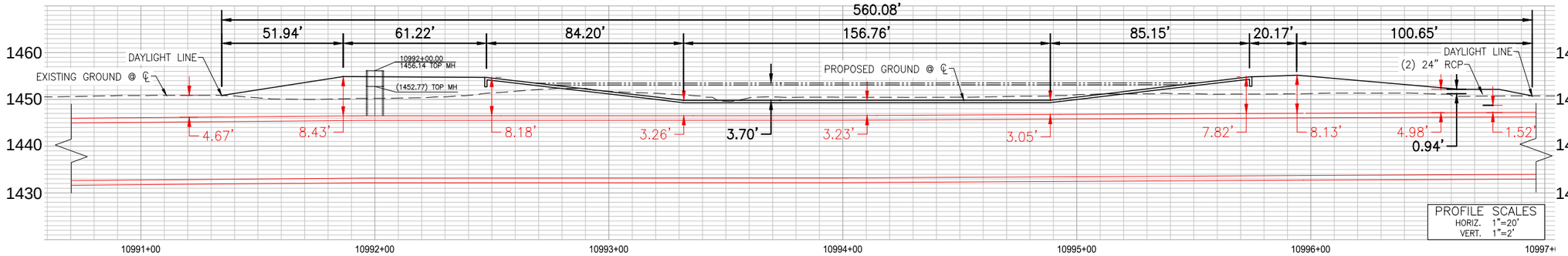
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1: Excavate & Place Footings
Full Length Excavation

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E31

MWD BARREL NO 1 PROFILE



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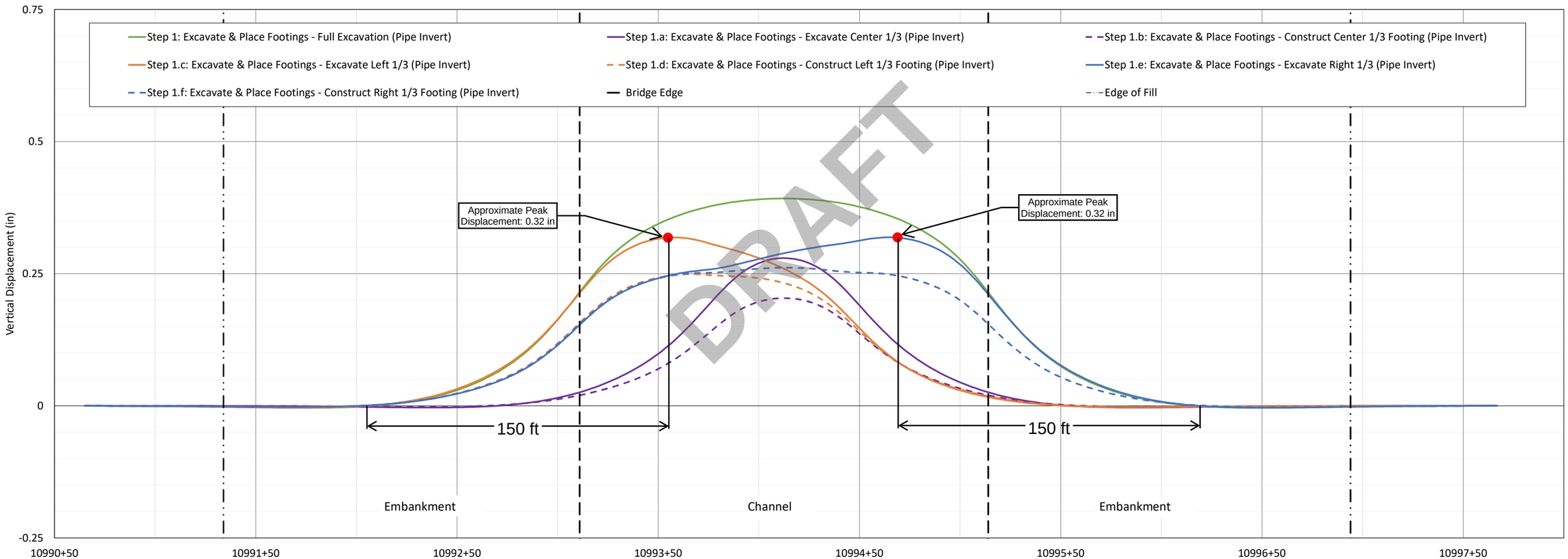

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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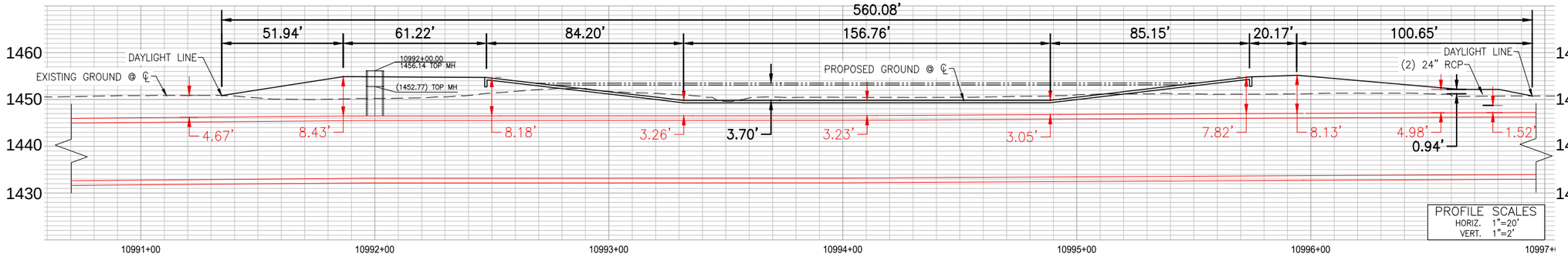
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1a-f: Excavate & Place Footings
1/3 Construction Sequencing at Pipe Invert

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E32

MWD BARREL NO 1 PROFILE



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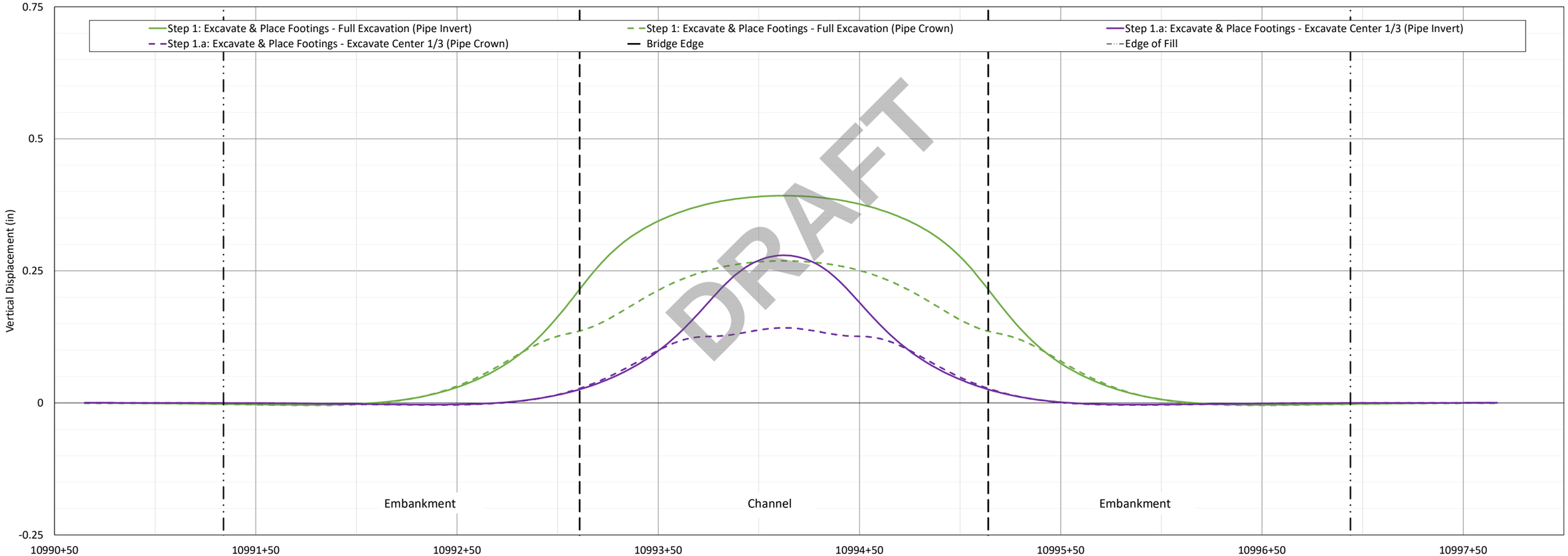

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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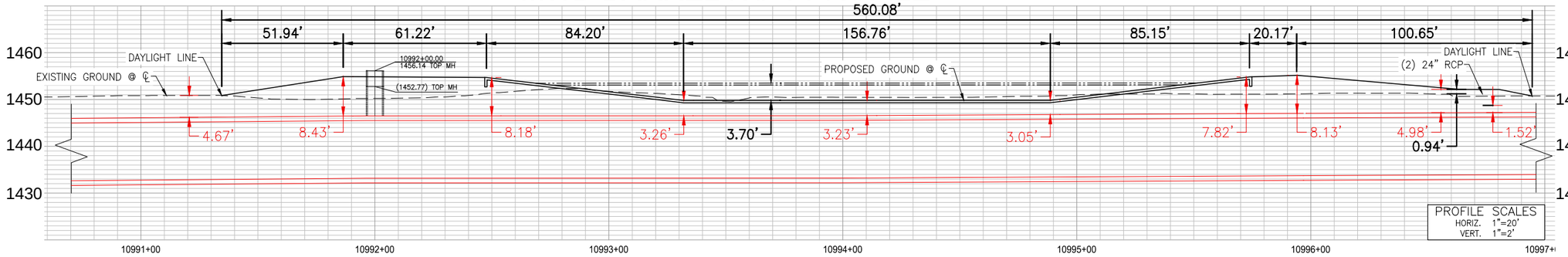
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1a: Excavate & Place Footings
Excavate Center 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E33

MWD BARREL NO 1 PROFILE



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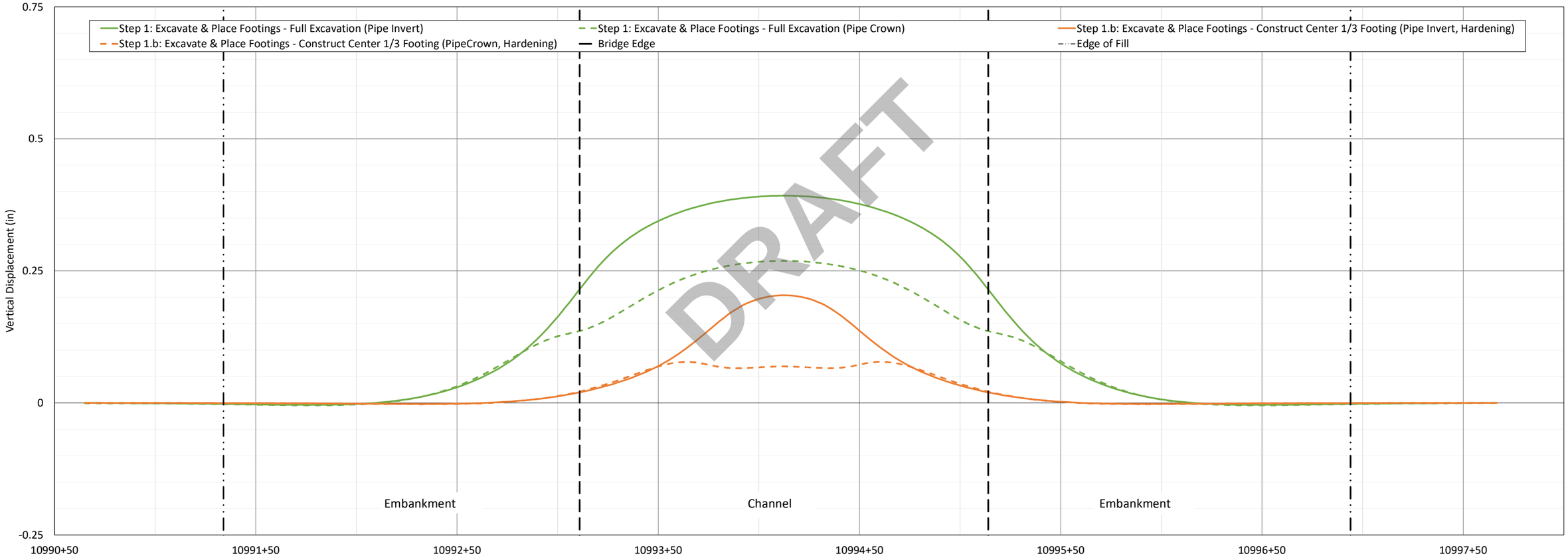

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0 25 50 100

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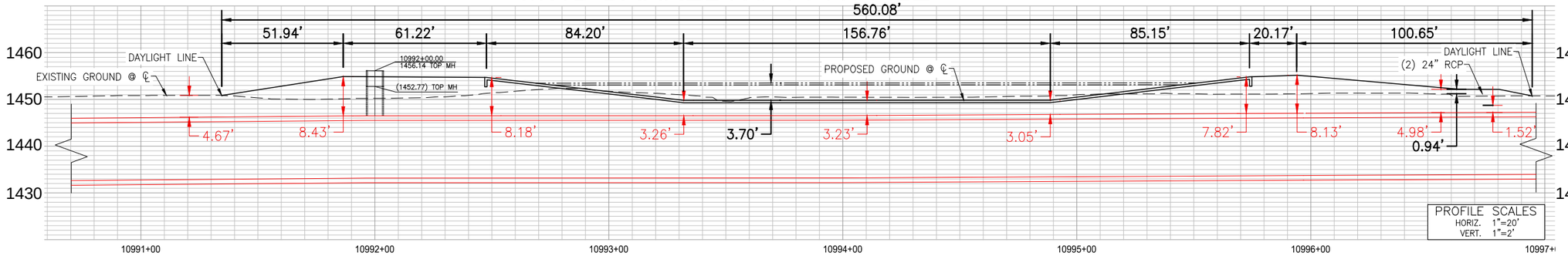
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1b: Excavate & Place Footings
Place Center 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E34

MWD BARREL NO 1 PROFILE



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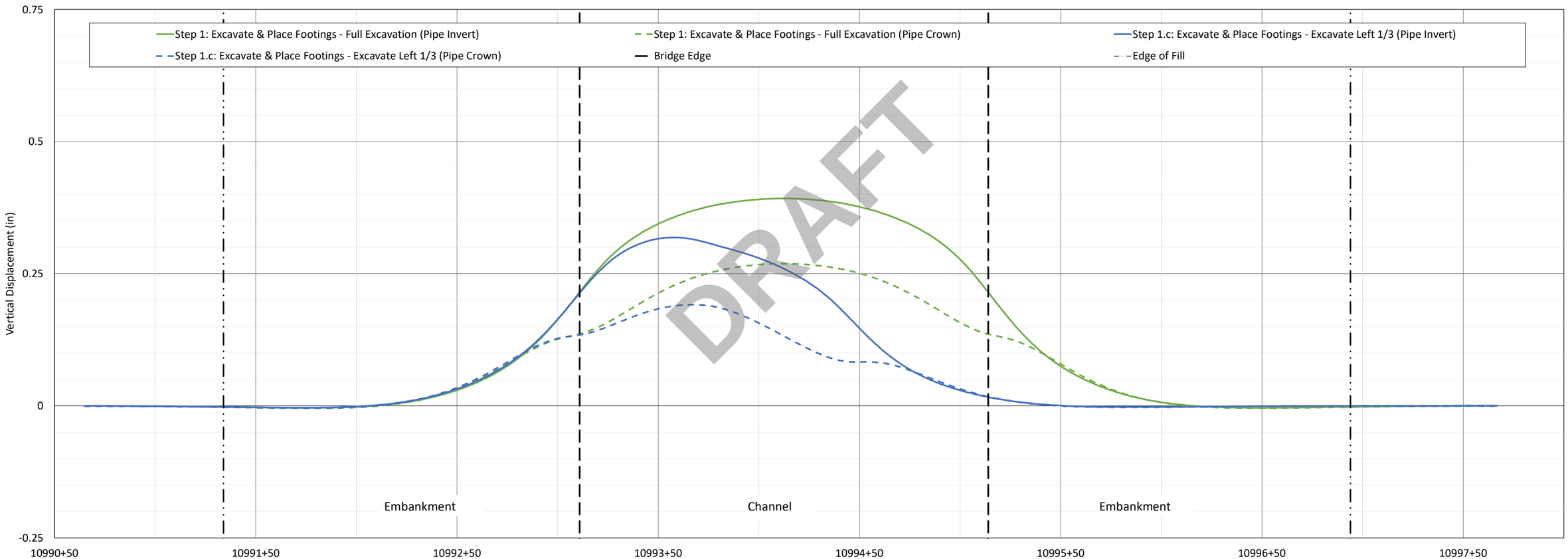

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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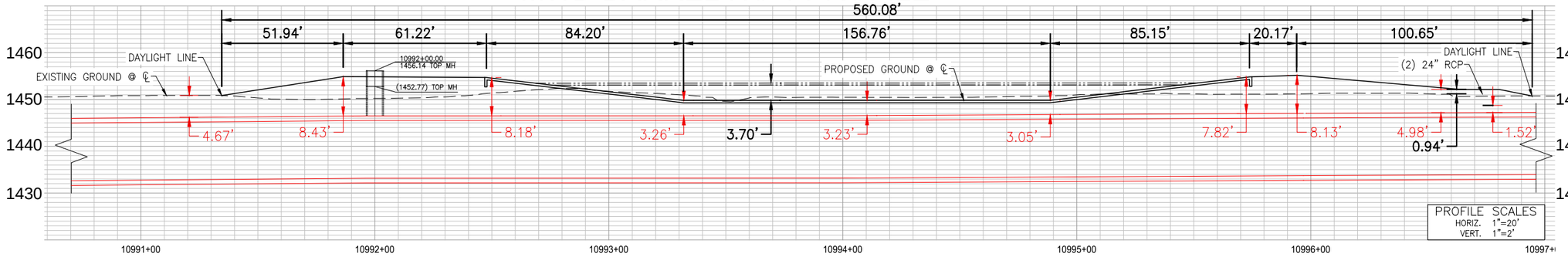
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1c: Excavate & Place Footings
Excavate Left 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E35

MWD BARREL NO 1 PROFILE



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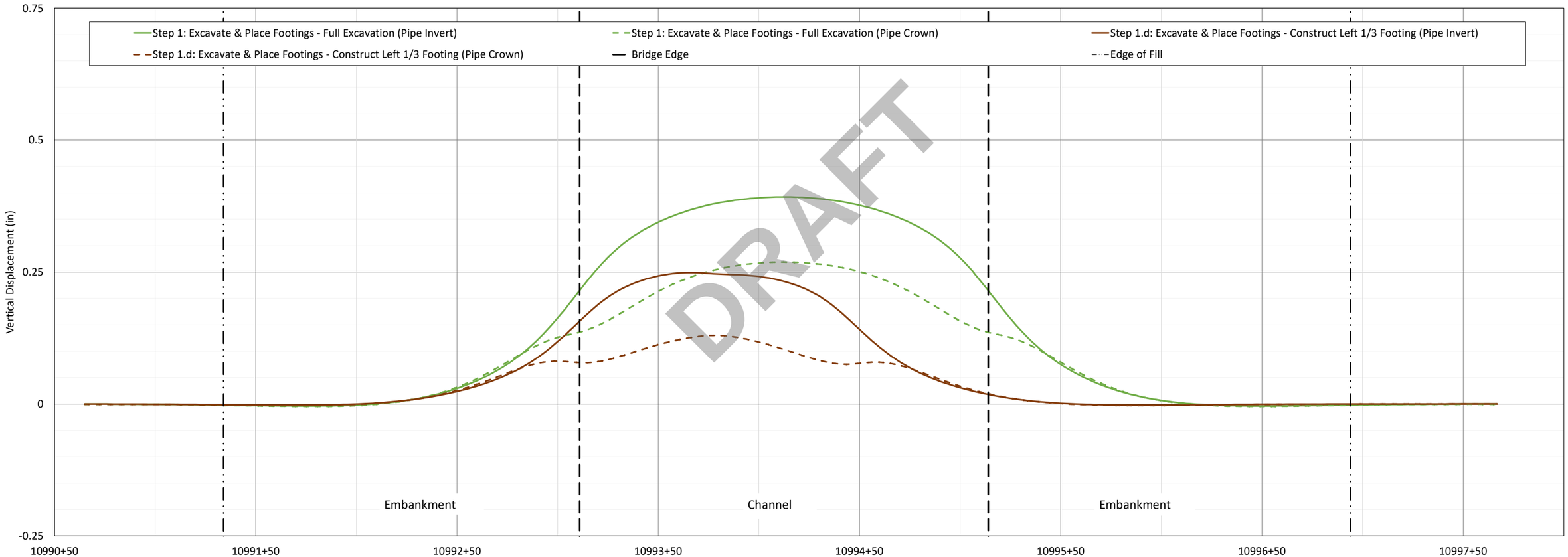

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0 25 50 100

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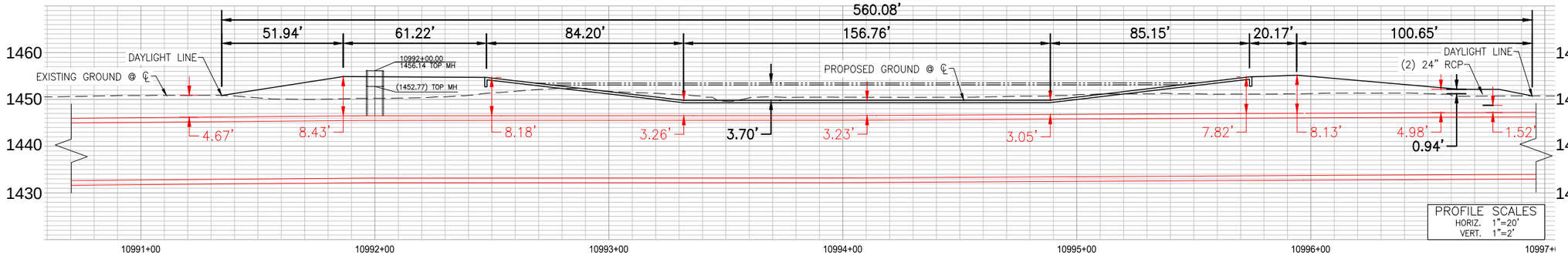
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1d: Excavate & Place Footings
Place Left 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E36

MWD BARREL NO 1 PROFILE



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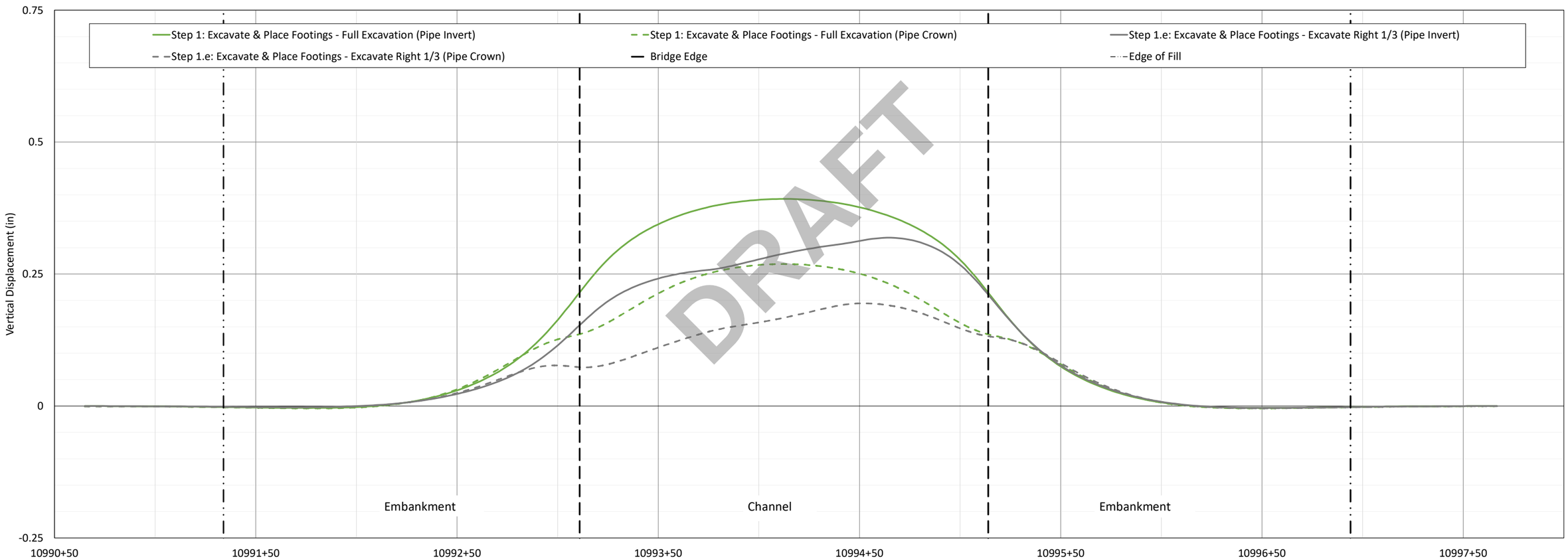

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0 25 50 100

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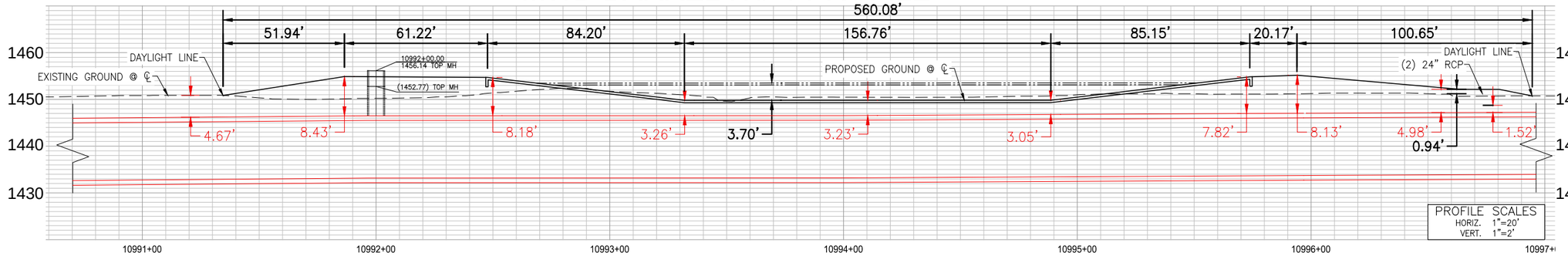
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1e: Excavate & Place Footings
Excavate Right 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E37

MWD BARREL NO 1 PROFILE



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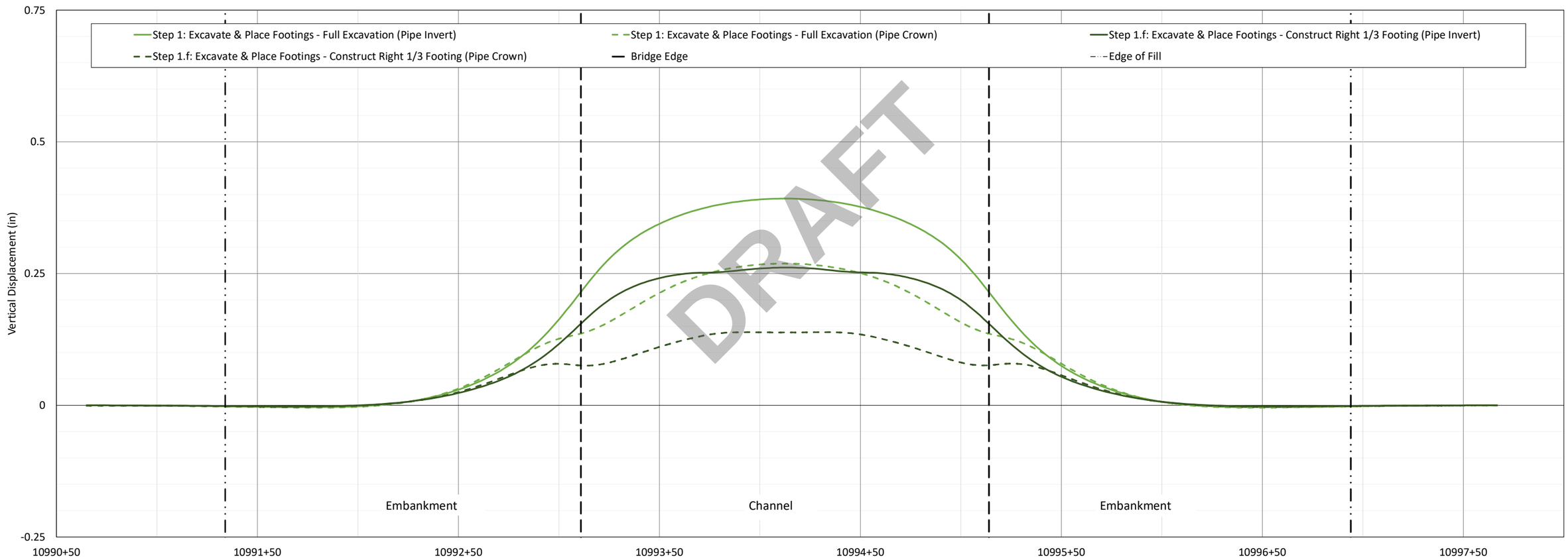

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0 25 50 100

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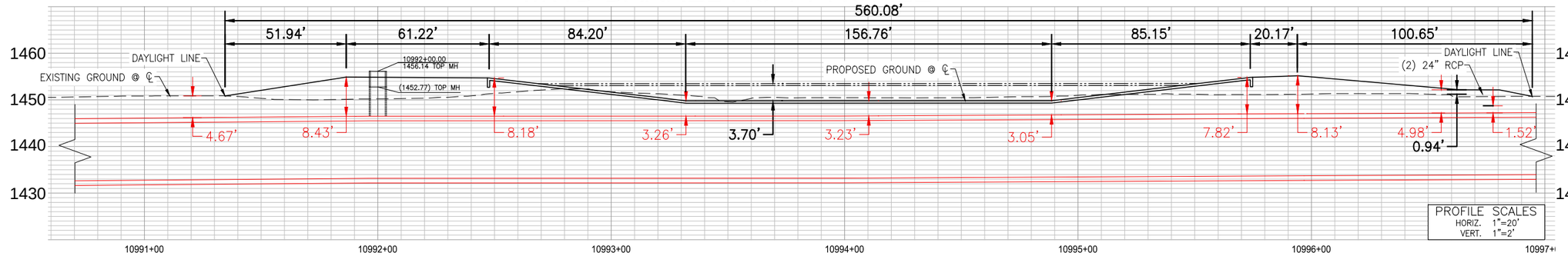
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1f: Excavate & Place Footings
Place Right 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E38

MWD BARREL NO 1 PROFILE



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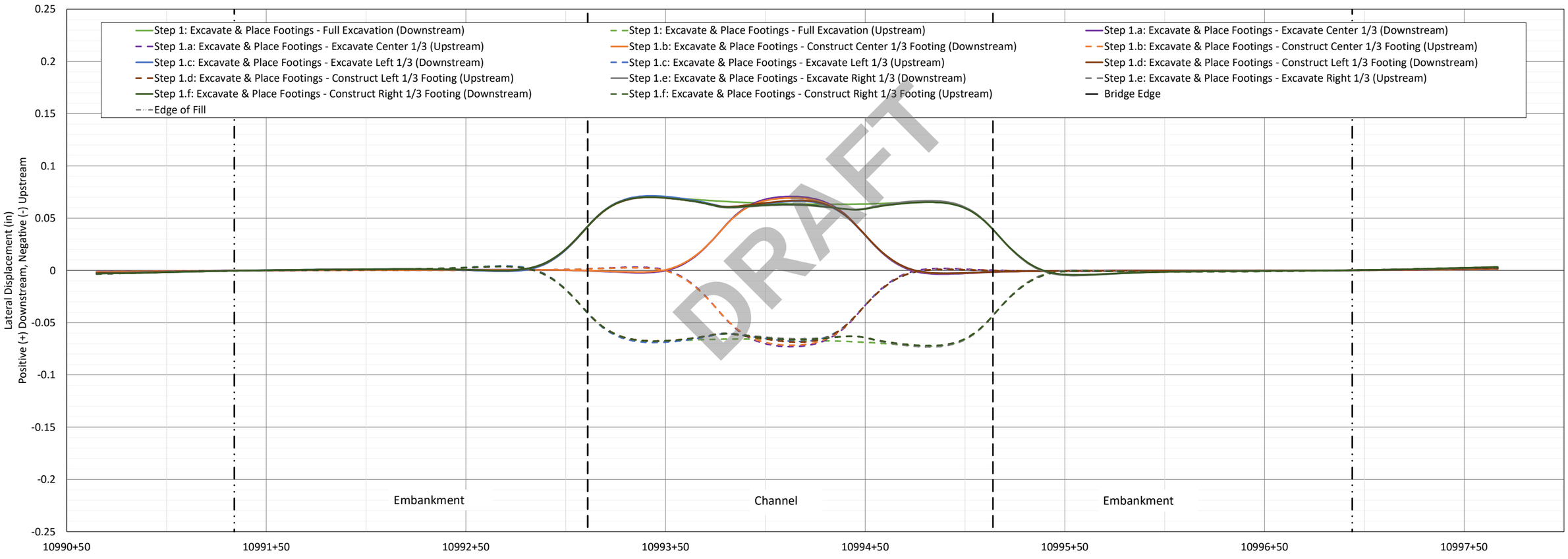

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APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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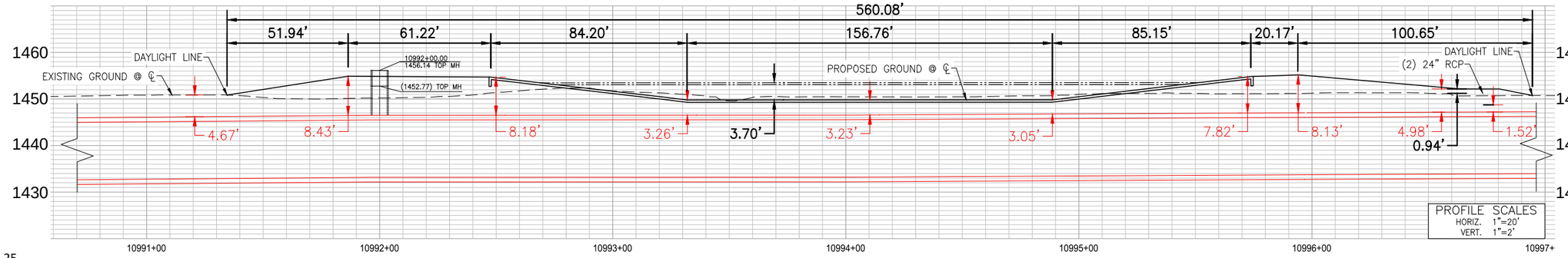
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Lateral Displacement
Step 1: Excavate & Place Footings
Full Length and Staged Excavation

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E39

MWD BARREL NO 1 PROFILE



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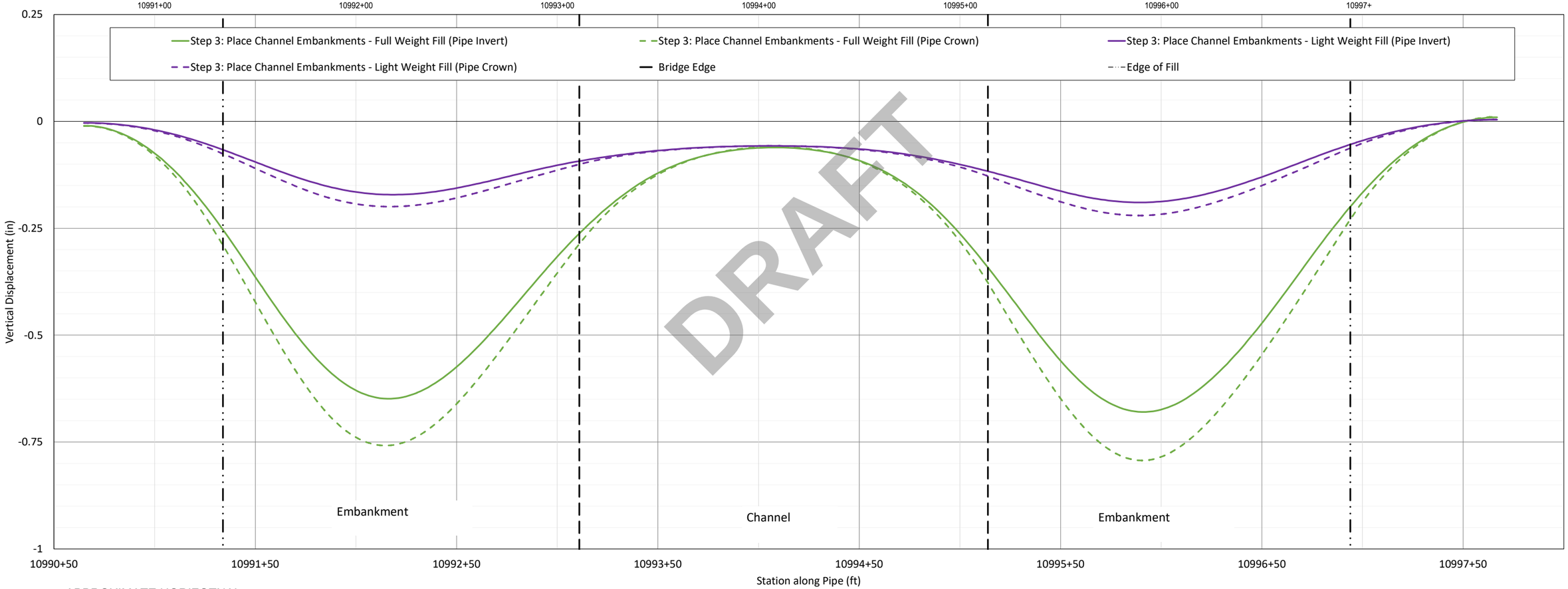

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0 25 50 100

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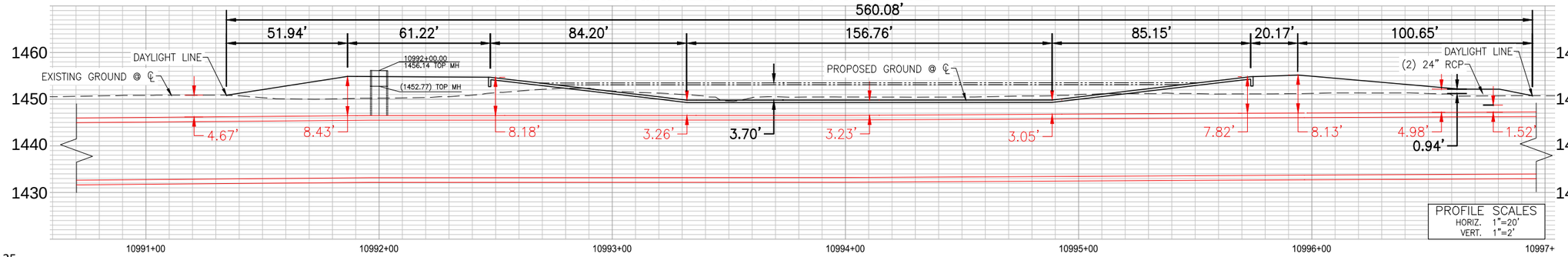
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 3: Place Channel Embankments
Full vs Light Weight Fill

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E40

MWD BARREL NO 1 PROFILE



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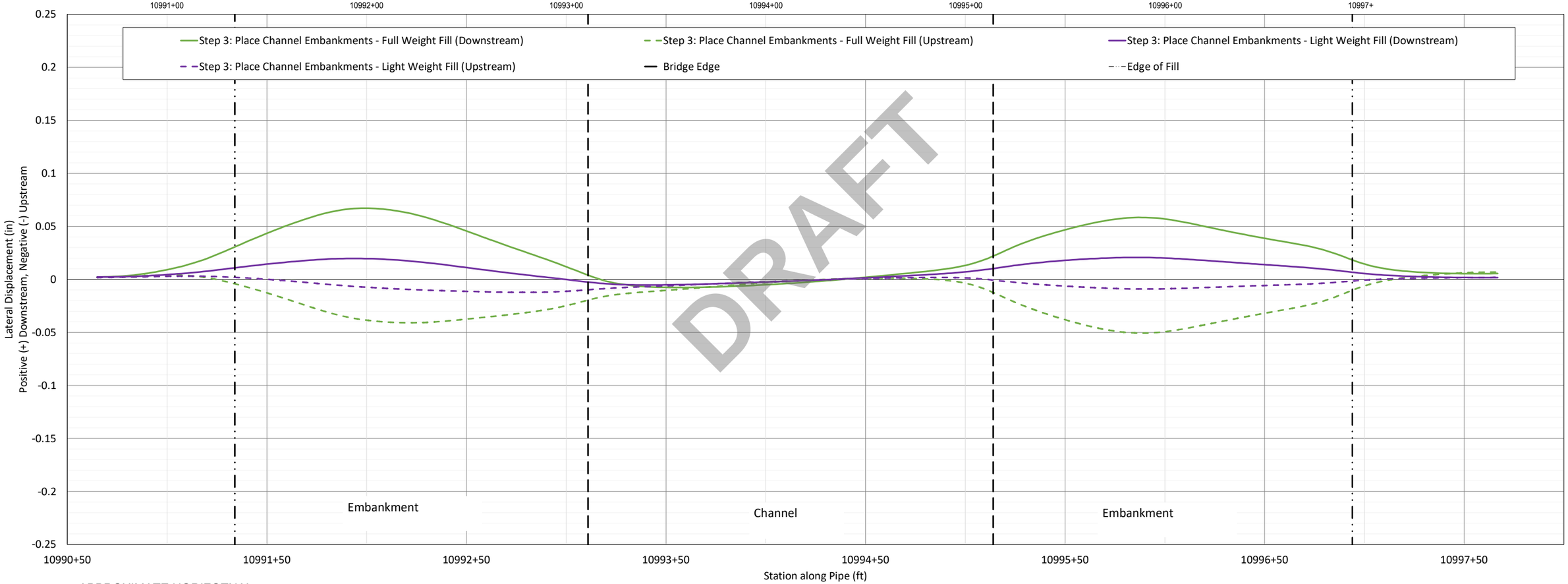

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0 25 50 100

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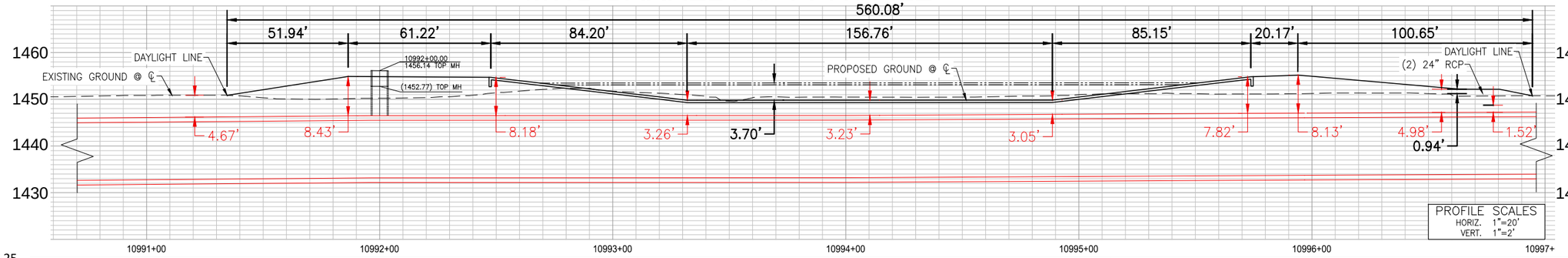
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Lateral Displacement
Step 3: Place Channel Embankments
Full vs Light Weight Fill

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E41

MWD BARREL NO 1 PROFILE



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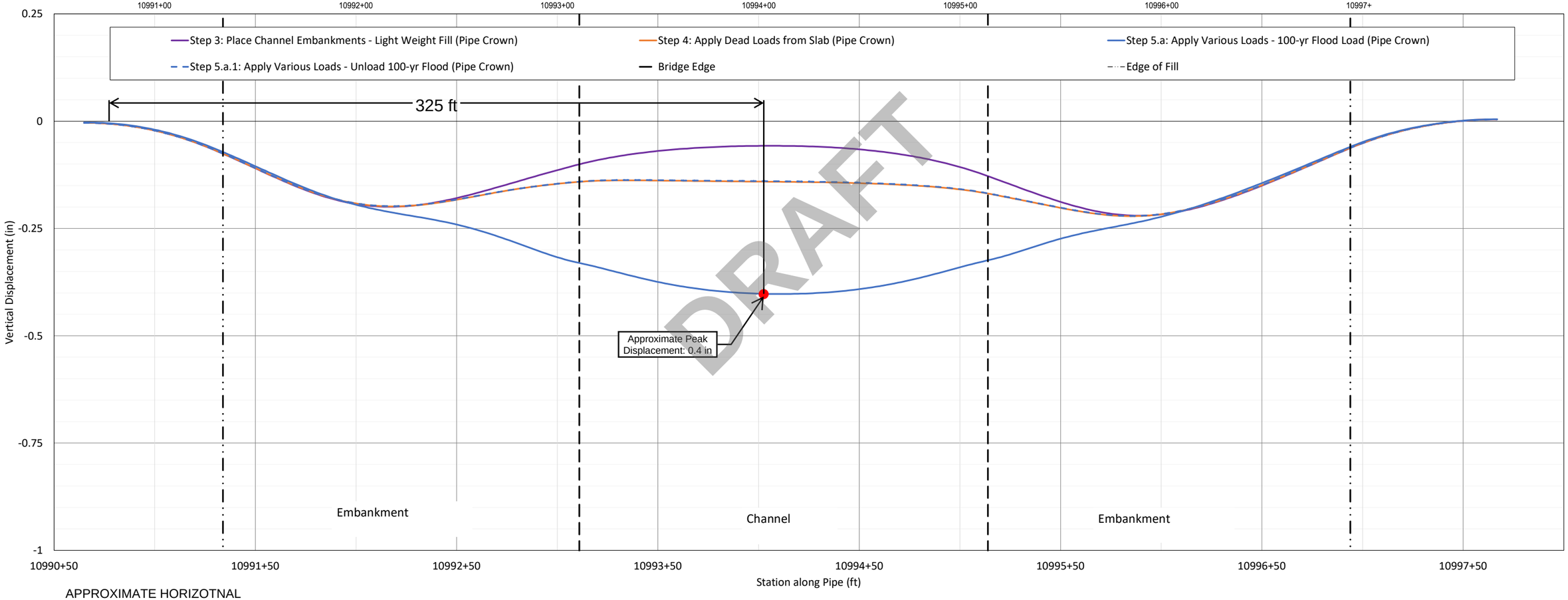

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0 25 50 100

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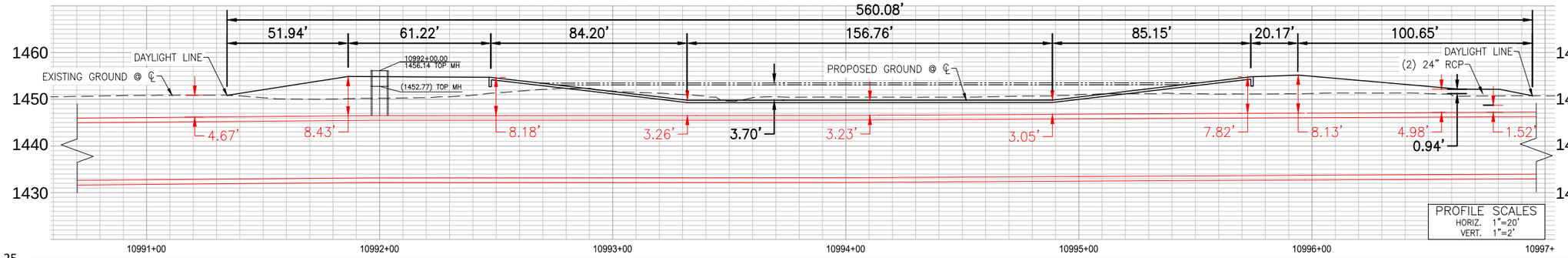
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement Step 3 to 5.a.1: 100-yr Flood Load Sequence

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E42

MWD BARREL NO 1 PROFILE



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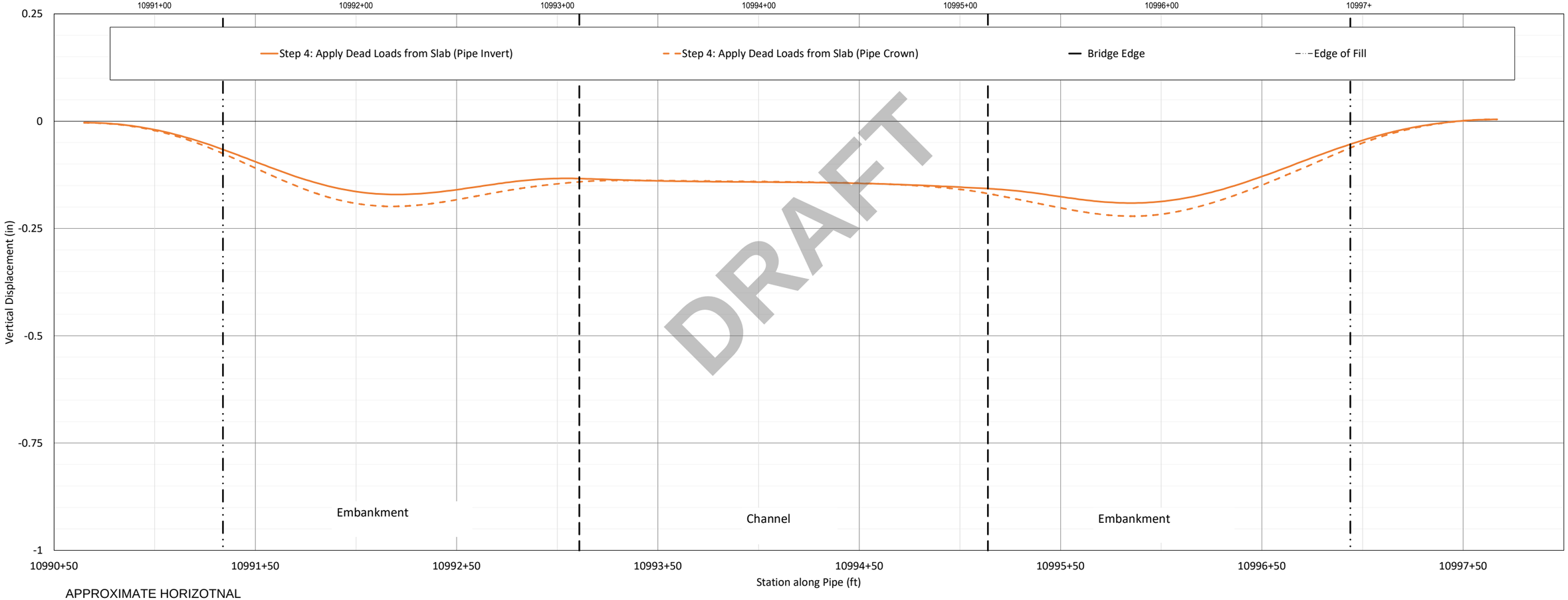

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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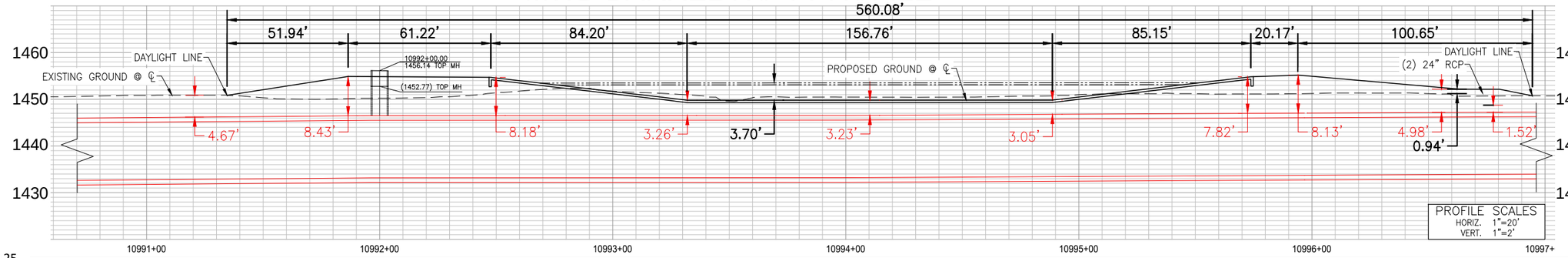
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 4: Apply Dead Loads from Slab

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E43

MWD BARREL NO 1 PROFILE



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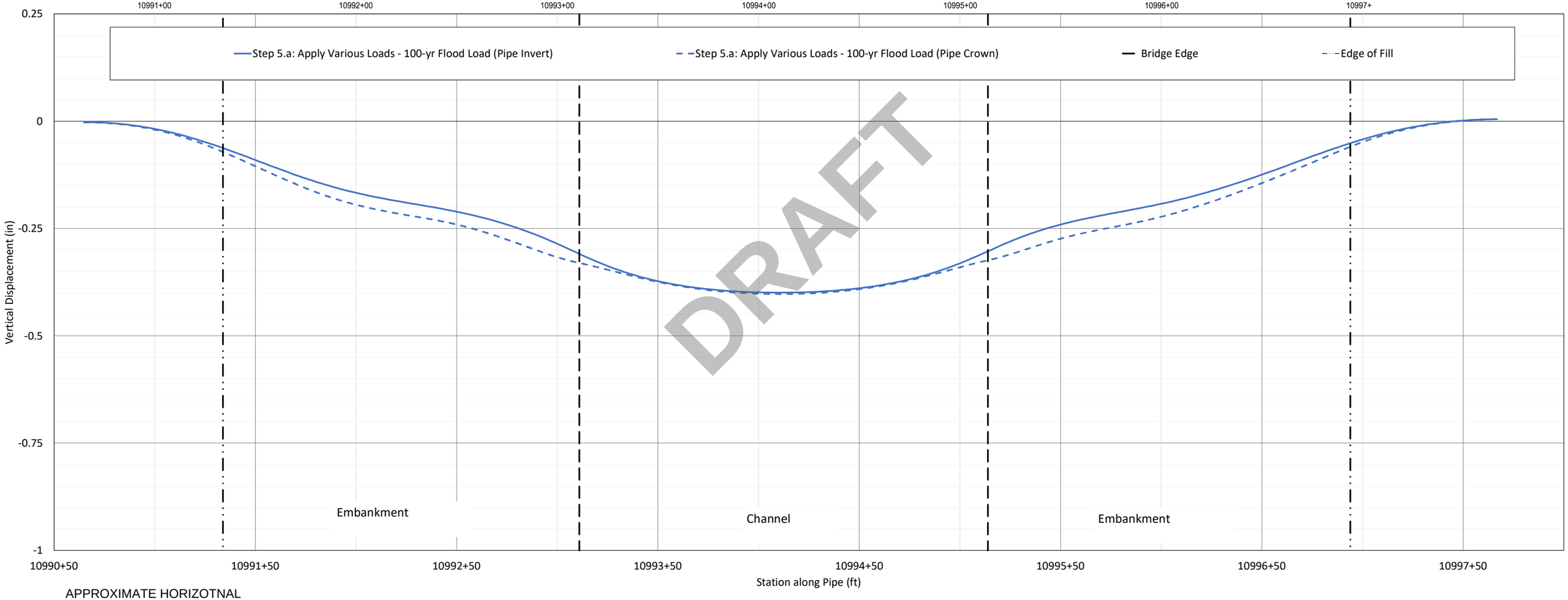
Vertical Scale: 1" = 5'



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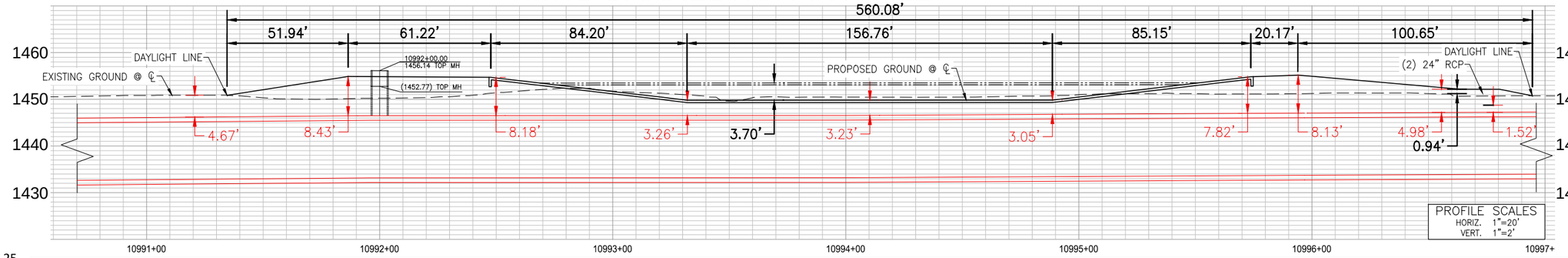
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 5.a: 100-yr Flood Load

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E44

MWD BARREL NO 1 PROFILE



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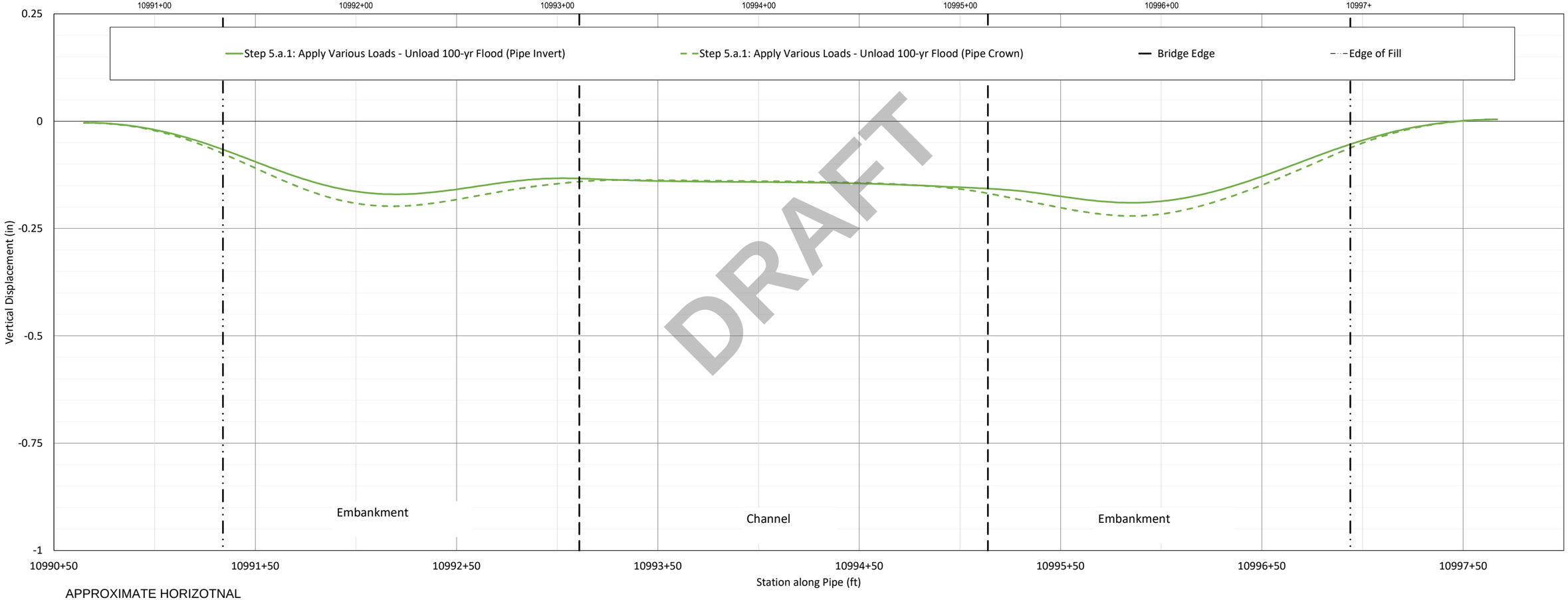

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

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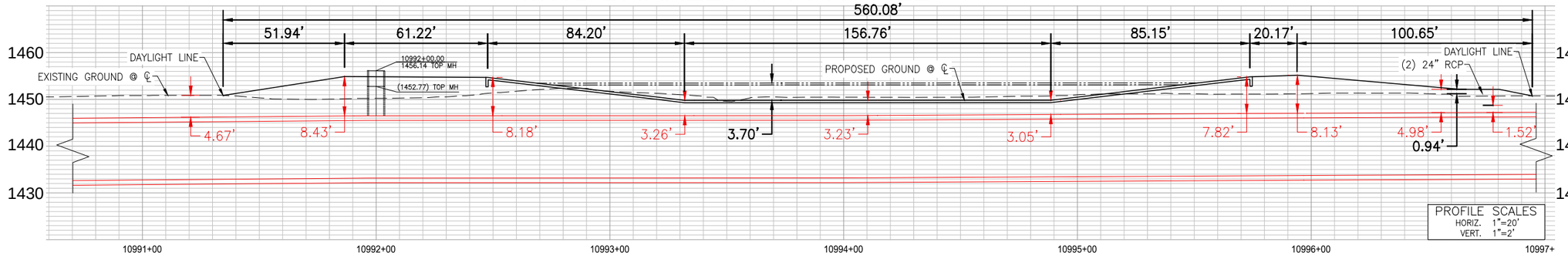
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 5.a.1: Remove 100-yr Flood Load

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E45

MWD BARREL NO 1 PROFILE



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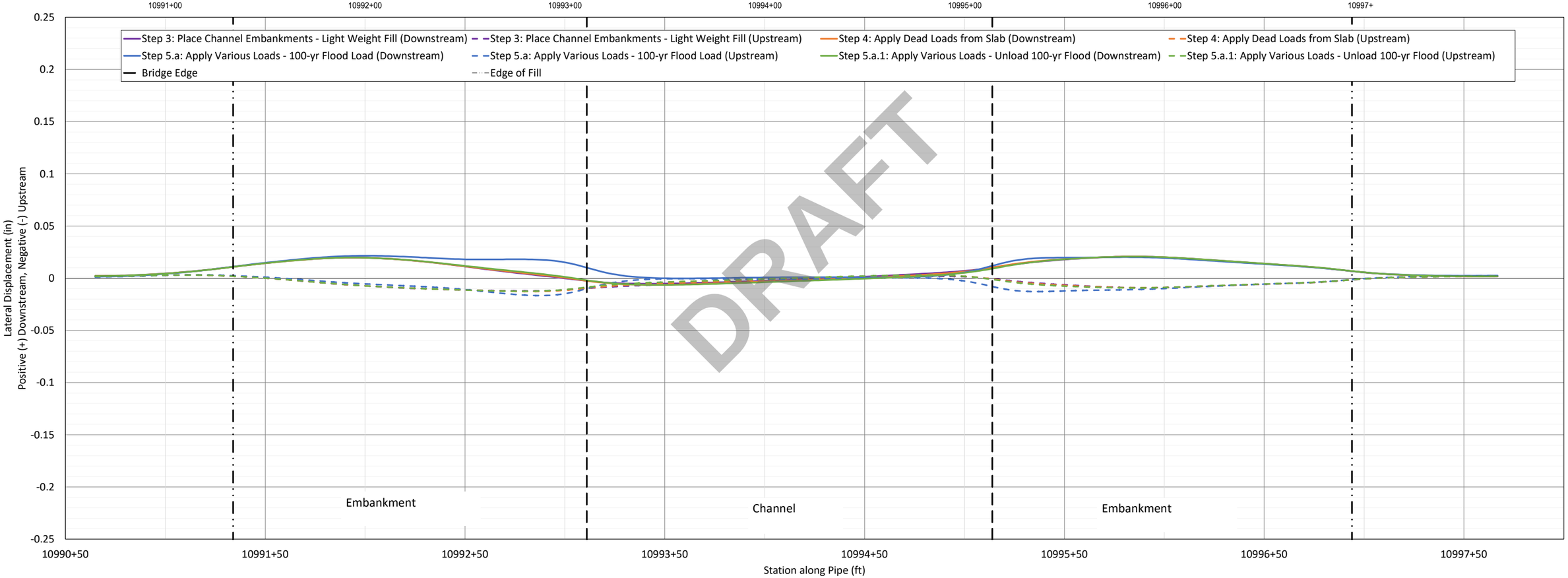

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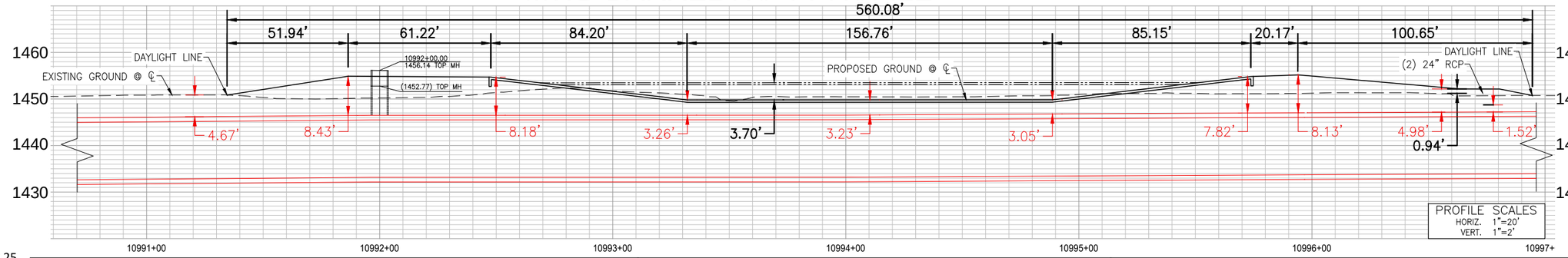
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Lateral Displacement Step 3 to 5.a.1: 100-yr Flood Load Sequence

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E46

MWD BARREL NO 1 PROFILE



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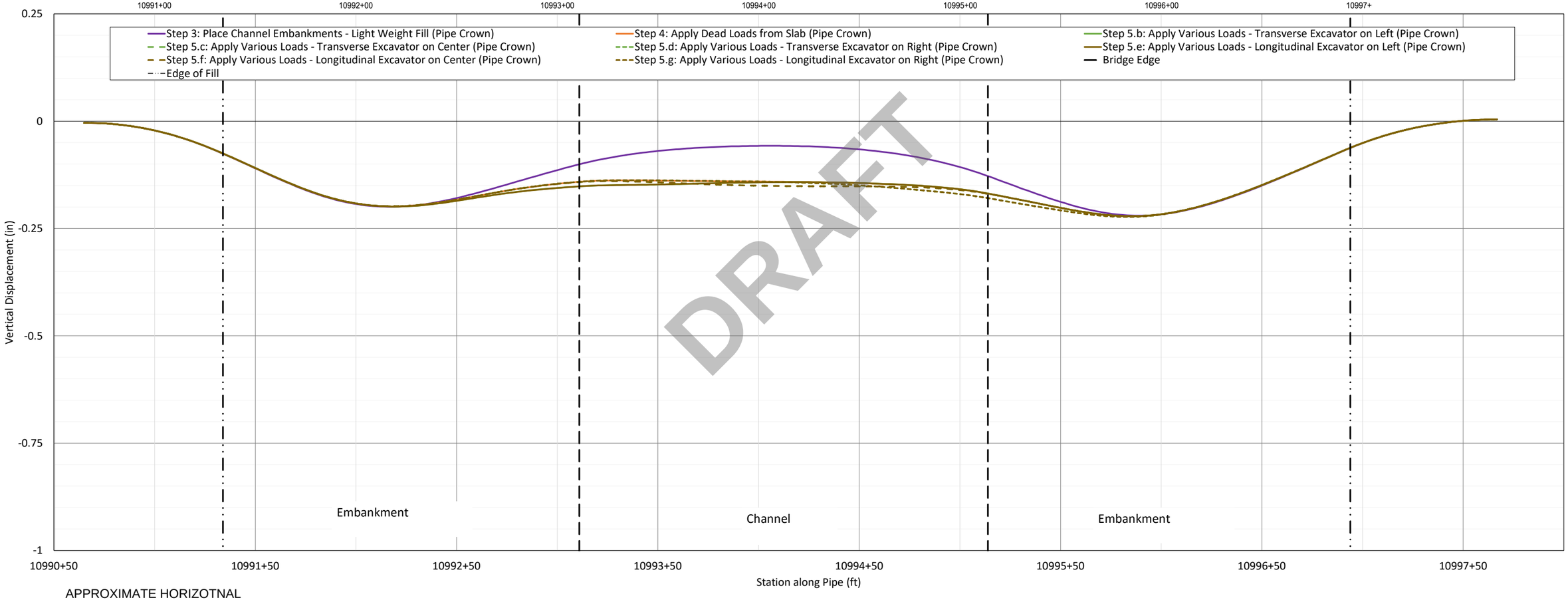

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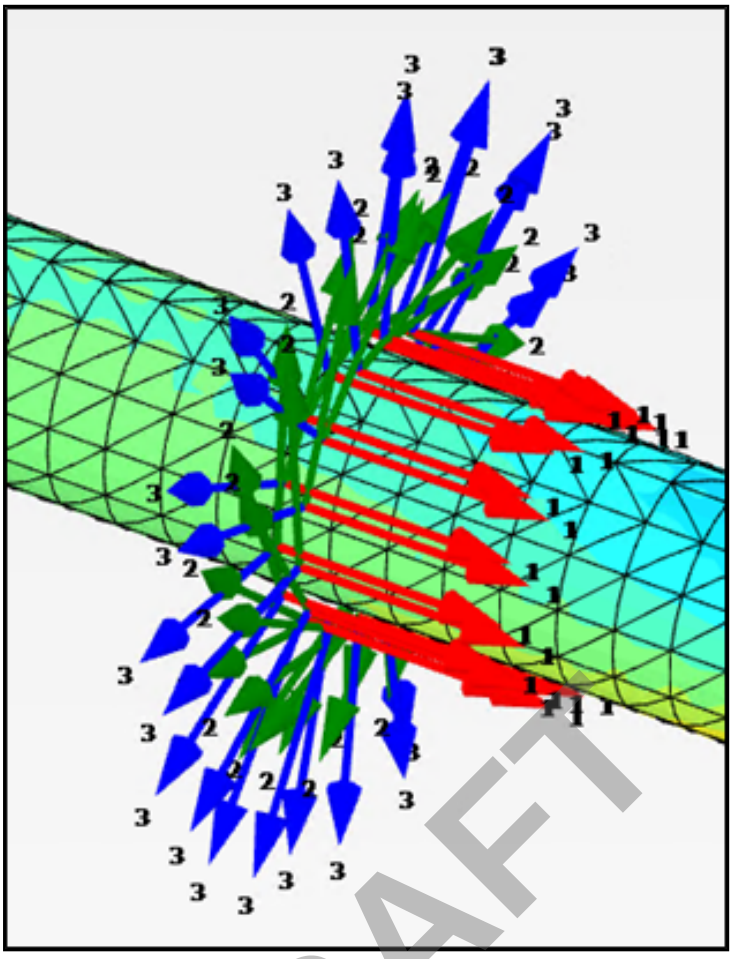
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

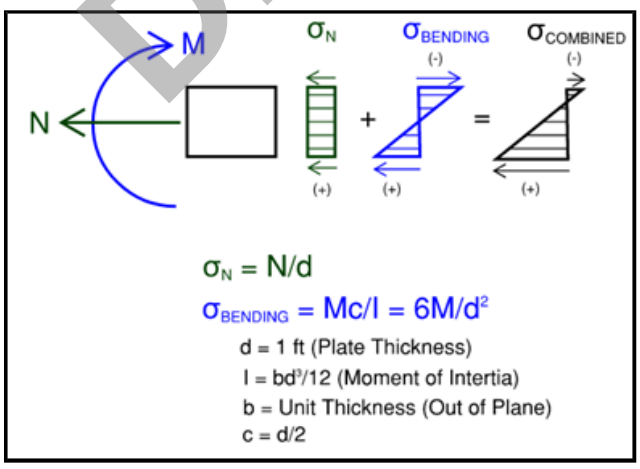
Model Results - Vertical Displacement Step 5.b to 5.g: Various Equipment Load Cases

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E47



a: PLAXIS Local Axes for MWD Pipe Stresses



b: Converting PLAXIS Output Forces to Stresses

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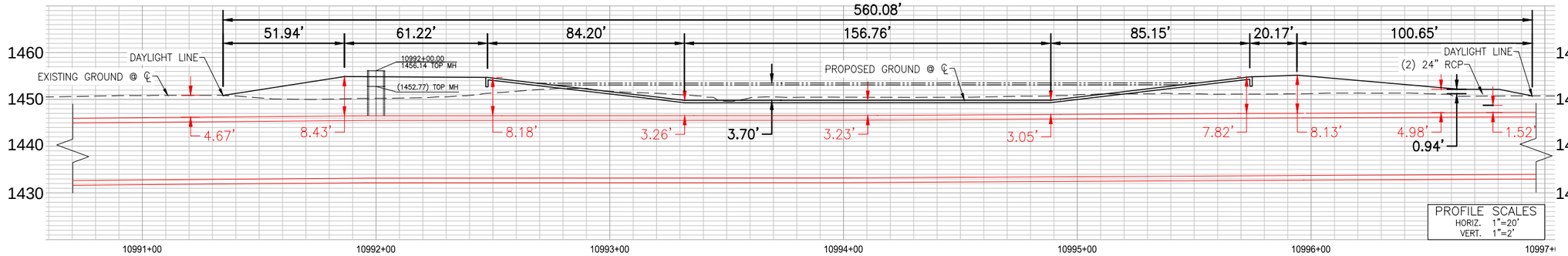
PROJECT NO.	24002328.001A
DRAWN:	10/2024
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

PLAXIS Local Axes for Pipe Stresses & Conversion of Output Forces to Stresses

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E48

MWD BARREL NO 1 PROFILE



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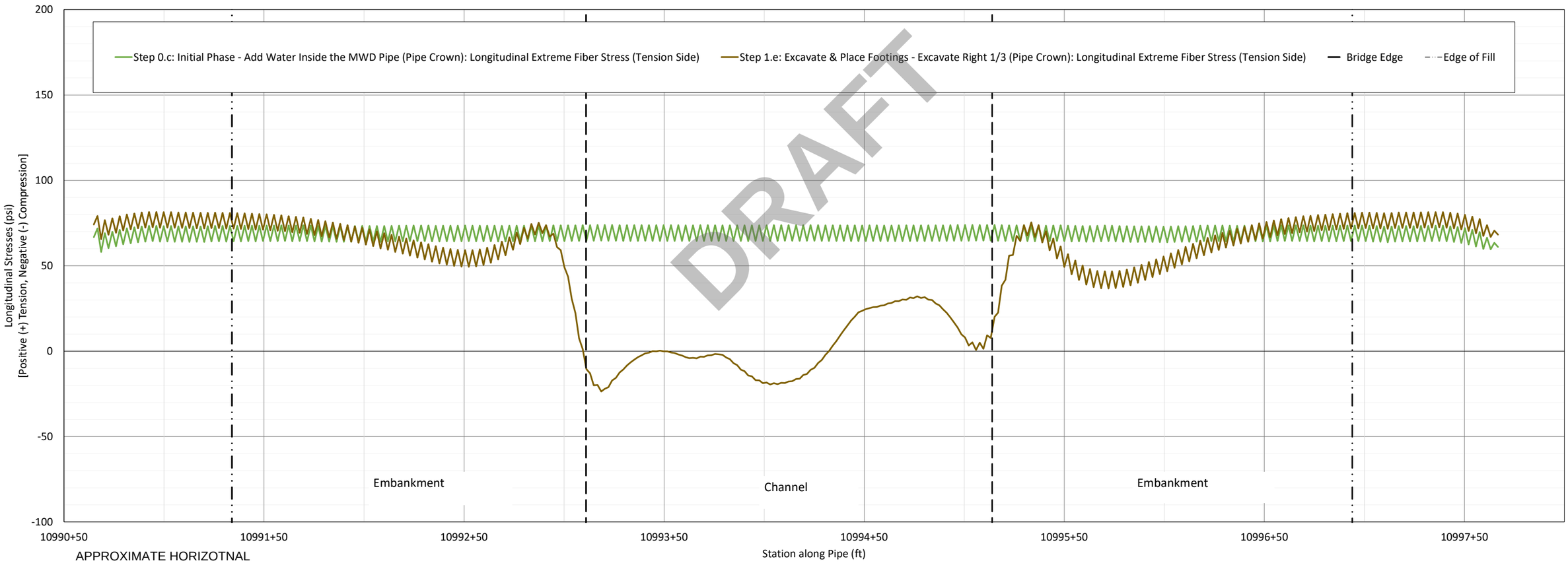

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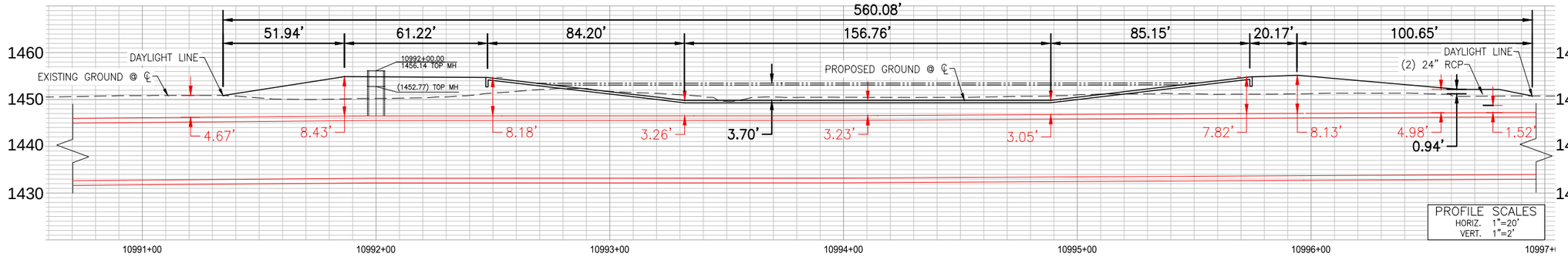
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Crown
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E49

MWD BARREL NO 1 PROFILE



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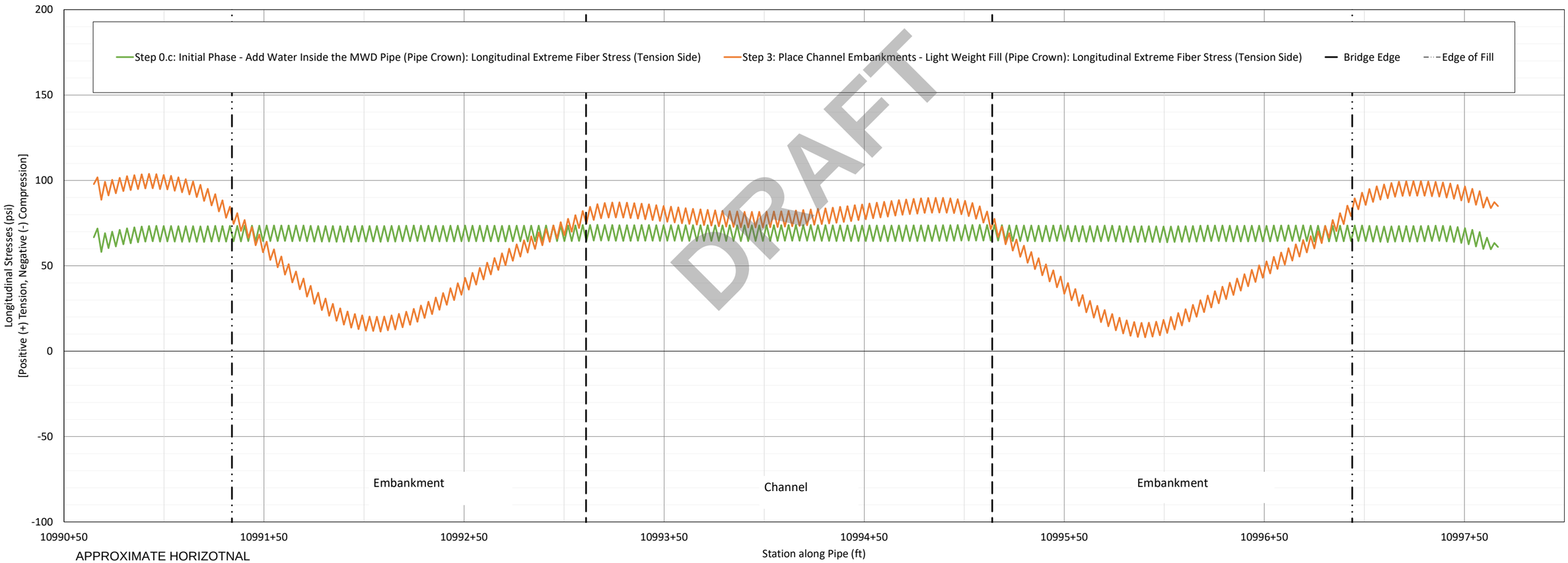
Vertical Scale: 1" = 5'



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SCALE (1" = 50')

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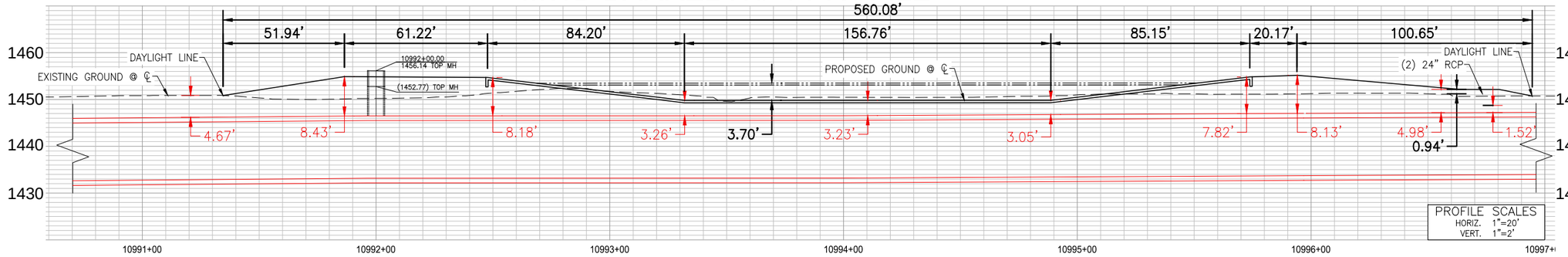
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Crown
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E50

MWD BARREL NO 1 PROFILE



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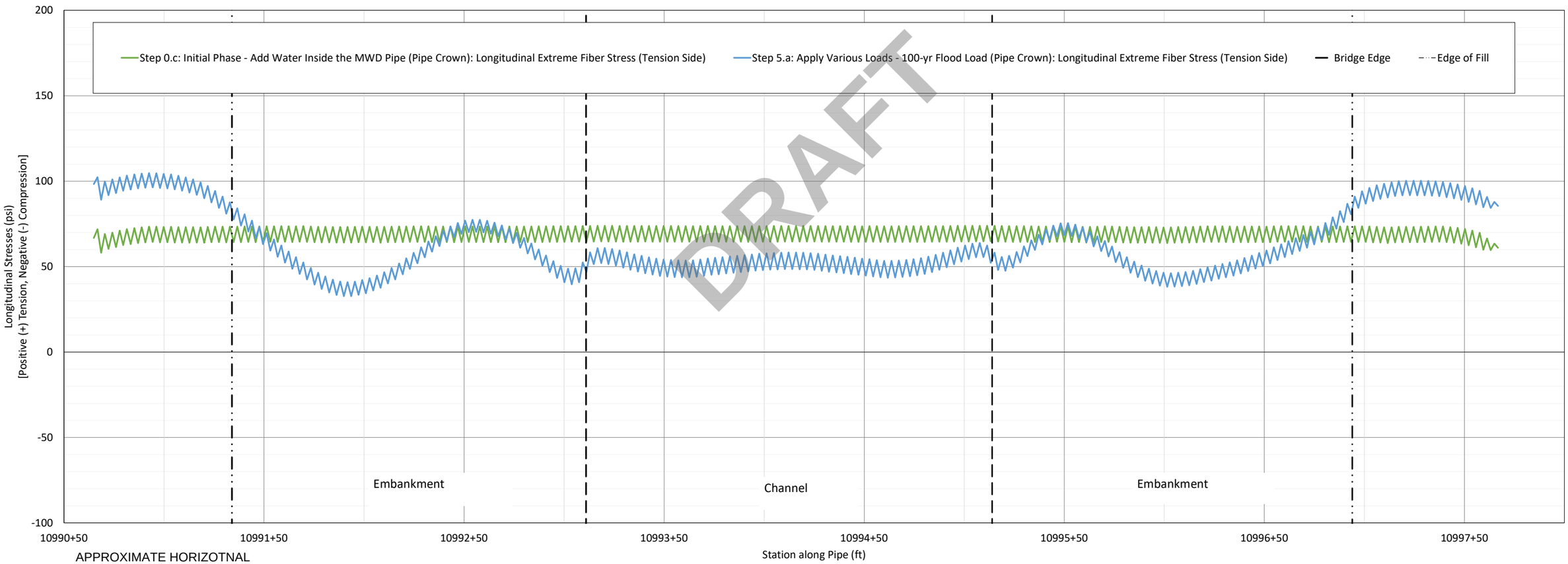

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SCALE (1" = 50')

0 25 50 100

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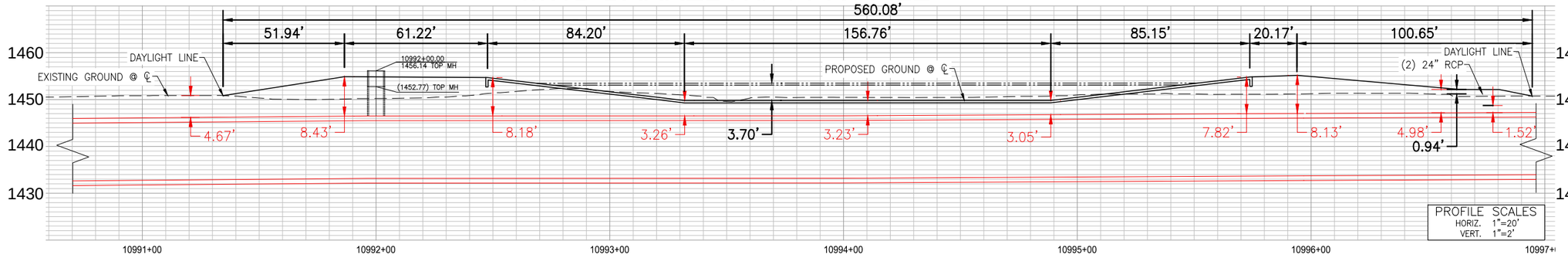
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Crown
Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E51

MWD BARREL NO 1 PROFILE



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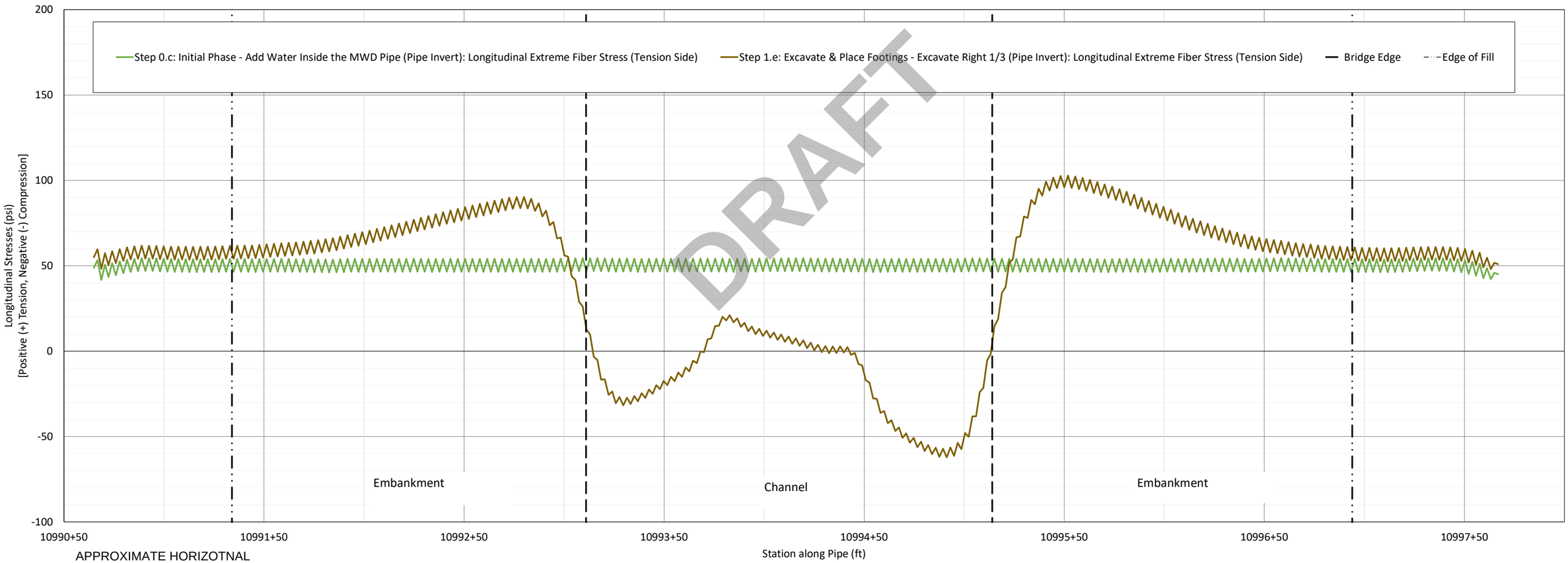

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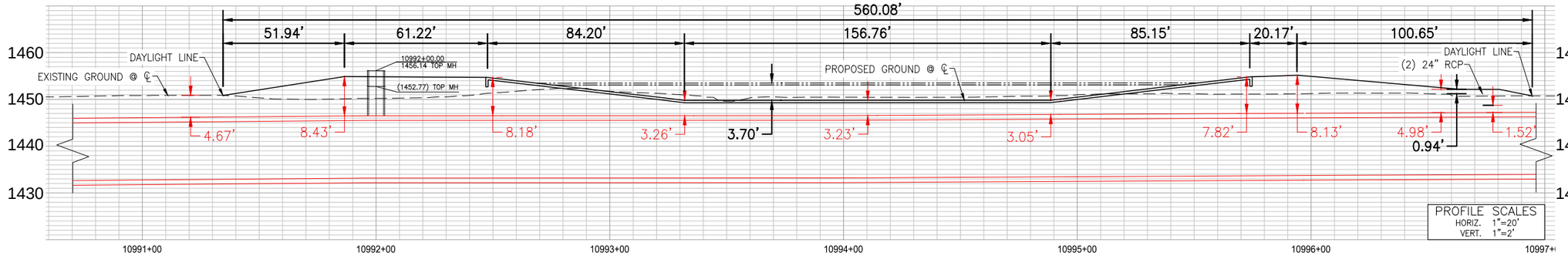
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Invert
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E52

MWD BARREL NO 1 PROFILE



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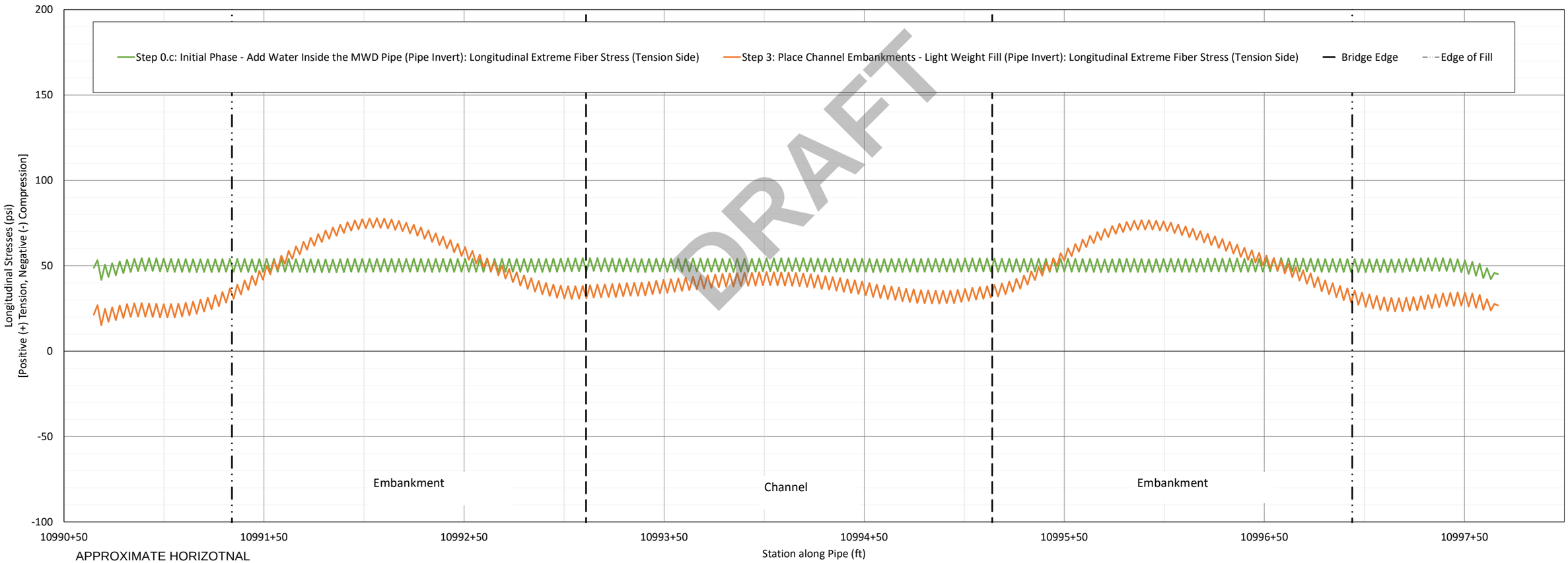

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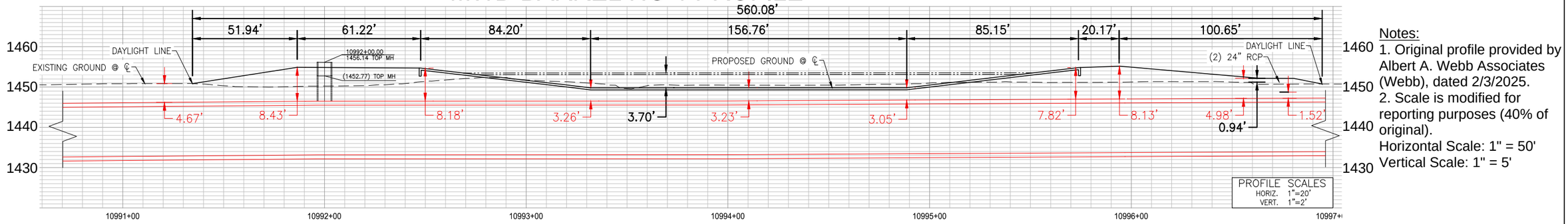
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Invert
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E53

MWD BARREL NO 1 PROFILE



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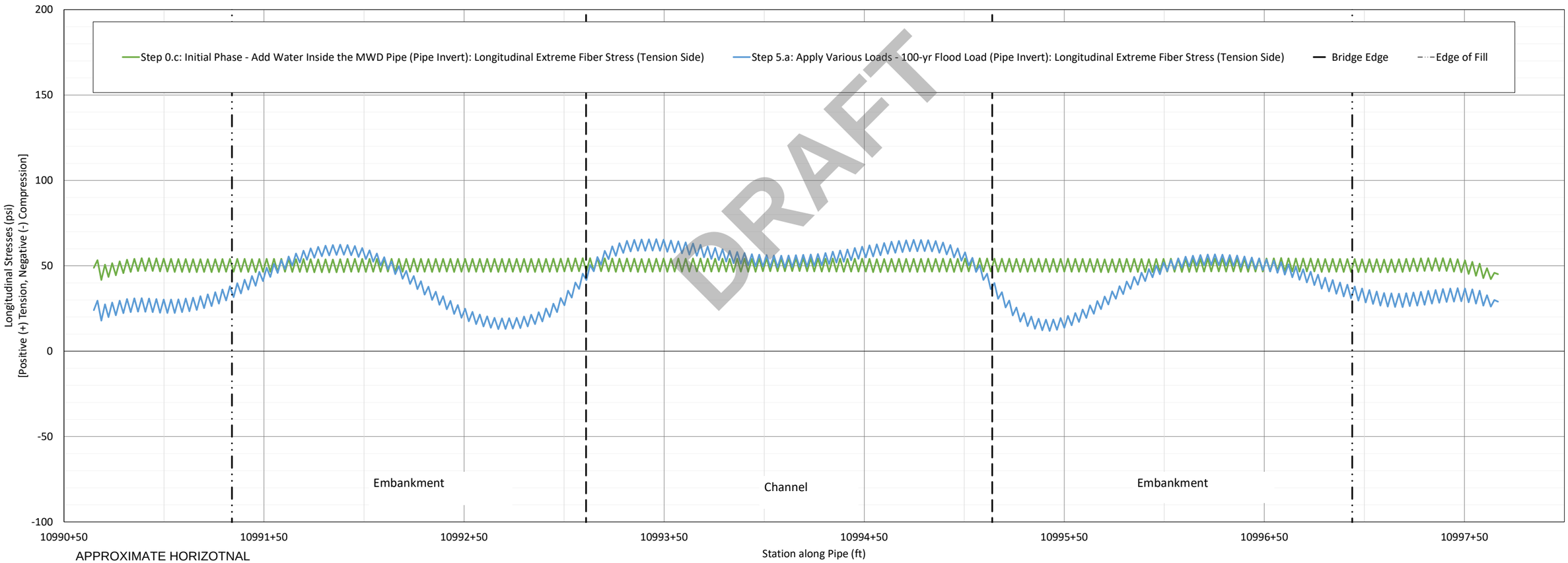

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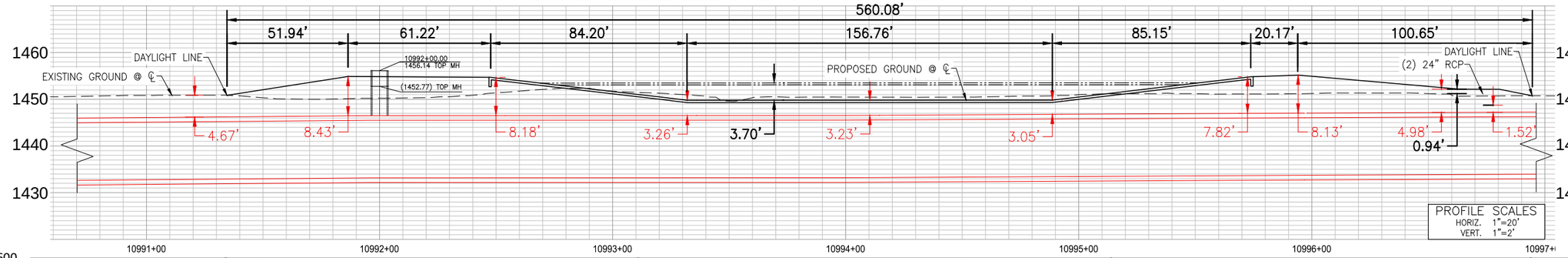
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Invert
Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E54

MWD BARREL NO 1 PROFILE



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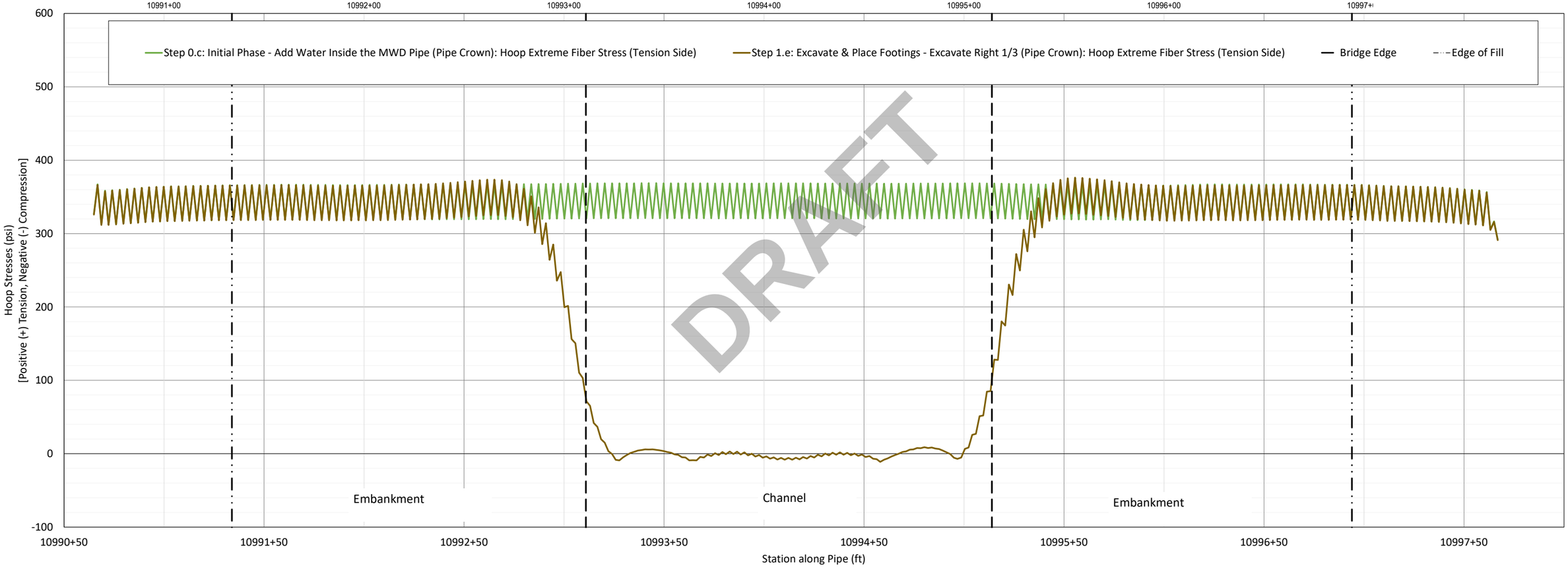

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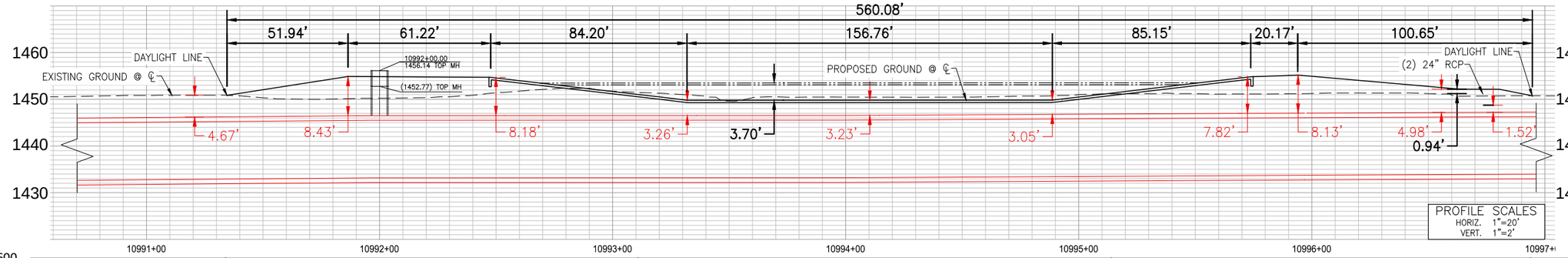
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E55

MWD BARREL NO 1 PROFILE



Notes:
1. Original profile provided by Albert A. Webb Associates (Webb), dated 2/3/2025.
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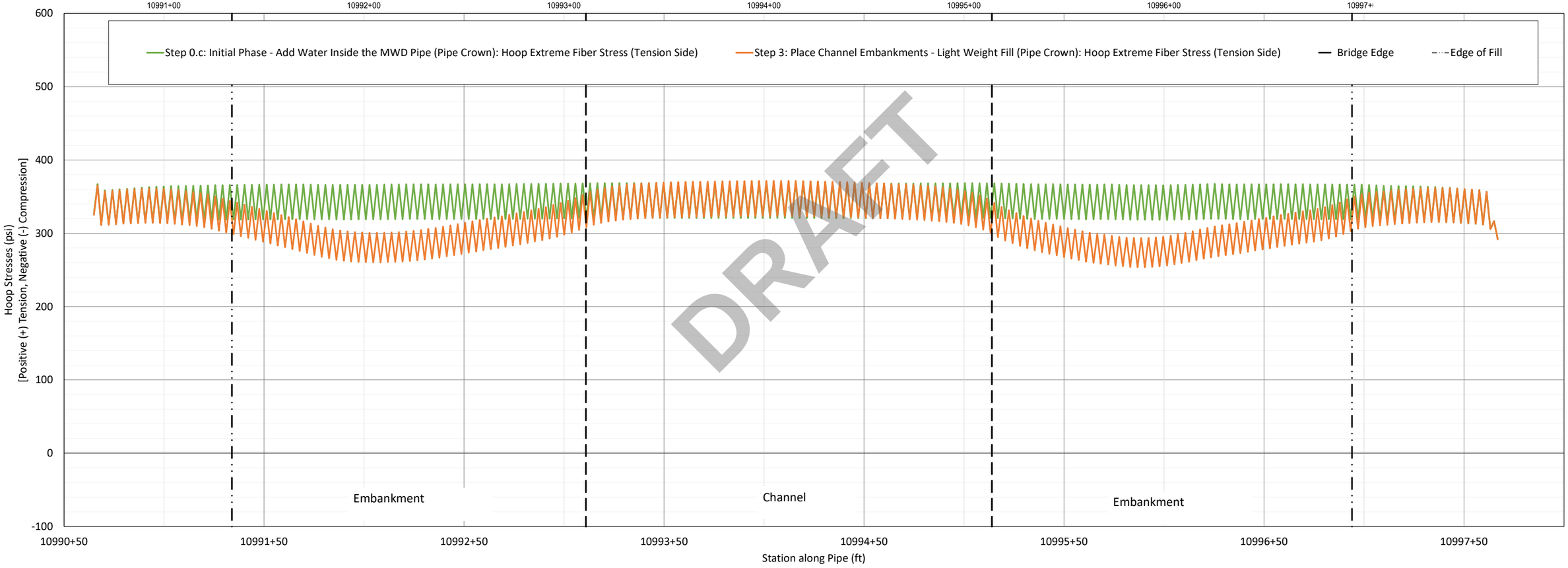
Vertical Scale: 1" = 5'



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APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

VERTICAL NOT TO SCALE

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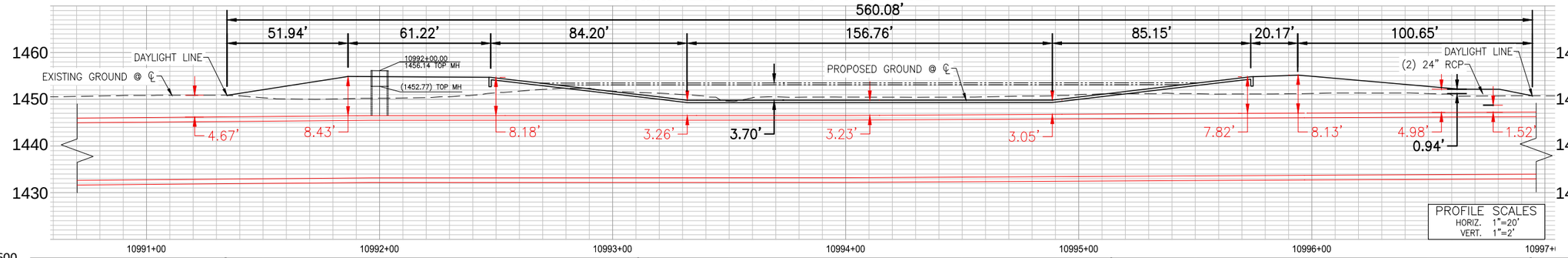
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E56

MWD BARREL NO 1 PROFILE



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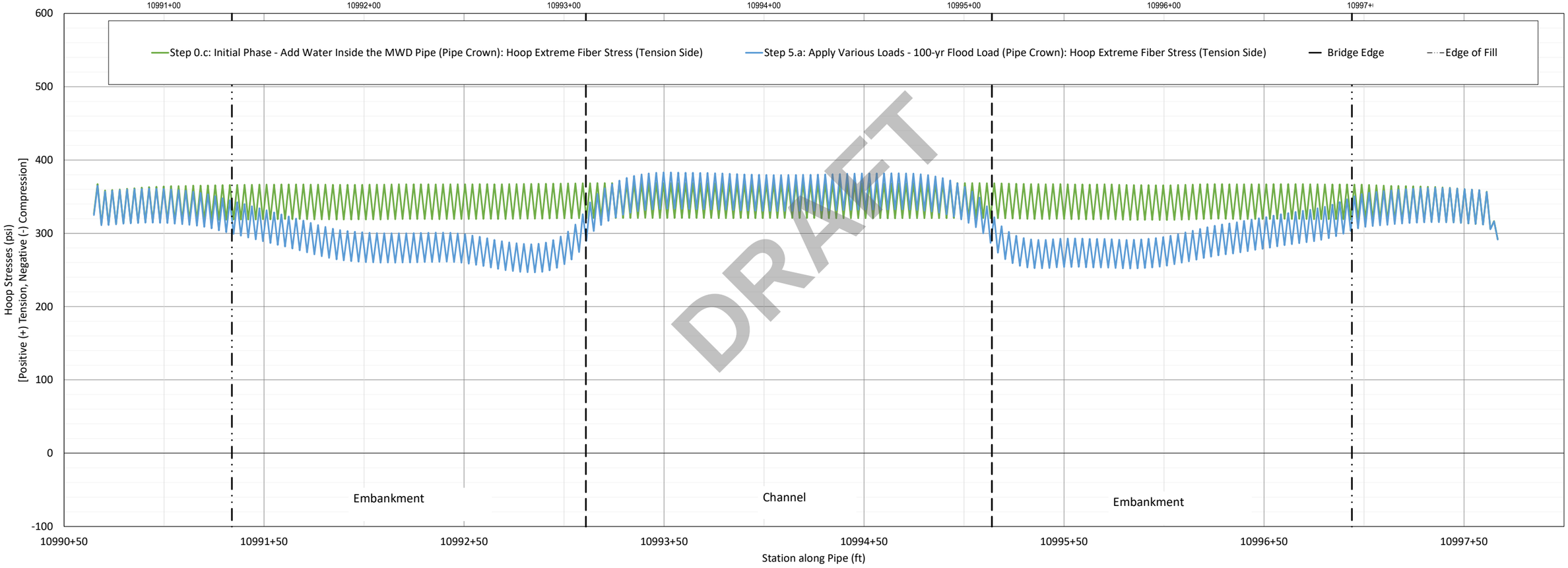

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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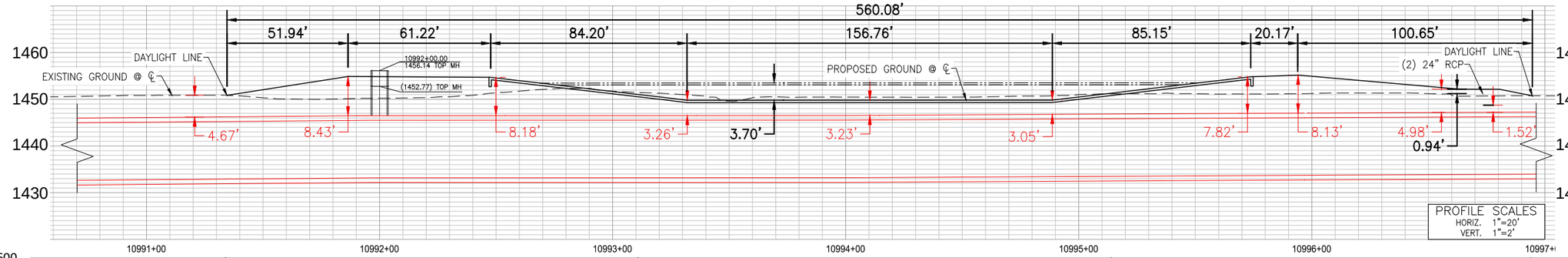
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E57

MWD BARREL NO 1 PROFILE



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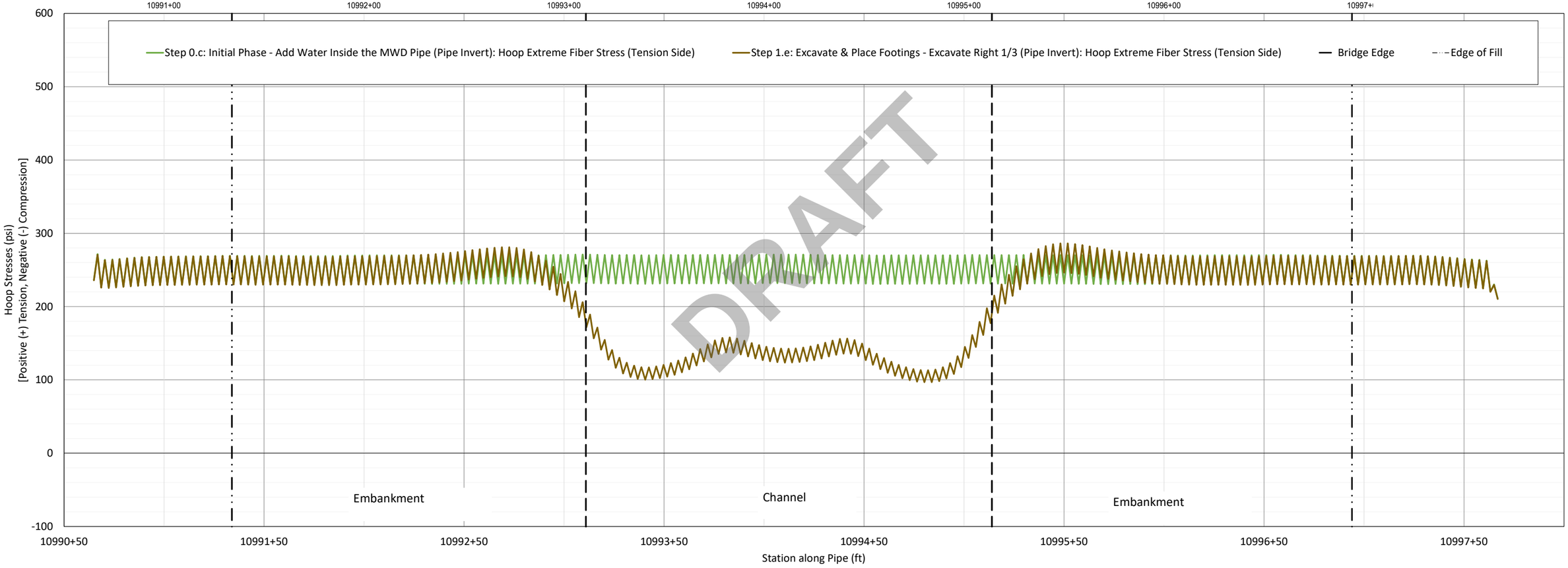

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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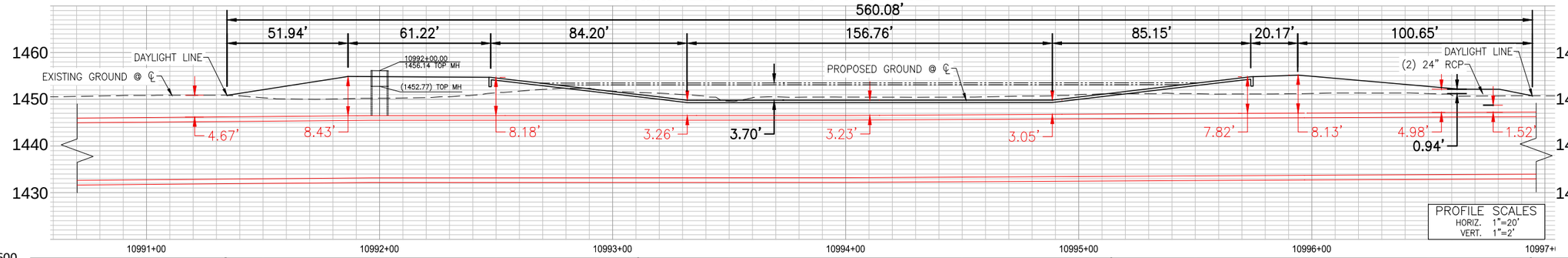
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Invert
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E58

MWD BARREL NO 1 PROFILE



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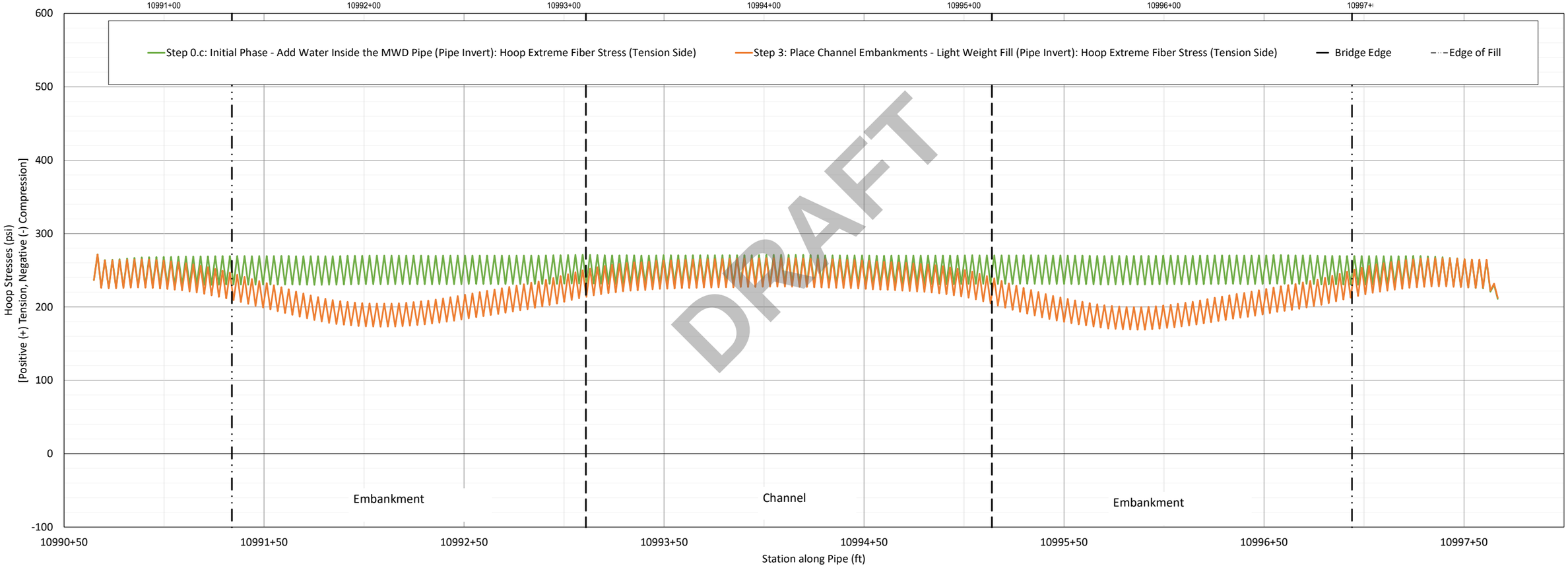
Vertical Scale: 1" = 5'



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APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

VERTICAL NOT TO SCALE

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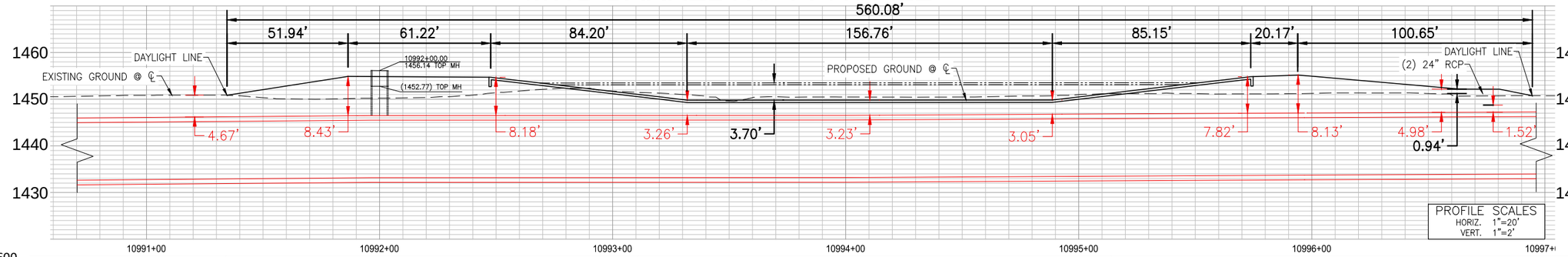
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Invert
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E59

MWD BARREL NO 1 PROFILE



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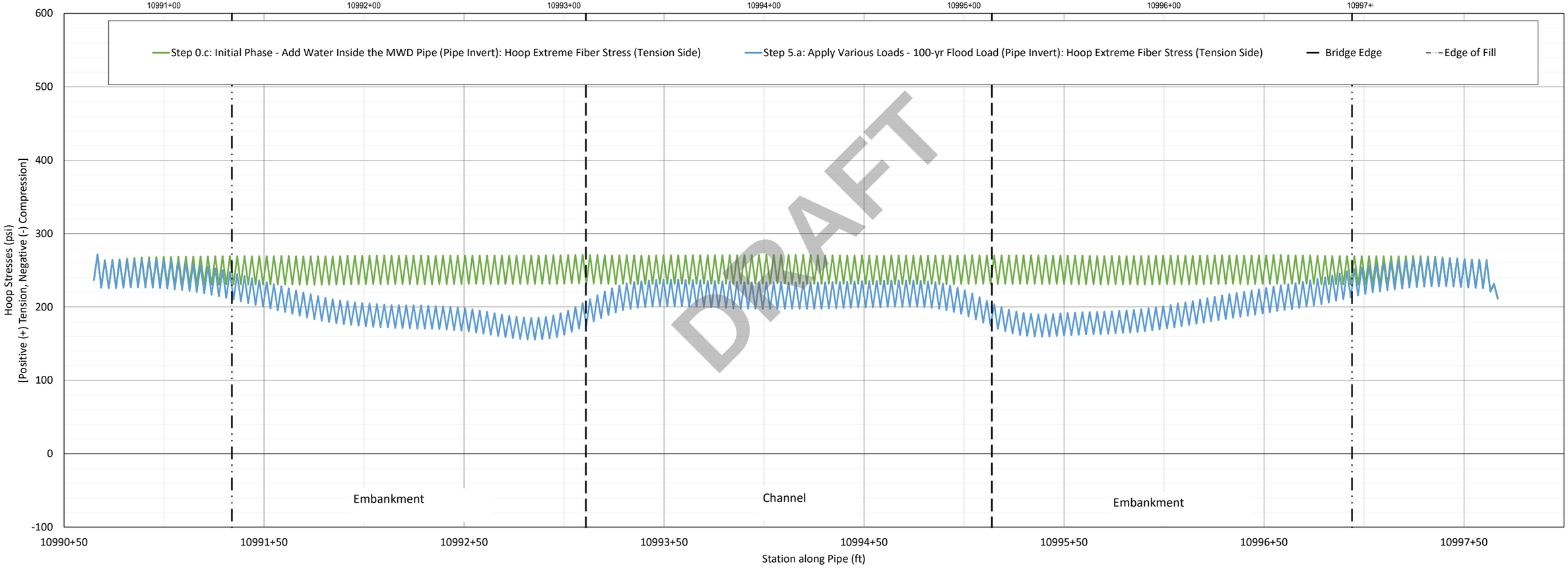

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APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

VERTICAL NOT TO SCALE

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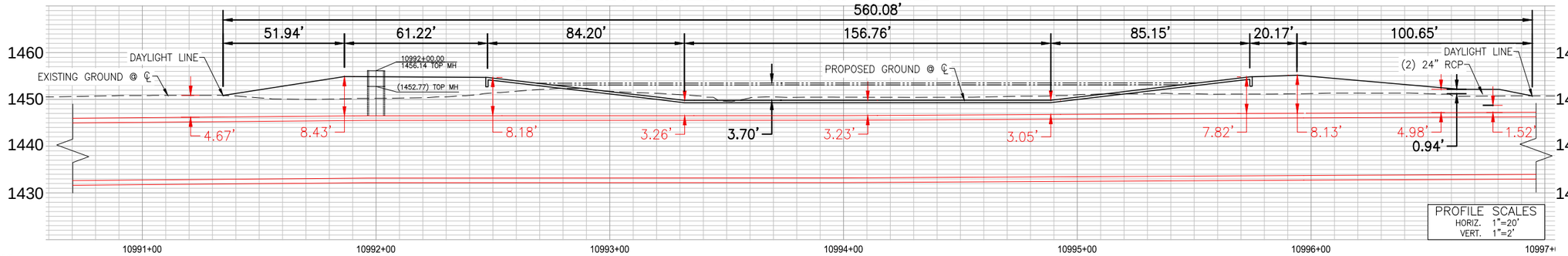
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E60

MWD BARREL NO 1 PROFILE



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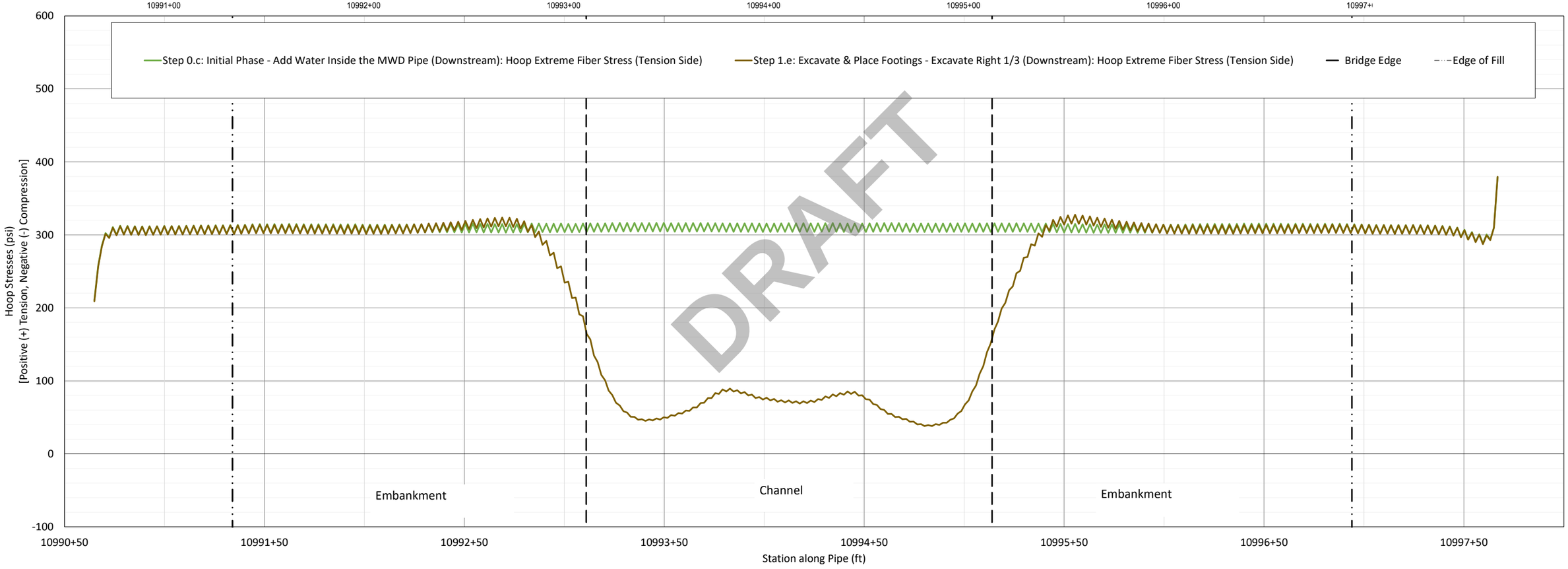

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APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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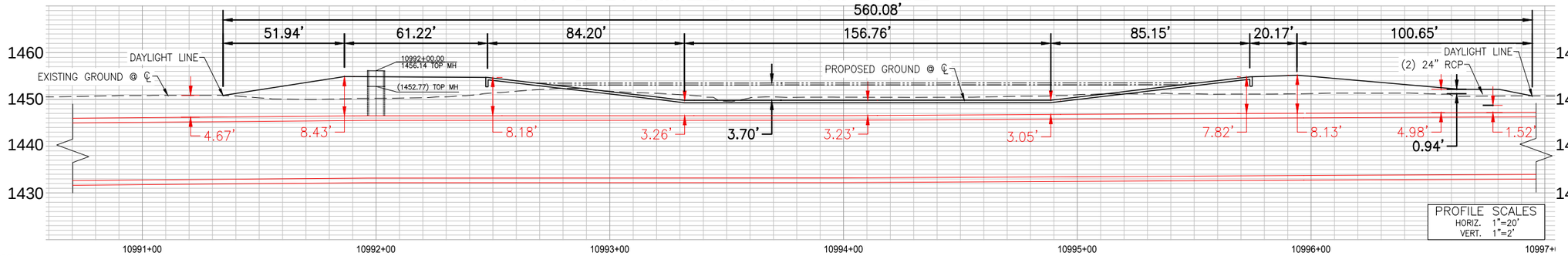
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 1.e: Excavate & Place Footings
Excavate Right 1/3 (Downstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E61

MWD BARREL NO 1 PROFILE



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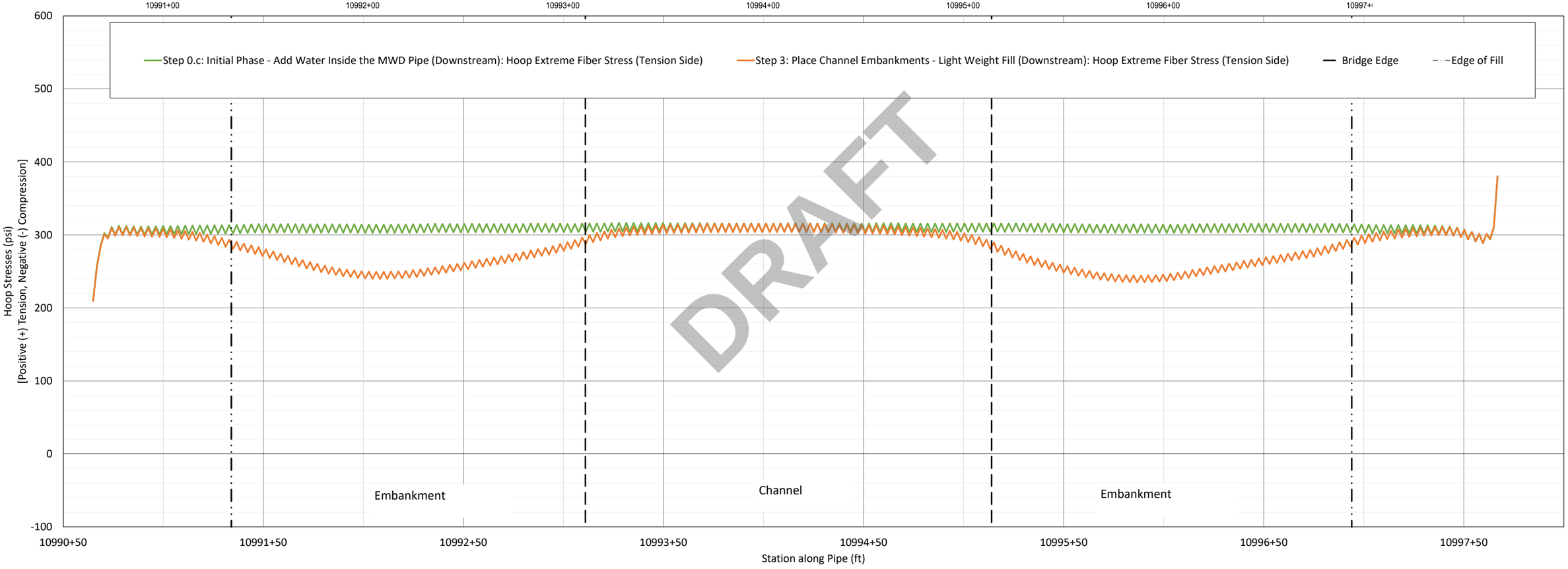

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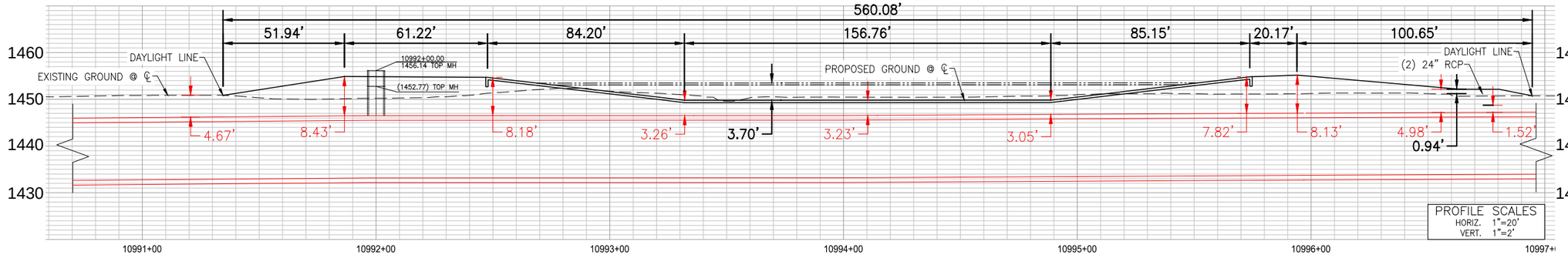
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 3: Place Channel Embankments
Light Weight Fill (Downstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E62

MWD BARREL NO 1 PROFILE



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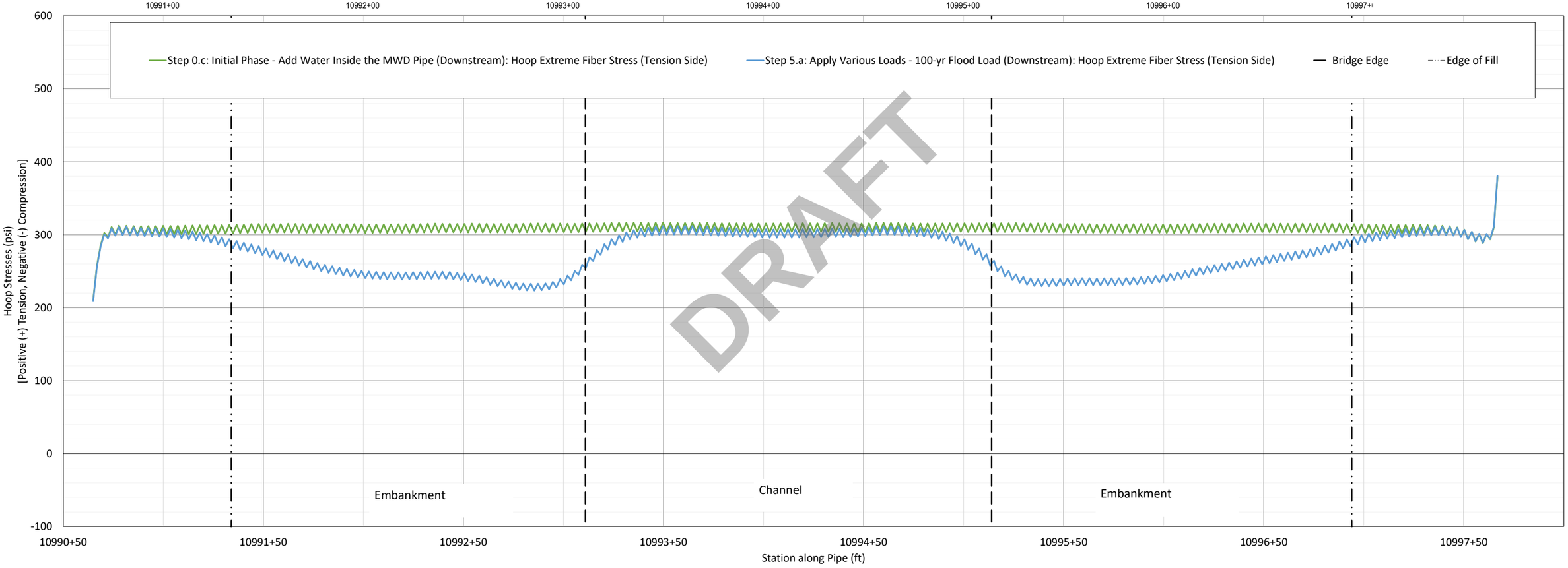

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0 25 50 100

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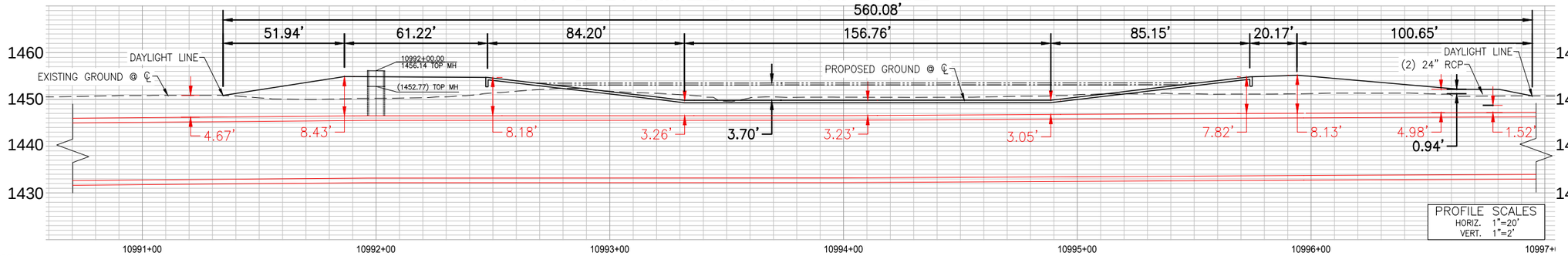
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 5a: Apply Various Loads
100-yr Flood Load (Downstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E63

MWD BARREL NO 1 PROFILE



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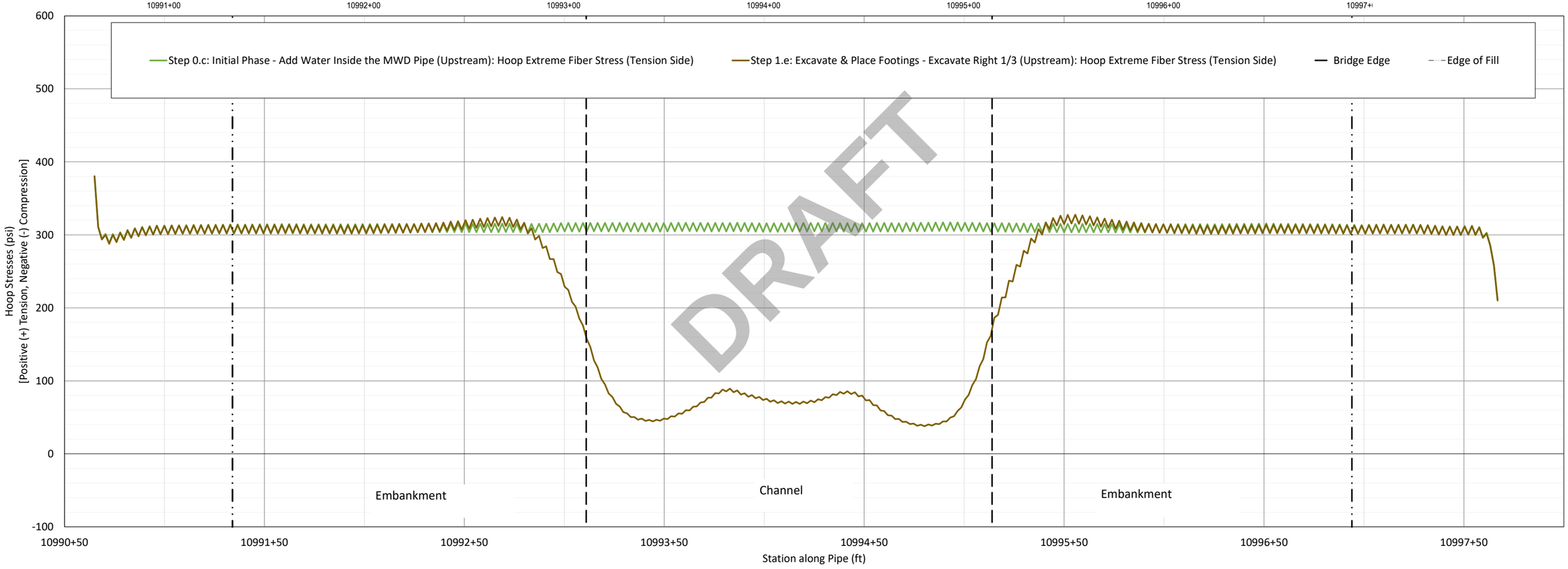

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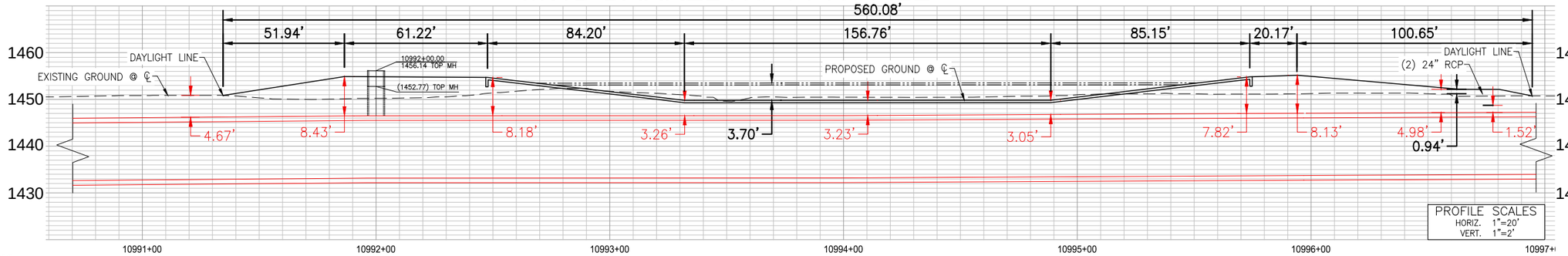
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 1.e: Excavate & Place Footings
Excavate Right 1/3 (Upstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E64

MWD BARREL NO 1 PROFILE



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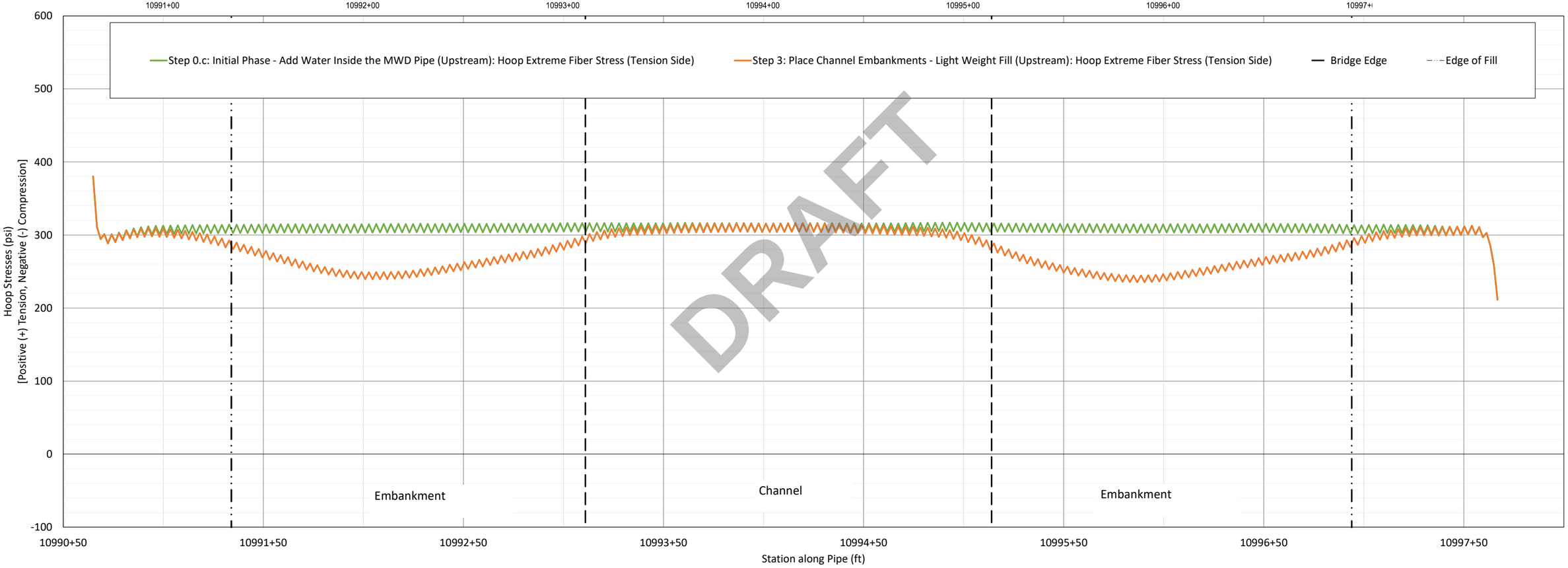

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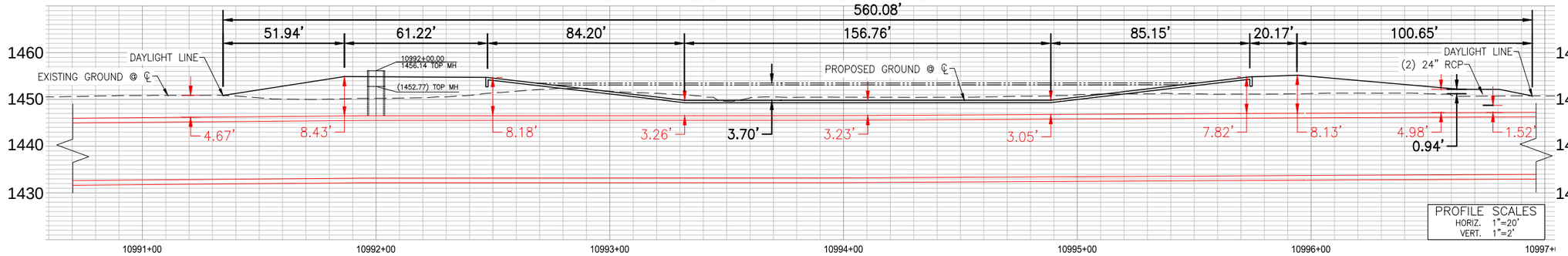
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 3: Place Channel Embankments
Light Weight Fill (Upstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E65

MWD BARREL NO 1 PROFILE



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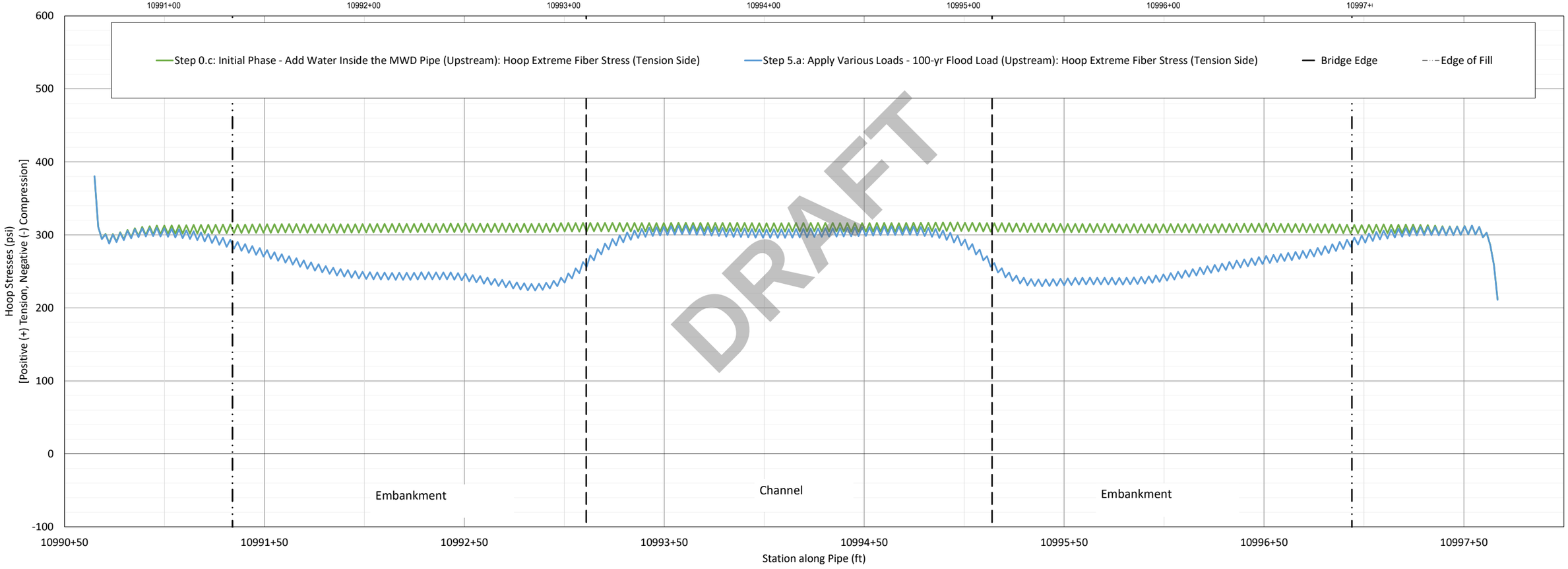

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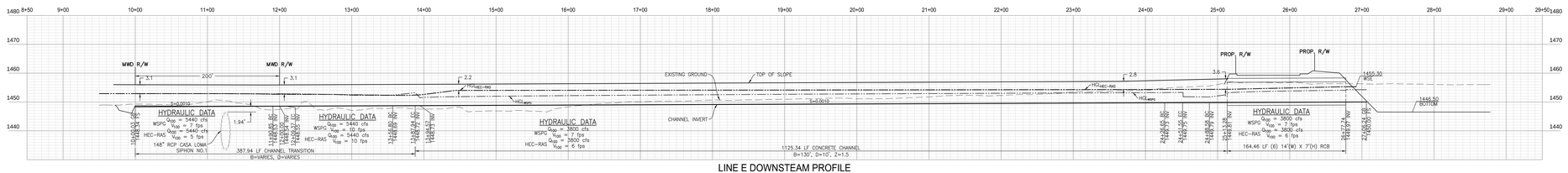
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

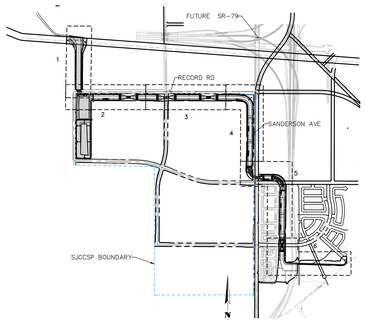
Model Results - Hoop Stress
Step 5a: Apply Various Loads
100-yr Flood Load (Upstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E66

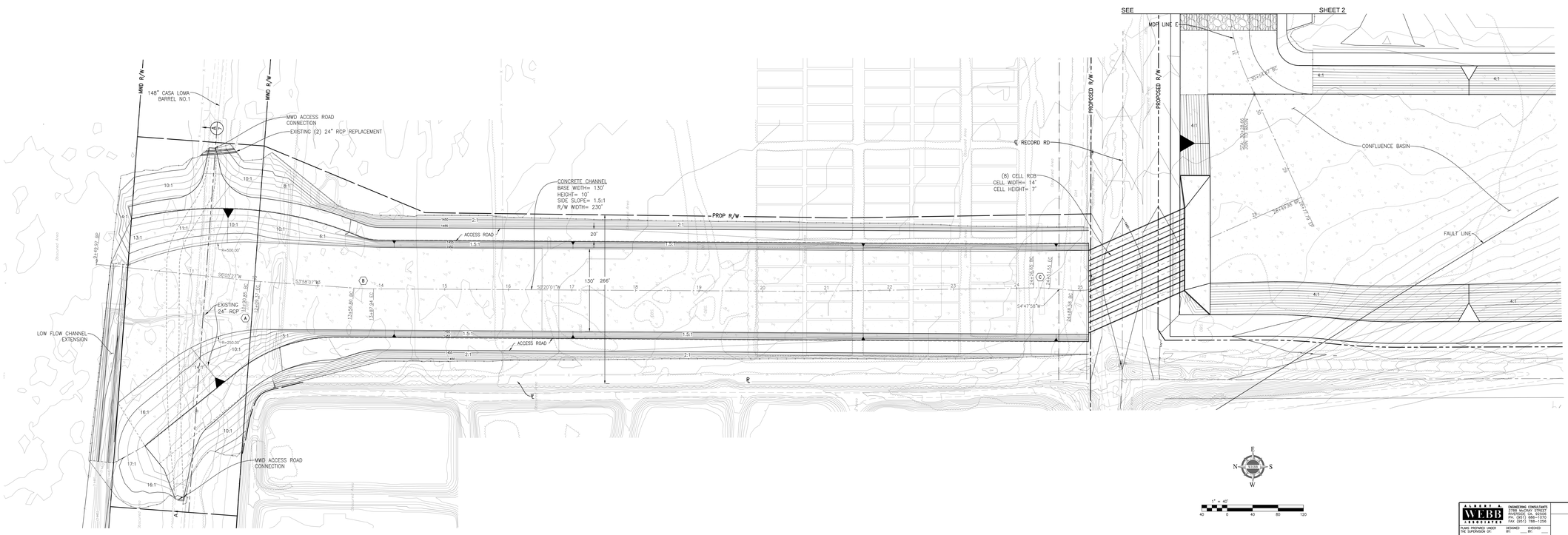


LINE E DOWNSTEAM PROFILE



INDEX MAP

1" = 1000'



CURVE DATA	(A)	(B)	(C)
R	500.00'	500.00'	250.00'
∠	2°07'20"	3°34'04"	5°42'23"
L	18.52'	31.14'	24.90'
T	9.26'	15.57'	12.46'
BC	STA. 11+90.85	STA. 13+56.80	STA. 24+26.65
EC	STA. 12+09.37	STA. 13+87.94	STA. 24+51.55
PI NORTHING	2242885.053	2242713.200	2241646.508
PI EASTING	6326559.252	6326547.329	6326548.821

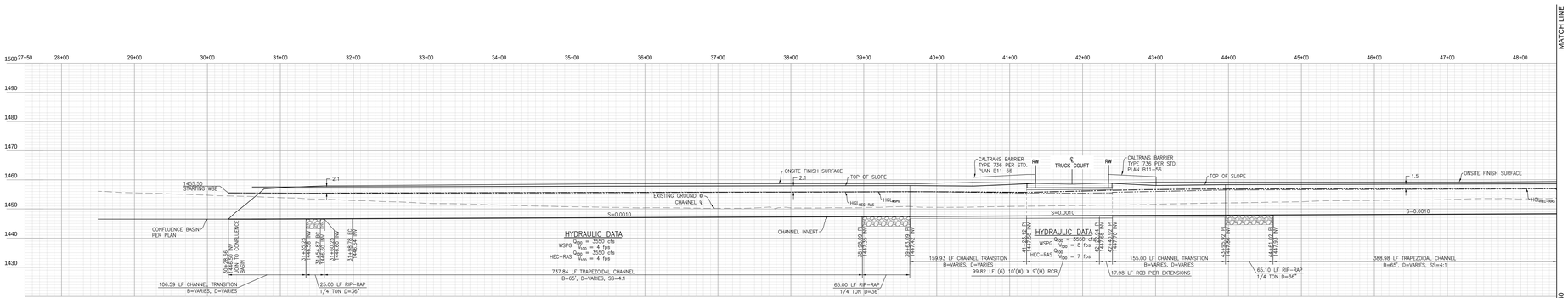
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

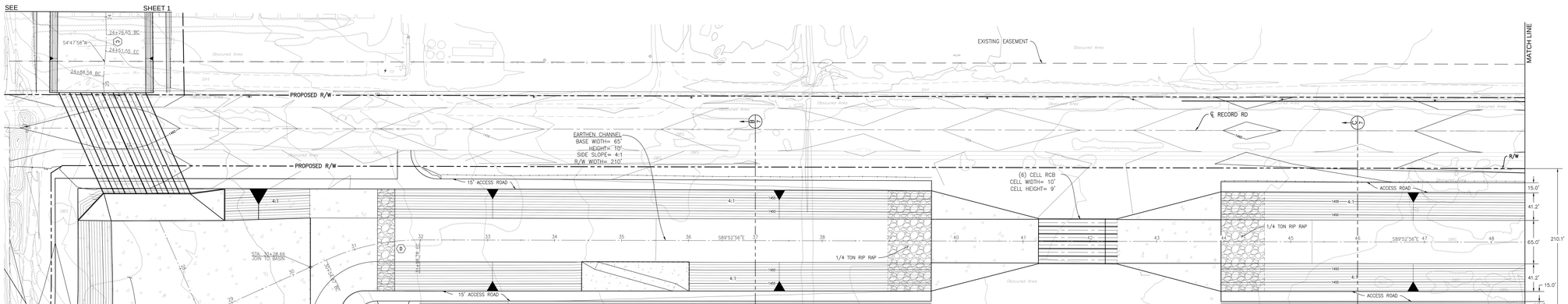
PLANS PREPARED UNDER THE SUPERVISION OF:
DESIGNED BY:
CHECKED BY:
NAME
R.C.E. NO.:
DATE

SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: XXX
W.O 23-0008
SHEET 1 OF 7 SHEETS





CURVE DATA	℄
R	338.14'
∠	24°33'04"
L	143.91'
T	73.06'
BC	STA. 30+54.87
EC	STA. 31+98.78
P.I. NORTHING	2241352.687
P.I. EASTING	6326944.287

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FAX (951) 788-1256

PLANS PREPARED UNDER THE SUPERVISION OF:
NAME
R.C.E. NO.:
DATE
DESIGNED: BC
CHECKED: BY:

SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: xxx
W.O 23-0008
SHEET 2 OF 7 SHEETS

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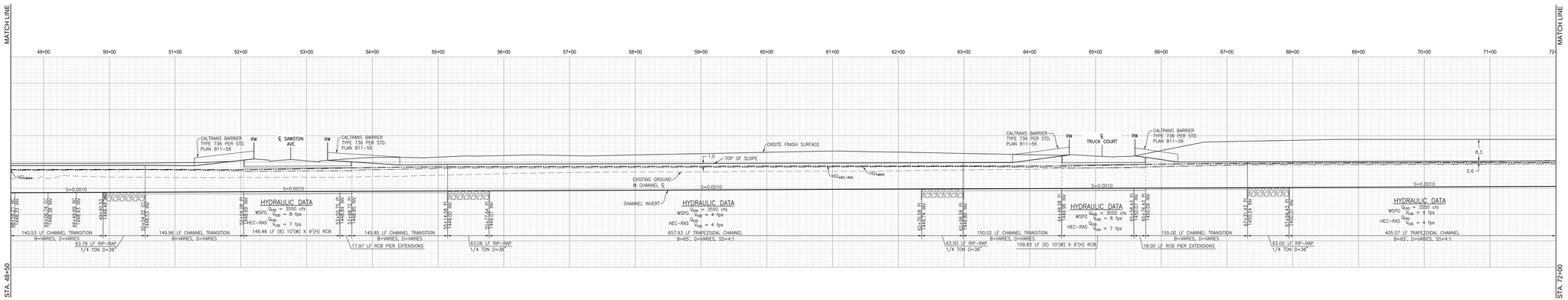
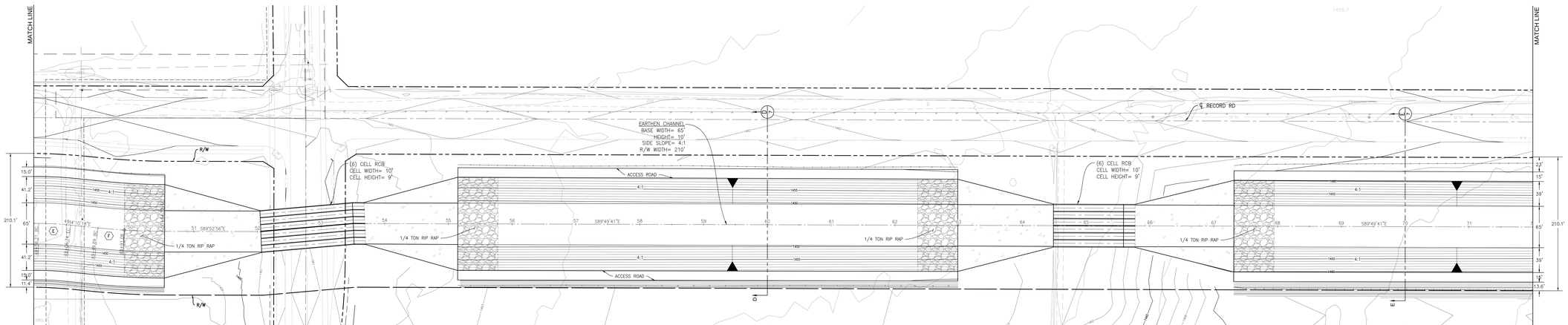
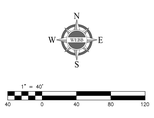




CURVE DATA	E	F
R	506.97'	1049.75'
Δ	5°42'38"	5°42'38"
L	55.53'	104.63'
T	25.29'	52.36'
BC	STA. 48+56.21	STA. 49+49.69
EC	STA. 49+06.74	STA. 50+54.32
PI NORTHING	2241349.079	2241356.833
PI EASTING	6328700.058	6328820.034



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PLANS PREPARED UNDER THE SUPERVISION OF:
DESIGNED BY:
CHECKED BY:
NAME
R.C.E. NO.:
DATE

SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: XXX
W.O 23-0008
SHEET 3 OF 7 SHEETS

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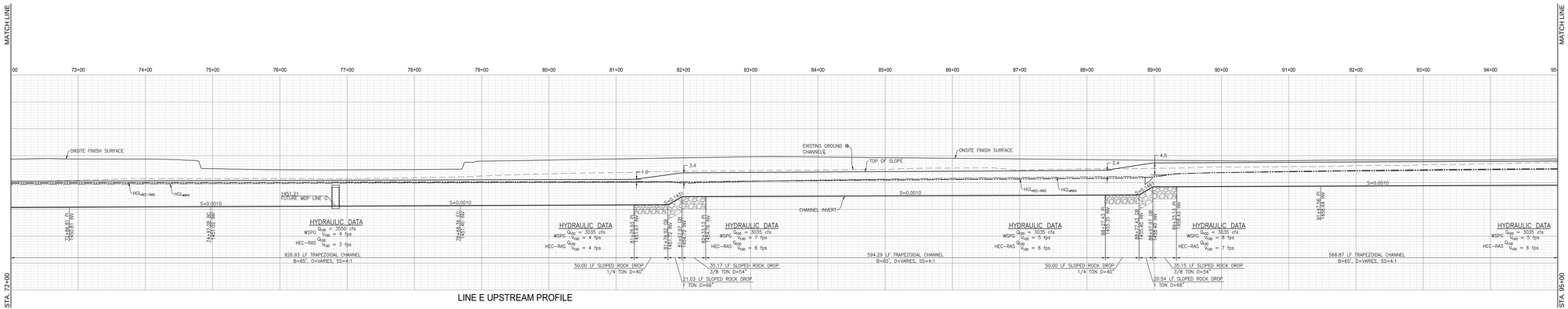
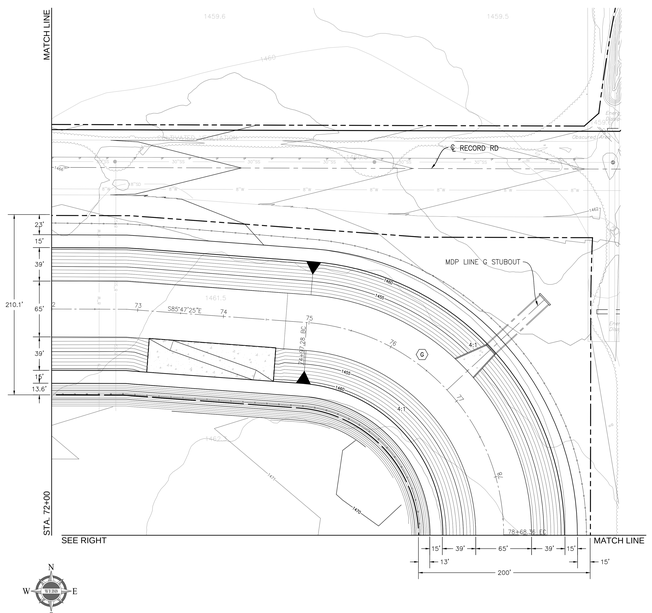
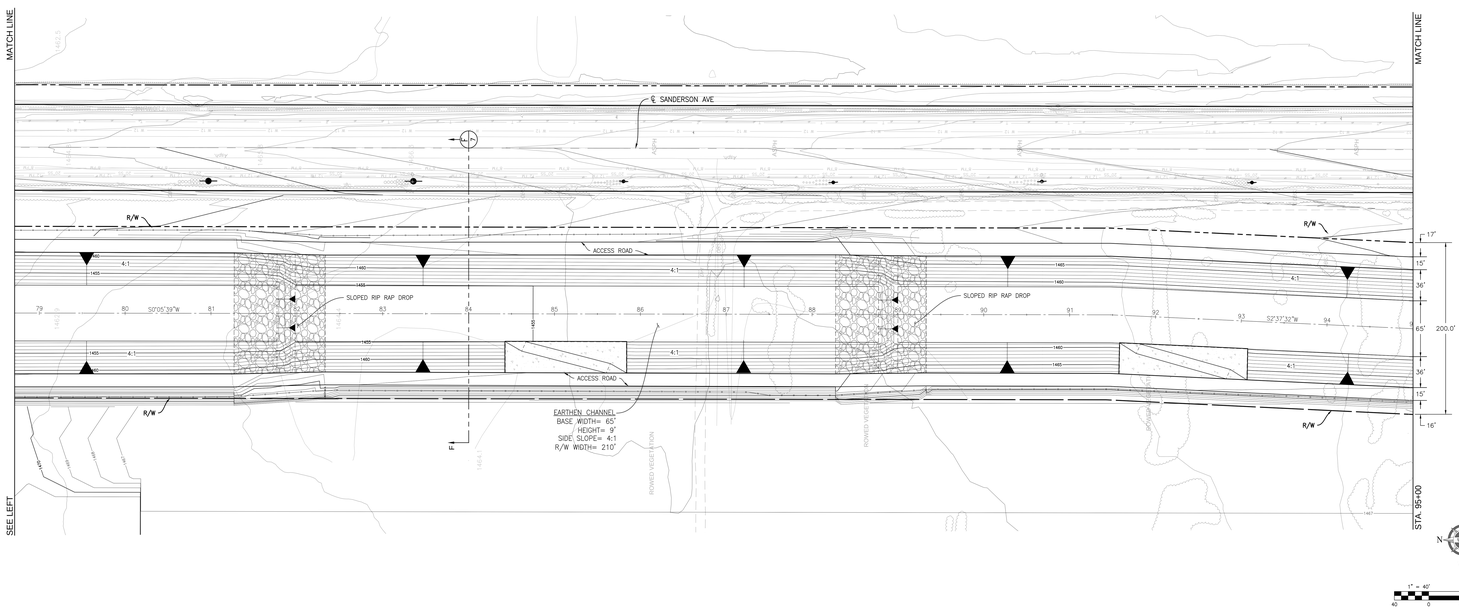


LINE E UPSTREAM PROFILE

CURVE DATA	ⓖ
R	247.56'
∡	85°53'04"
L	371.08'
T	230.39'
BC	STA. 74+97.28
EC	STA. 78+68.36
PI NORTHING	2241310.871
PI EASTING	6331543.992

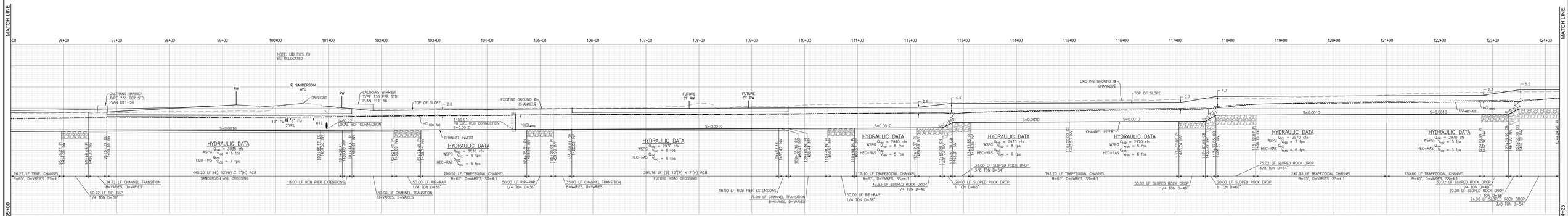


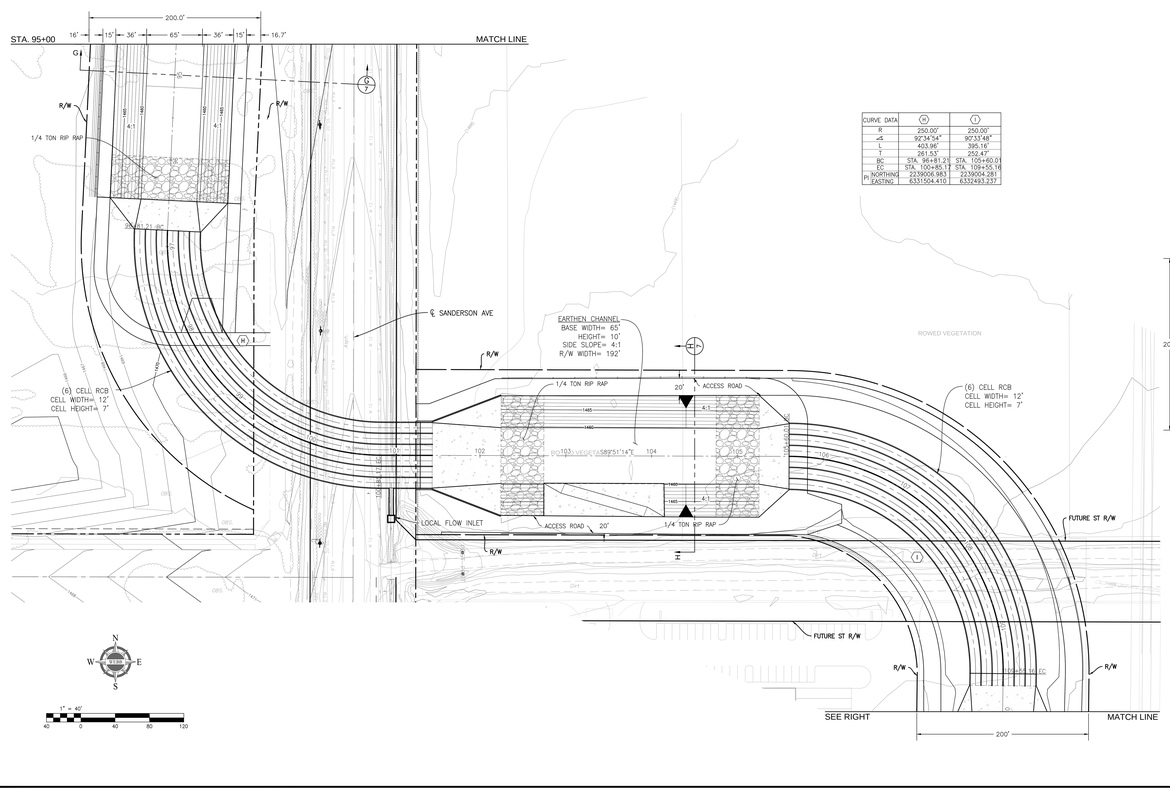


1" = 40'

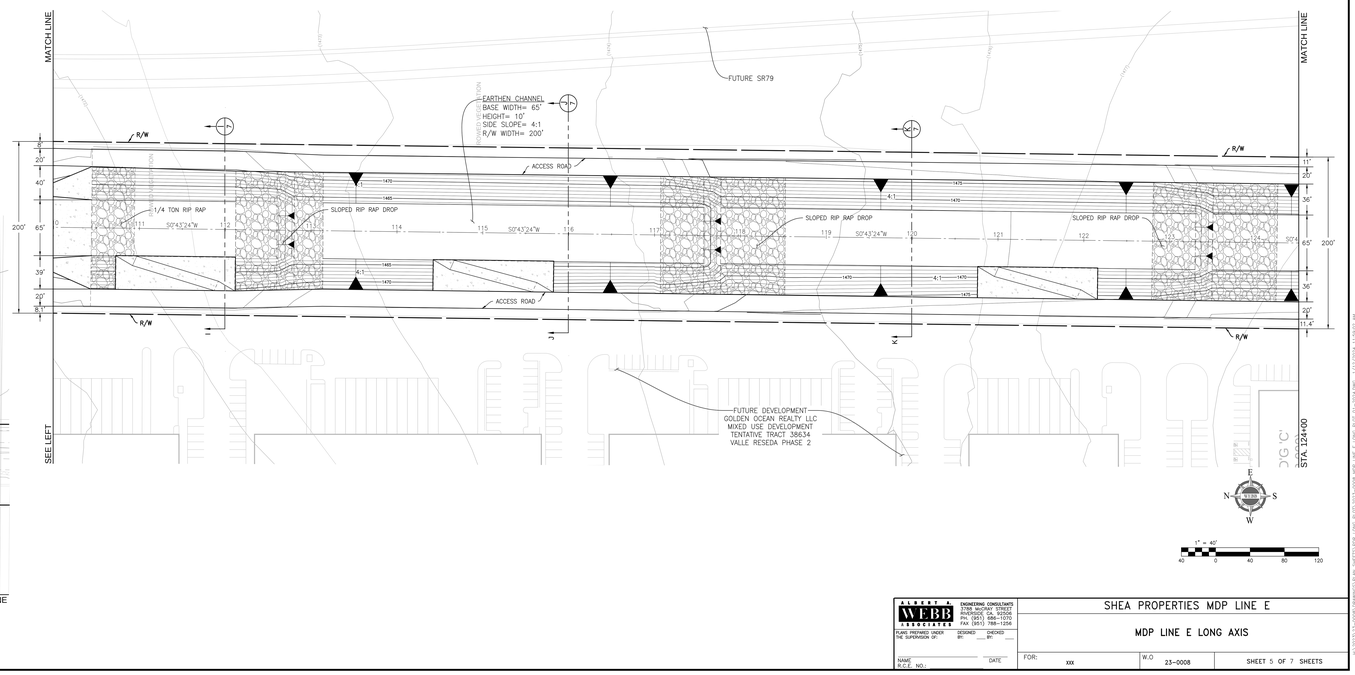
1" = 40'

ALBERT A. WEBB ASSOCIATES — ENGINEERING CONSULTANTS, 3788 McCRAY STREET, RIVERSIDE, CA 92506, PH: (951) 686-1070, FAX (951) 788-1256	SHEA PROPERTIES MDP LINE E
PLANS PREPARED UNDER THE SUPERVISION OF: DESIGNED BY: CHECKED BY:	MDP LINE E LONG AXIS
NAME: R.C.E. NO.: DATE	FOR: XXX — W.O. 23-0008 — SHEET 4 OF 7 SHEETS





CURVE DATA	(M)	(T)
R	250.00'	250.00'
Δ	92°34'54"	90°33'48"
L	403.96'	395.16'
T	261.53'	252.47'
BC	STA. 96+81.21	STA. 105+60.01
EC	STA. 100+85.17	STA. 109+55.16
POINT	NORTHING	EASTING
T	2239006.983	6331504.410
	2239004.281	6332493.237



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RIVERSIDE, CA 92506
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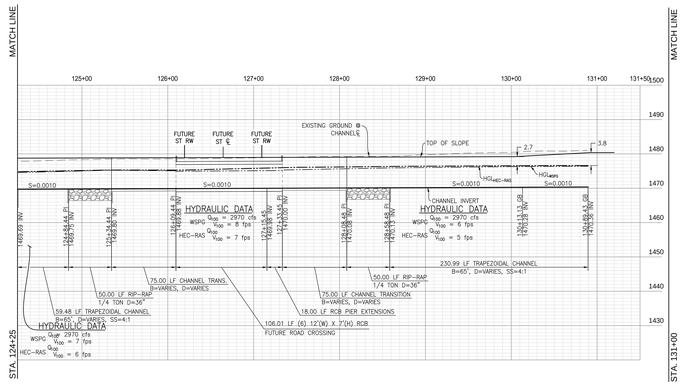
FAX (951) 788-1256

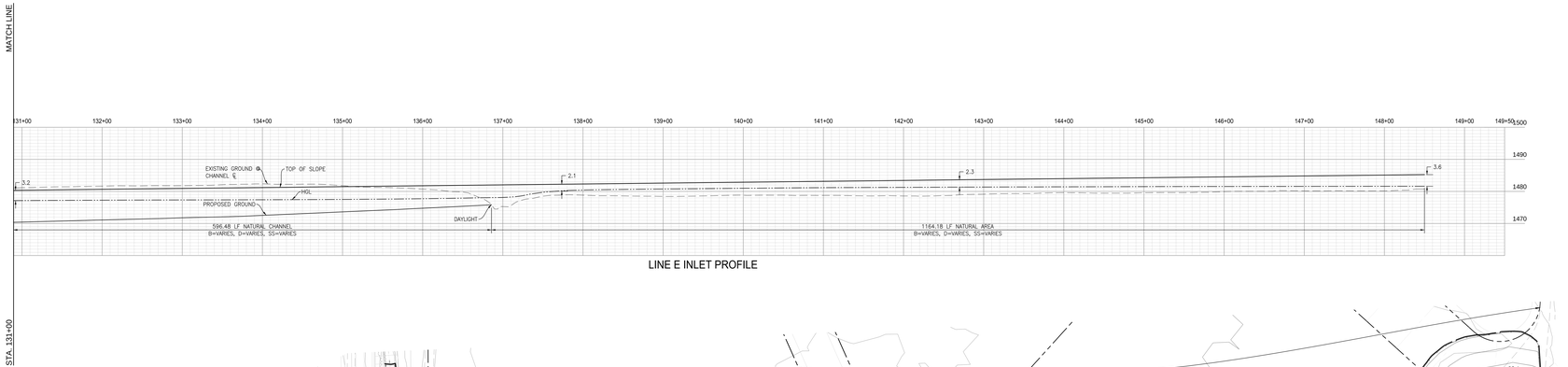
PLANS PREPARED UNDER THE SUPERVISION OF:
DESIGNED: BC
CHECKED: BC / BY:
NAME
R.C.E. NO.:
DATE

SHEA PROPERTIES MDP LINE E

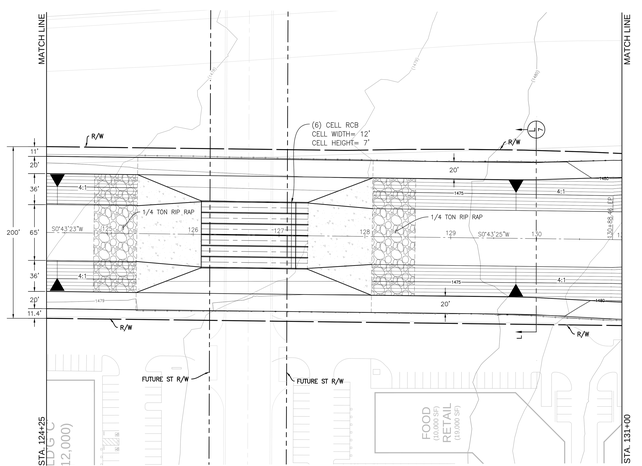
MDP LINE E LONG AXIS

FOR: xxx
W.O 23-0008
SHEET 5 OF 7 SHEETS

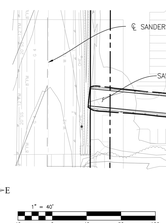


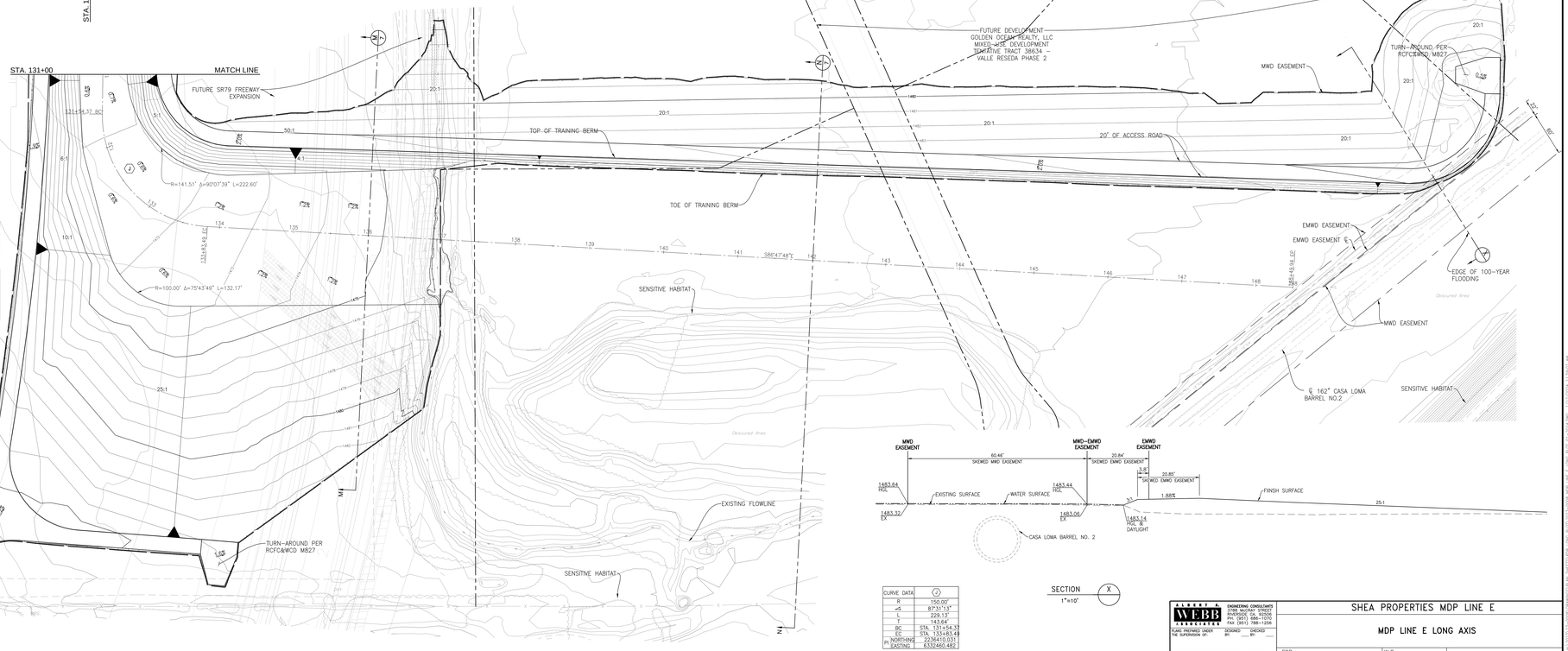


LINE E INLET PROFILE









CURVE DATA	②
R	150.00'
=Δ	87°31'13"
L	229.13'
T	143.64'
BC	STA. 131+54.37
EC	STA. 133+83.49
POINT NORTHING	2236410.031
POINT EASTING	6332460.482

SECTION X
1"=10'

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PLANS PREPARED UNDER THE SUPERVISION OF: DESIGNED BC DATE; CHECKED BY:

NAME R.C.E. NO.: DATE

SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: xxx | W.O 23-0008 | SHEET 6 OF 7 SHEETS

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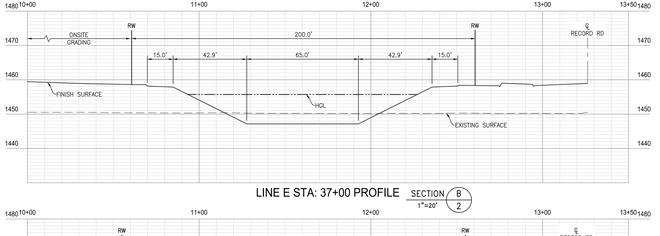

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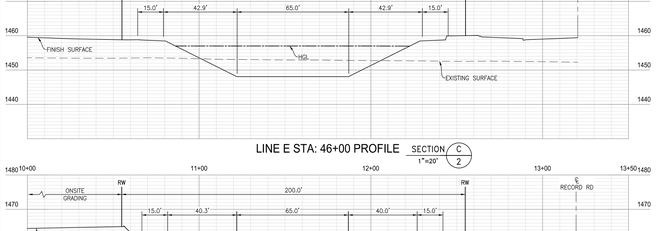

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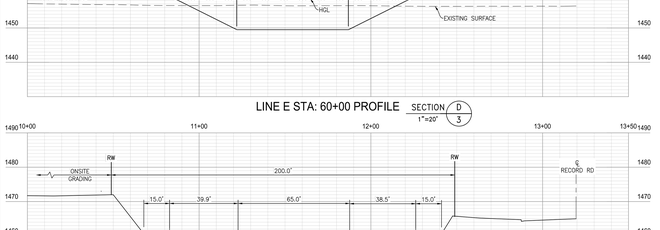

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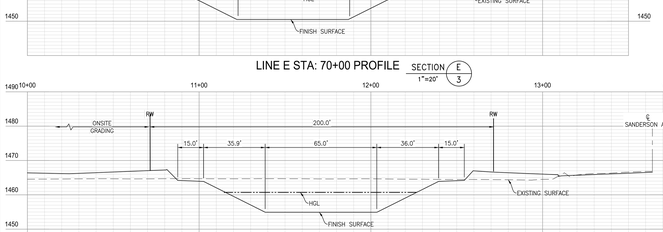

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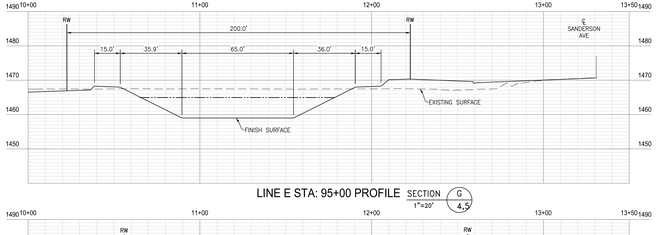
LINE E STA: 84+00 PROFILE SECTION F 1"=20' 4



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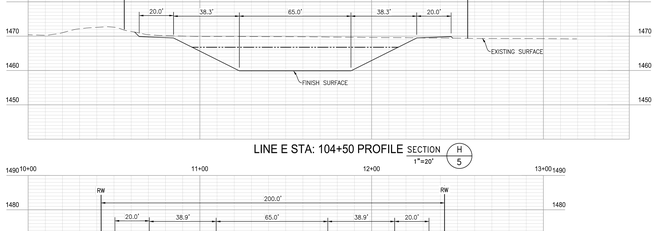

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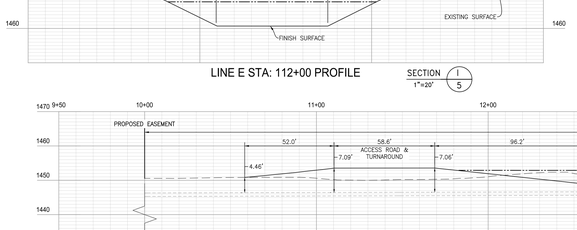

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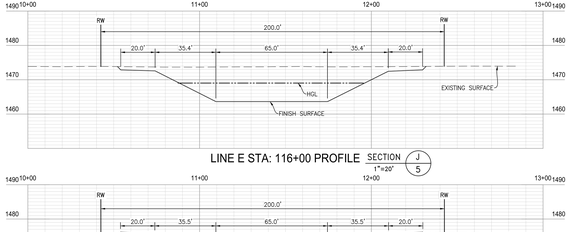

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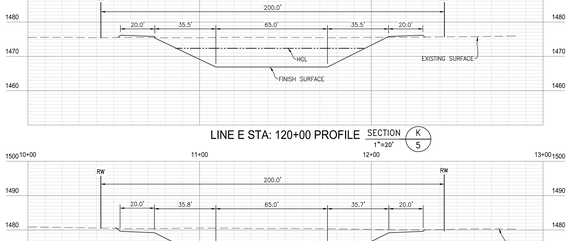

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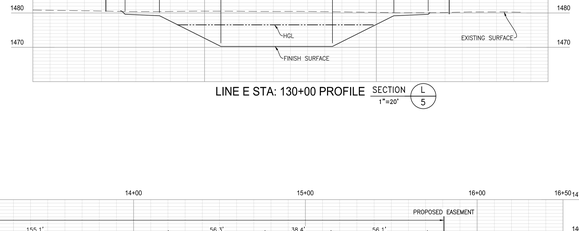

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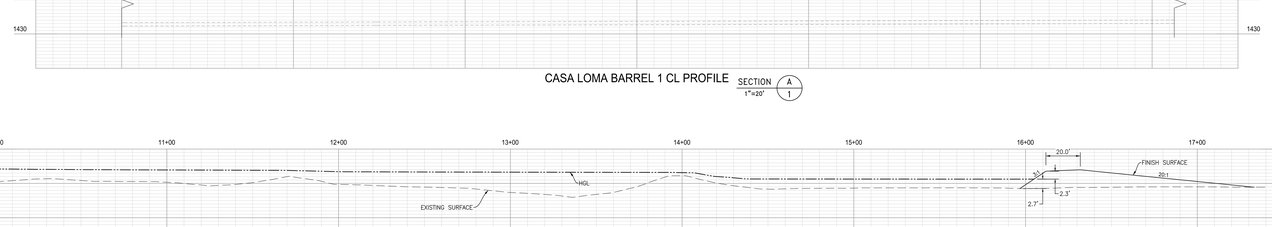
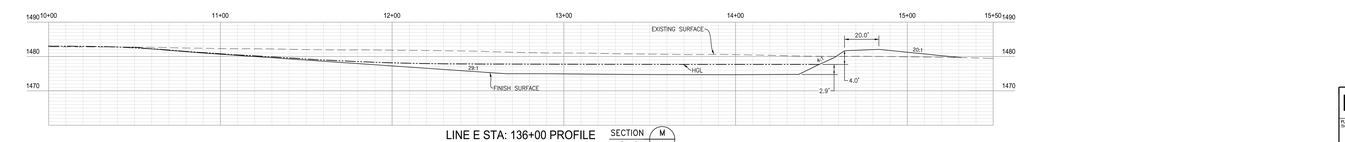


CASA LOMA BARREL 1 CL PROFILE SECTION A 1"=20' 1



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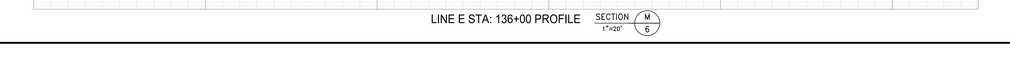

LINE E STA: 136+00 PROFILE SECTION M 1"=20' 6

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PLANS PREPARED UNDER THE SUPERVISION OF: DESIGNED BY: CHECKED BY:

NAME R.C.E. NO.: DATE

SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: xxx | W.O 23-0008 | SHEET 7 OF 7 SHEETS

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MDP LIne E Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	MDP LIne E
Construction Start Date	8/3/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	22.4
Location	33.81646365711711, -117.00760059525169
County	Riverside-South Coast
City	San Jacinto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5574
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	3.01	Mile	88.0	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.63	3.86	32.7	43.1	0.09	1.22	1.88	3.10	1.13	0.35	1.48	—	10,381	10,381	0.40	0.28	4.60	10,478
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.61	3.84	32.8	42.2	0.09	1.22	1.88	3.10	1.13	0.35	1.48	—	10,322	10,322	0.40	0.28	0.12	10,415
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.16	2.65	22.2	30.1	0.06	0.80	1.34	2.14	0.74	0.25	0.98	—	7,370	7,370	0.29	0.20	1.29	7,437
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.58	0.48	4.04	5.49	0.01	0.15	0.24	0.39	0.13	0.05	0.18	—	1,220	1,220	0.05	0.03	0.21	1,231

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.63	3.86	32.7	43.1	0.09	1.22	1.88	3.10	1.13	0.35	1.48	—	10,381	10,381	0.40	0.28	4.60	10,478

2028	4.46	3.72	30.8	42.7	0.09	1.12	1.88	3.00	1.03	0.35	1.38	—	10,341	10,341	0.40	0.28	4.17	10,437
2029	4.29	3.59	29.2	42.2	0.09	1.03	1.88	2.91	0.95	0.35	1.30	—	10,300	10,300	0.40	0.27	3.76	10,394
2030	4.15	3.45	28.0	41.8	0.09	0.98	1.88	2.86	0.89	0.35	1.24	—	10,260	10,260	0.40	0.27	3.37	10,354
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.61	3.84	32.8	42.2	0.09	1.22	1.88	3.10	1.13	0.35	1.48	—	10,322	10,322	0.40	0.28	0.12	10,415
2028	4.41	3.69	31.0	41.9	0.09	1.12	1.88	3.00	1.03	0.35	1.38	—	10,283	10,283	0.40	0.28	0.11	10,375
2029	4.27	3.55	29.3	41.4	0.09	1.03	1.88	2.91	0.95	0.35	1.30	—	10,243	10,243	0.40	0.27	0.10	10,333
2030	4.13	3.43	28.1	41.1	0.09	0.98	1.88	2.86	0.89	0.35	1.24	—	10,205	10,205	0.40	0.27	0.09	10,295
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.36	1.14	9.69	12.5	0.03	0.36	0.55	0.91	0.33	0.10	0.44	—	3,052	3,052	0.12	0.08	0.59	3,080
2028	3.16	2.65	22.2	30.1	0.06	0.80	1.34	2.14	0.74	0.25	0.98	—	7,370	7,370	0.29	0.20	1.29	7,437
2029	3.05	2.54	20.9	29.7	0.06	0.73	1.33	2.07	0.68	0.25	0.92	—	7,321	7,321	0.28	0.19	1.16	7,387
2030	1.74	1.45	11.8	17.3	0.04	0.41	0.78	1.20	0.38	0.15	0.52	—	4,296	4,296	0.17	0.11	0.61	4,335
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.25	0.21	1.77	2.28	< 0.005	0.07	0.10	0.17	0.06	0.02	0.08	—	505	505	0.02	0.01	0.10	510
2028	0.58	0.48	4.04	5.49	0.01	0.15	0.24	0.39	0.13	0.05	0.18	—	1,220	1,220	0.05	0.03	0.21	1,231
2029	0.56	0.46	3.81	5.42	0.01	0.13	0.24	0.38	0.12	0.04	0.17	—	1,212	1,212	0.05	0.03	0.19	1,223
2030	0.32	0.26	2.15	3.17	0.01	0.08	0.14	0.22	0.07	0.03	0.10	—	711	711	0.03	0.02	0.10	718

3. Construction Emissions Details

3.1. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.24	3.56	30.4	38.3	0.08	1.20	—	1.20	1.11	—	1.11	—	8,439	8,439	0.34	0.07	—	8,468
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.24	3.56	30.4	38.3	0.08	1.20	—	1.20	1.11	—	1.11	—	8,439	8,439	0.34	0.07	—	8,468
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	8.98	11.3	0.02	0.36	—	0.36	0.33	—	0.33	—	2,494	2,494	0.10	0.02	—	2,502
Dust From Material Movement	—	—	—	—	—	—	0.25	0.25	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.64	2.07	< 0.005	0.06	—	0.06	0.06	—	0.06	—	413	413	0.02	< 0.005	—	414
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.23	0.20	3.82	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	778	778	0.01	0.03	2.42	789
Vendor	0.01	< 0.005	0.25	0.08	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	236	236	0.01	0.04	0.60	248
Hauling	0.11	0.06	1.85	0.92	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	926	926	0.04	0.15	1.58	972
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.23	2.89	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	716	716	0.01	0.03	0.06	724
Vendor	0.01	< 0.005	0.26	0.08	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	237	237	0.01	0.04	0.02	247
Hauling	0.11	0.05	1.95	0.94	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	929	929	0.04	0.15	0.04	974
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.90	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	214	214	< 0.005	0.01	0.31	217
Vendor	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.9	69.9	< 0.005	0.01	0.08	73.1
Hauling	0.03	0.02	0.57	0.27	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	274	274	0.01	0.04	0.20	287
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.5	35.5	< 0.005	< 0.005	0.05	35.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.6	11.6	< 0.005	< 0.005	0.01	12.1
Hauling	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.4	45.4	< 0.005	0.01	0.03	47.6

3.3. Linear, Grading & Excavation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.08	3.43	28.6	38.2	0.08	1.10	—	1.10	1.01	—	1.01	—	8,439	8,439	0.34	0.07	—	8,468
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.08	3.43	28.6	38.2	0.08	1.10	—	1.10	1.01	—	1.01	—	8,439	8,439	0.34	0.07	—	8,468
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.92	2.45	20.5	27.3	0.06	0.79	—	0.79	0.72	—	0.72	—	6,044	6,044	0.25	0.05	—	6,065

Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	3.74	4.99	0.01	0.14	—	0.14	0.13	—	0.13	—	1,001	1,001	0.04	0.01	—	1,004
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.20	3.56	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	764	764	0.01	0.03	2.17	774
Vendor	0.01	< 0.005	0.24	0.08	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	231	231	< 0.005	0.04	0.55	242
Hauling	0.11	0.06	1.81	0.91	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	907	907	0.04	0.15	1.45	952
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.22	2.69	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	703	703	0.01	0.03	0.06	711
Vendor	0.01	< 0.005	0.25	0.08	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	231	231	< 0.005	0.04	0.01	242
Hauling	0.11	0.05	1.91	0.94	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	910	910	0.04	0.15	0.04	954
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.16	2.03	0.00	0.00	0.53	0.53	0.00	0.12	0.12	—	510	510	0.01	0.02	0.67	516
Vendor	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	166	166	< 0.005	0.03	0.17	173

Hauling	0.08	0.04	1.35	0.66	0.01	0.01	0.16	0.17	0.01	0.04	0.06	—	650	650	0.03	0.10	0.45	682
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.37	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	84.4	84.4	< 0.005	< 0.005	0.11	85.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	0.03	28.7
Hauling	0.01	0.01	0.25	0.12	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	108	108	0.01	0.02	0.07	113

3.5. Linear, Grading & Excavation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	3.32	27.0	37.9	0.08	1.01	—	1.01	0.93	—	0.93	—	8,438	8,438	0.34	0.07	—	8,467
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	3.32	27.0	37.9	0.08	1.01	—	1.01	0.93	—	0.93	—	8,438	8,438	0.34	0.07	—	8,467
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.82	2.37	19.3	27.1	0.06	0.72	—	0.72	0.66	—	0.66	—	6,027	6,027	0.24	0.05	—	6,048
Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.43	3.52	4.94	0.01	0.13	—	0.13	0.12	—	0.12	—	998	998	0.04	0.01	—	1,001
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.17	3.33	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	750	750	0.01	0.03	1.94	760
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	225	225	< 0.005	0.03	0.49	236
Hauling	0.11	0.06	1.78	0.91	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	886	886	0.04	0.14	1.34	930
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.18	0.20	2.50	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	690	690	0.01	0.03	0.05	699

Vendor	0.01	< 0.005	0.24	0.08	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	225	225	< 0.005	0.03	0.01	235
Hauling	0.11	0.05	1.87	0.94	0.01	0.02	0.22	0.24	0.02	0.06	0.08	—	889	889	0.04	0.14	0.03	932
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.13	0.14	1.89	0.00	0.00	0.53	0.53	0.00	0.12	0.12	—	499	499	0.01	0.02	0.60	506
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	161	161	< 0.005	0.02	0.15	168
Hauling	0.08	0.04	1.32	0.66	0.01	0.01	0.16	0.17	0.01	0.04	0.06	—	634	634	0.03	0.10	0.41	665
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.34	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	82.7	82.7	< 0.005	< 0.005	0.10	83.7
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	0.03	27.8
Hauling	0.01	0.01	0.24	0.12	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	105	105	0.01	0.02	0.07	110

3.7. Linear, Grading & Excavation (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.82	3.21	25.8	37.8	0.08	0.96	—	0.96	0.88	—	0.88	—	8,438	8,438	0.34	0.07	—	8,467
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	3.82	3.21	25.8	37.8	0.08	0.96	—	0.96	0.88	—	0.88	—	8,438	8,438	0.34	0.07	—	8,467
Dust From Material Movement	—	—	—	—	—	—	0.84	0.84	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	1.61	1.35	10.9	15.9	0.03	0.40	—	0.40	0.37	—	0.37	—	3,550	3,550	0.14	0.03	—	3,562
Dust From Material Movement	—	—	—	—	—	—	0.35	0.35	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.29	0.25	1.98	2.90	0.01	0.07	—	0.07	0.07	—	0.07	—	588	588	0.02	< 0.005	—	590
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.18	0.15	3.09	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	738	738	0.01	0.03	1.72	748
Vendor	0.01	< 0.005	0.22	0.07	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	218	218	< 0.005	0.03	0.43	229

Hauling	0.11	0.06	1.75	0.92	0.01	0.02	0.22	0.24	0.01	0.06	0.07	—	866	866	0.04	0.14	1.21	910
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.17	0.17	2.36	0.00	0.00	0.75	0.75	0.00	0.18	0.18	—	679	679	0.01	0.03	0.04	687
Vendor	0.01	< 0.005	0.23	0.07	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	219	219	< 0.005	0.03	0.01	229
Hauling	0.10	0.05	1.84	0.94	0.01	0.02	0.22	0.24	0.01	0.06	0.07	—	869	869	0.04	0.14	0.03	912
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.04	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	289	289	< 0.005	0.01	0.31	293
Vendor	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	91.9	91.9	< 0.005	0.01	0.08	96.3
Hauling	0.04	0.02	0.76	0.39	< 0.005	0.01	0.09	0.10	< 0.005	0.03	0.03	—	365	365	0.02	0.06	0.22	383
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	47.9	47.9	< 0.005	< 0.005	0.05	48.5
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	15.2	15.2	< 0.005	< 0.005	0.01	15.9
Hauling	0.01	< 0.005	0.14	0.07	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.4	60.4	< 0.005	0.01	0.04	63.4

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grading & Excavation	Linear, Grading & Excavation	8/3/2027	8/3/2030	5.00	784	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	6.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Grading & Excavation	Bore/Drill Rigs	Diesel	Average	1.00	8.00	83.0	0.50
Linear, Grading & Excavation	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

Linear, Grading & Excavation	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Grading & Excavation	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	57.5	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	8.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	82.2	3.00	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grading & Excavation	—	515,734	88.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	88.0	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	176	532	0.03	< 0.005
2028	176	532	0.03	< 0.005
2029	176	532	0.03	< 0.005
2030	176	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.7	annual days of extreme heat
Extreme Precipitation	2.85	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	24.6	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.1
AQ-PM	42.7
AQ-DPM	12.5
Drinking Water	10.2
Lead Risk Housing	27.2
Pesticides	84.0
Toxic Releases	26.4
Traffic	42.0
Effect Indicators	—
CleanUp Sites	53.4
Groundwater	94.5
Haz Waste Facilities/Generators	51.7
Impaired Water Bodies	0.00
Solid Waste	76.4
Sensitive Population	—
Asthma	66.8
Cardio-vascular	87.6
Low Birth Weights	41.7
Socioeconomic Factor Indicators	—
Education	63.8
Housing	36.7
Linguistic	13.3
Poverty	64.0
Unemployment	85.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	36.48145772
Employed	12.39573977
Median HI	48.73604517
Education	—
Bachelor's or higher	24.38085461
High school enrollment	100
Preschool enrollment	53.81752855
Transportation	—
Auto Access	75.69613756
Active commuting	40.7160272
Social	—
2-parent households	64.62209675
Voting	19.49185166
Neighborhood	—
Alcohol availability	92.78839985
Park access	17.11792634
Retail density	4.18324137
Supermarket access	6.082381625
Tree canopy	1.462851277
Housing	—
Homeownership	79.07096112
Housing habitability	75.93994611
Low-inc homeowner severe housing cost burden	94.54638778
Low-inc renter severe housing cost burden	20.28743744

Uncrowded housing	60.77248813
Health Outcomes	—
Insured adults	45.81034262
Arthritis	0.0
Asthma ER Admissions	38.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	81.1
Cognitively Disabled	66.4
Physically Disabled	21.0
Heart Attack ER Admissions	11.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	1.0
SLR Inundation Area	0.0

Children	5.0
Elderly	80.7
English Speaking	40.0
Foreign-born	48.9
Outdoor Workers	27.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.0
Traffic Density	34.3
Traffic Access	23.0
Other Indices	—
Hardship	70.5
Other Decision Support	—
2016 Voting	38.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	68.0
Healthy Places Index Score for Project Location (b)	35.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Per Engineering Estimates
Construction: Off-Road Equipment	Per Engineering Estimates
Construction: Trips and VMT	Eight (8) daily vendor trips per day were added to account for material delivery and water truck trips. Soil export trip length 3 miles.

BIOLOGICAL TECHNICAL REPORT

FOR

SAN JACINTO VALLEY MASTER DRAINAGE PLAN LINE E

LOCATED IN THE CITY OF SAN JACINTO RIVERSIDE COUNTY, CALIFORNIA

Prepared For:

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January 28, 2025
Revised March 9, 2026

INFORMATION SUMMARY

A. Report Date: January 28, 2025 (Revised March 9, 2026)

B. Report Title: Biological Technical Report for the San Jacinto Valley Master Drainage Plan Line E

C. Project Site Location: The San Jacinto Valley Master Drainage Plan (SJV MDP) Line E Project (Project site) in the City of San Jacinto, Riverside County comprises approximately 120.33 acres as depicted on the U.S. Geological Survey (USGS) topographic maps Lakeview and San Jacinto, California.

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1.0 INTRODUCTION

1.1 Background and Scope of Work

This document provides the results of general biological surveys and focused biological surveys for the 120.33-acre San Jacinto Valley Master Drainage Plan (SJV MDP) Line E (the Project) located in the City of San Jacinto, Riverside County, California. This report identifies and evaluates impacts to biological resources associated with the proposed Project in the context of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), the California Environmental Quality Act (CEQA), and State and Federal regulations such as the Endangered Species Act (ESA), Clean Water Act (CWA), and the California Fish and Game Code.

The overall SJV MDP was prepared and approved in 2013 by the City of San Jacinto and in 2015 by Riverside County Flood Control and Water Conservation District. In 2008, GLA performed a general biological resource analysis for the SJV MDP, which included some focused surveys for portions of the MDP alignments. GLA recommended measures to be applied to future studies of specific facilities, such as Line E. The current Line E alignment is mostly not in the same location as when GLA evaluated the MDP in 2008, and none of the current alignment was accessed for focused surveys in 2008. However, the studies that were performed by GLA in 2024 for the current Line E alignment generally followed the measures for future studies that GLA recommended in the 2009 report. This included recommendations for focused plant surveys, focused animal surveys (fairy shrimp, burrowing owl, least Bell's vireo), the mapping of MSHCP riparian and/or riverine resources and vernal pools, and the delineation of jurisdictional waters. As described below, each of these recommendations were implemented for the current Line E Project site.

The scope of this report includes a discussion of existing conditions for the 120.33-acre Project site, all methods employed regarding the general biological surveys and focused biological surveys, the documentation of botanical and wildlife resources identified (including special-status species), and an analysis of impacts to biological resources. Methods of the study include a review of relevant literature, field surveys, and a Geographical Information System (GIS)-based analysis of vegetation communities. As appropriate, this report is consistent with accepted scientific and technical standards and survey guideline requirements issued by the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), the California Native Plant Society (CNPS), and other applicable agencies/organizations.

The field study focused on a number of primary objectives that would comply with CEQA and MSHCP requirements, including (1) general biological surveys; (2) vegetation mapping; (3) habitat assessments for special-status plant species (including species with applicable MSHCP survey requirements); (4) habitat assessments for special-status wildlife species (including species with applicable MSHCP survey requirements); (5) assessment for the presence of wildlife migration and colonial nursery sites; (6) assessments for MSHCP riparian/riverine areas and vernal pools; and (7) assessments for areas subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) jurisdiction pursuant to Section 404 of the Clean Water Act, State Water Quality Control Board pursuant to Section 401 of the Clean Water Act, and CDFW jurisdiction

pursuant to Division 2, Chapter 6, Section 1600–1616 of the California Fish and Game Code. Observations of all plant and wildlife species were recorded during the biological studies and are included as Appendix A: Floral Compendium and Appendix B: Faunal Compendium.

1.2 Project Location

The Project site is in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within unsectioned portions of Township 4 South, and Range 1 West of the Lakeview and San Jacinto, California USGS 7.5-minute quadrangle maps [Exhibit 2 – Vicinity Map]. The Project site is generally bound by San Jacinto Reservoir to the south, North Sanderson Avenue to the east and west, and Ramona Expressway to the north. Exhibit 3 identifies the general study area for the Project. Specifically, the Universal Transverse Mercator (UTM) coordinates corresponding to the site are 499923.20 mE and 3740091.36 mN.

1.3 Project Description

For this report, the term "Project site" is defined as the 120.33 acres of land that is proposed for direct impact by the Project [Exhibit 3A – Aerial Map]. The Project site consists of Assessor's Parcel Numbers (APNs): 430-100-002, 430-100-009, 430-100-012, 430-100-013, 430-100-018, 432-030-006, 432-030-010, 432-030-012, 436-010-003, 436-010-005, 436-030-004, and 436-170-001.

The proposed Project (Line E) is an implementing project of the San Jacinto Valley Master Drainage Plan (SJV MDP). The SJV MDP was prepared and approved in 2013 by the City of San Jacinto and approved in 2015 by Riverside County Flood Control and Water Conservation District. Facilities associated with the Line E Project include a channel, basin, training berms, and access roads. The Project is a planned regional drainage facility that would provide a service to an approximately 1,870-acre tributary area.

Starting north of the San Jacinto Reservoir, the Project includes two training berms, continuing north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue, turning west underneath Sanderson Avenue onto the northern portion of the proposed San Jacinto Commerce Center Specific Plan (SJCCSP) property and turning north, then west to the proposed MDP Line E-Y-Z Confluence Basin (Confluence Basin), which will be located on the site proposed to be the SJCCSP, continuing north from the Confluence Basin as a concrete channel and crossing over a buried pipeline known as Casa Loma Barrel No. 1, which is owned and operated by The Metropolitan Water District of Southern California (MWD). Access roads would be provided on both sides of the Line E Channel and the training berms. The Confluence Basin will not be lined with concrete and will include a pump station to drain the basin.

The Line E channel alignment will consist of an earthen channel with a 65-foot base width, heights up to 10 feet, side slopes inclined at 4:1 (Horizontal:Vertical), and several sloped rip-rap drops along the nearly three-mile alignment.

The Project design includes 20-foot-wide access roads (included within the permanent impacts) located on both sides of the channel along with reinforced concrete box (RCB) culverts, one of

which will intersect Sanderson Avenue, while the remaining culverts will intersect future roadways. Storm water flow will generally occur from southeast to northwest. To maintain as much of the existing flow patterns at the southern end of the alignment, at the outlet of the San Jacinto Reservoir, training berms are proposed as opposed to channelization.

At the northern portion of the alignment the proposed earthen channel terminates at a proposed Confluence Basin and the remainder of the alignment converts to a concrete trapezoidal channel with a 155-foot base width, height up to 5.5 feet, and side slopes inclined at 1.5:1 (H:V). At the northern end of the proposed concrete channel portion, the proposed alignment crosses the existing MWD buried pipeline (Casa Loma Siphon No. 1) via a bridge-type structure to avoid adding loads to the existing pipeline.

Since the Project will be a regional flood control facility pursuant to the adopted SJV MDP, the Riverside County Flood Control and Water Conservation District (Flood Control) will need to be able to maintain the channel and access roads throughout the life of the facility. Maintenance activities include vegetation management, cleaning out of debris, slope and bottom repairs, access road maintenance and repair. All the intended maintenance areas have been coordinated with and are included within the permanent impact acreages reported herein. Given the sensitivity of the biological resources in the area, the Flood Control District will not use rodenticides or pesticides for vegetation management; rather mechanical and hand removal of vegetation will be utilized.

1.4 Relationship of the Project Site to the MSHCP

1.4.1 MSHCP Background

The Western Riverside County MSHCP is a comprehensive habitat conservation/planning program for Western Riverside County. The intent of the MSHCP is to preserve native vegetation and meet the habitat needs of multiple species, rather than focusing preservation efforts on one species at a time. The MSHCP provides coverage (including take authorization for listed species) for special-status plant and animal species, as well as mitigation for impacts to special-status species and associated native habitats.

Through agreements with the U.S. Fish and Wildlife Service (USFWS) and CDFW, the MSHCP designates 146 special-status animal and plant species as Covered Species, of which the majority have no project-specific survey/conservation requirements. The MSHCP provides mitigation for project-specific impacts to these species for Projects that are compliant/consistent with MSHCP requirements, such that the impacts are reduced to below a level of significance pursuant to CEQA.

The Covered Species that are not yet adequately conserved have additional requirements in order for these species to ultimately be considered "adequately conserved". A number of these species have survey requirements based on a project's occurrence within a designated MSHCP survey area and/or based on the presence of suitable habitat. These include Narrow Endemic Plant Species (MSHCP *Volume I, Section 6.1.3*), as identified by the Narrow Endemic Plant Species Survey Areas (NEPSSA); Criteria Area Plant Species (MSHCP *Volume I, Section 6.3.2*)

identified by the Criteria Area Plant Species Survey Areas (CAPSSA); animals species (burrowing owl, mammals, amphibians) identified by survey areas (MSHCP *Volume I, Section 6.3.2*); and species associated with riparian/riverine areas and vernal pool habitats, i.e., least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, and three species of listed fairy shrimp (MSHCP *Volume I, Section 6.1.2*). An additional 28 species (MSHCP *Volume I*, *Table 9.3*) not yet adequately conserved have species-specific objectives for the species to become adequately conserved. However, these species do not have project-specific survey requirements.

The goal of the MSHCP is to have a total Conservation Area of more than 500,000 acres, including approximately 347,000 acres on existing Public/Quasi-Public (PQP) Lands, and approximately 153,000 acres of Additional Reserve Lands targeted within the MSHCP Criteria Area. The MSHCP is divided into 16 separate Area Plans, each with its own conservation goals and objectives. Within each Area Plan, the Criteria Area is divided into Subunits and further divided into Criteria Cells and Cell Groups (a group of criteria cells). Each Cell Group and ungrouped, independent Cell has designated "criteria" for the purpose of targeting additional conservation lands for acquisition. Projects located within the Criteria Area are subject to the Habitat Evaluation and Acquisition Negotiation Strategy (HANS) process to determine if lands are targeted for inclusion in the MSHCP Reserve. In addition, all Projects located within the Criteria Area are subject to the Joint Project Review (JPR) process, where the Project is reviewed by the Regional Conservation Authority (RCA) to determine overall compliance/consistency with the biological requirements of the MSHCP.

1.4.2 Relationship of the Project Site to the MSHCP

The Project site is located within San Jacinto Valley Area Plan of the MSHCP. The Project site is not located within the MSHCP Criteria Area or the MSHCP Criteria Area Plant Species Survey Area (CAPSSA) [Exhibit 4B – MSHCP Survey Areas Map]. The northwestern portion of the Project site is located adjacent, but outside of the MSHCP Criteria Area [Exhibit 4A – MSHCP Overlay Map]. The Project site is also not located within the MSHCP Mammal or Amphibian Survey Areas, or Core and Linkage areas.

Most of the Project site is located within the MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA) [Exhibit 4B], except for approximately 3,000 linear feet of the Project alignment corresponding with the northeastern corner of the SJCCSP property. Therefore, pursuant to the MSHCP, the following target plant species must be evaluated through habitat assessments and focused surveys within the survey area: California Orcutt grass (*Orcuttia californica*), Munz's onion (*Allium munzii*), many-stemmed dudleya (*Dudleya multicaulis)*, San Diego ambrosia (*Ambrosia pumila*), spreading navarretia (*Navarretia fossalis*), and Wright's trichocoronis (*Trichocoronis wrightii var. wrightii*).

Nearly all the Project site is located within the MSHCP Burrowing Owl Survey Area [Exhibit 4B]. Therefore, pursuant to the MSHCP, the burrowing owl (*Athene cunicularia*) must be evaluated through a habitat assessment and focused surveys (if suitable habitat is present).

Within the designated Survey Areas, the MSHCP requires habitat assessments, and focused surveys within areas of suitable habitat. For locations with positive survey results, the MSHCP requires that 90 percent of those portions of the property that provide for long-term conservation value for the identified species shall be avoided until it is demonstrated that conservation goals for the particular species have been met throughout the MSHCP. Findings of equivalency shall be made demonstrating that the 90-percent standard has been met, if applicable. If equivalency findings cannot be demonstrated, then "biologically equivalent or superior preservation" must be provided.

2.0 METHODOLOGY

In order to adequately identify biological resources in accordance with the requirements of CEQA, Glenn Lukos Associates (GLA) assembled biological data consisting of the following main components:

- Delineation of aquatic resources (including wetlands and riparian habitat) subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), CDFW, and MSHCP riparian/riverine areas and vernal pools policy
- Performance of vegetation mapping for the Project site
- Performance of habitat assessments, and site-specific biological surveys, to evaluate the presence/absence of special-status species in accordance with the requirements of CEQA and the MSHCP
- Performance of a focused survey for rare plants
- Performance of a focused survey for burrowing owl
- Performance of a focused survey for least Bell's vireo
- Performance of a focused survey for the southwestern willow flycatcher
- Performance of a focused survey for Crotch's bumble bee

The focus of the biological surveys was determined through initial site reconnaissance, a review of the California Natural Diversity Database (CNDDB) (CDFW 2024), CNPS 9th edition online inventory (CNPS 2024), Natural Resource Conservation Service soil data (NRCS 2024), MSHCP species and habitat maps and sensitive soil maps (Dudek 2003), other pertinent literature, and knowledge of the region. Site-specific general surveys within the Project site were conducted on foot in the proposed impacted areas for each target plant or animal species identified below. Table 2-1 provides a summary list of survey dates and survey types.

Table 2-1. Summary of Biological Surveys for the Project Site

Survey Type	2021 Survey Dates	2022 Survey Dates	2023 Survey Dates	2024 Survey Dates	2025 Survey Dates	Biologist(s)
General Biological Survey Habitat Assessment		3/2	2/22	3/11, 3/15		CW, JA, JS, WJ
Vegetation Mapping		3/2	2/22	3/15, 6/12		CW, JA
Evaluation of MSHCP Riparian/Riverine Areas				5/23, 5/24, 6/27, 9/20		LL, VP
Evaluation of MSHCP Vernal Pools and Fairy Shrimp Habitat	12/15			1/5		CW, FW, SC
Delineation of Federal and State Jurisdictional Waters				5/23, 5/24, 6/27, 9/20		LL, VP
Focused Botanical Surveys		3/2, 4/13, 5/30	2/22, 4/27, 5/26, 6/1	3/15, 4/8, 6/25, 6/26		AB, DS, IR, JA, JS, WJ
Focused Least Bell's Vireo Surveys				4/11, 4/23, 5/7, 6/12, 6/27, 7/9, 7/19, 7/29		CW, JV, SC
Focused Southwestern Willow Flycatcher Surveys				5/20, 6/11, 6/21, 6/27, 7/3		JA
Wet Season Fairy Shrimp Surveys[1]	12/15, 12/17, 12/25, 12/26, 12/31	1/1, 1/7, 1/8, 1/15, 1/22, 1/29, 2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 3/26, 4/2, 4/9, 4/16, 4/23, 4/30, 11/16, 11/23, 11/30	12/6, 12/14, 12/20, 12/27, 1/6, 1/14, 1/20, 1/26, 2/2, 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/23, 3/30, 4/6, 4/13, 4/19, 4/26, 5/3, 5/10, 5/17	1/5, 1/12, 1/18, 1/26, 2/2, 2/8, 2/15, 2/22, 2/28, 3/7, 3/15, 3/20, 3/28, 4/4, 4/12, 4/18, 4/22, 4/29, 5/9, 5/17, 5/22		CW, DS, FW, JA, SC, VP,
Dry Season Fairy Shrimp Surveys			10/9	8/26, 9/20		CW, DS, SC, VP, FW
Focused Burrowing Owl Surveys		3/7, 3/14, 4/6, 4/18,		3/20, 4/18, 5/9, 7/8		AB, BL, DS, JV, SC, WJ

[1] Includes visits where ponded features were sampled for fairy shrimp, as well as additional visits to monitor hydrology.

Survey Type	2021 Survey Dates	2022 Survey Dates	2023 Survey Dates	2024 Survey Dates	2025 Survey Dates	Biologist(s)
		5/4, 5/9, 6/6, 6/13				
Special-Status Bat Survey				4/29		JA, SC
Focused Crotch's Bumble Bee Surveys					3/28, 4/18, 5/7, 6/3, 6/12, 6/25	JA, SC, IR
JA = Jeff Ahrens, AB = Amy Black, SC = Stephanie Cashin; LLG = Lesley Lokovic Gamber; WJ = Wanisa Jaikwang; BL = Brinna Lee, VP = Velvet Park, IR = Ian Rhodes, DS = David Smith, JS = Jillian Stephens, JV = Joseph Vu; CW = Chris Waterston, FW = Frank Wegsheider						

Individual plants and wildlife species were evaluated in this report based on their "special-status." For this report, plants were considered "special-status" based on one or more of the following criteria:

- Listing through the Federal and/or State Endangered Species Act (ESA)
- California Rare Plant Rank 1A, 1B, 2A, 2B, 3, or 4

Wildlife species were considered "special-status" based on one or more of the following criteria:

- Listing through the Federal and/or State ESA
- Designation by the State as a Species of Special Concern (SSC) or California Fully Protected (FP) species

Vegetation communities and habitats were considered "special-status" based on one or more of the following criteria:

- Global (G) and/or State (S) ranking of category 3 or less (see Section 3.2.2 below for further explanation)
- Riparian/riverine habitat

2.1 Botanical Resources

A site-specific survey program was designed to accurately document the botanical resources within the Project site, and consisted of five components: (1) a literature search; (2) preparation of a list of target special-status plant species and sensitive vegetation communities that could occur within the Project site; (3) general field reconnaissance survey(s); (4) vegetation mapping according to the List of Vegetation Alliances and Associations; and (5) habitat assessments and focused surveys for special-status plants (including those with MSHCP requirements).

2.1.1 Literature Search

Prior to conducting fieldwork, pertinent literature on the flora of the region was examined. A thorough archival review was conducted using available literature and other historical records. These resources included the following:

- California Native Plant Society, Rare Plant Program. Inventory of Rare and Endangered Plants of California (online edition, v9.5) (CNPS 2024); and

- CNDDB for the USGS 7.5′ quadrangle(s): Lakeview and San Jacinto (CDFW 2024).

2.1.2 Vegetation Mapping

The MSHCP utilizes vegetation mapping for the overall Plan area derived from baseline mapping conducted in 1995, with updates provided in 2005 and 2012. Vegetation types were classified according to Holland (1986). The MSHCP states that the baseline vegetation map is limited by the timeframe within which the data were assembled as well as the precision of those data, and that the current extent and character of vegetation communities may differ from that depicted on the MSHCP vegetation map.

Vegetation communities within the Project site were mapped according to the List of Vegetation Alliances and Associations (or Natural Communities List). The list is based on A Manual of California Vegetation, Second Edition or MCVII, which is the California expression of the National Vegetation Classification. Where necessary, deviations were made when areas did not fit into exact vegetation descriptions. These vegetation communities were named based on the dominant plant species present. Plant communities were mapped in the field directly onto a 200-scale (1”=200’) aerial photograph.

2.1.3 Special-Status Plant Species and Habitats Evaluated for the Project Site

A literature search was conducted to obtain a list of special-status plants with the potential to occur within the Project site. The CNDDB was initially consulted to determine well-known occurrences of plants and habitats of special concern in the region. Other sources used to develop a list of target species for the survey program included the CNPS online inventory 2024 and the MSHCP (Dudek 2003).

Most of the Project site is located within the MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA) [Exhibit 4B], except for approximately 3,000 linear feet of the Project alignment corresponding with the northeastern corner of the SJCCSP property. Pursuant to the MSHCP, the following target species must be evaluated through habitat assessments and focused surveys (if suitable habitat is present): Munz’s onion, San Diego ambrosia, many-stemmed dudleya, spreading navarretia, California Orcutt grass, and Wright’s trichocoronis.

Based on this information, vegetation profiles and a list of target sensitive plant species and habitats that could occur within the Project site were developed and incorporated into a mapping and survey program to achieve the following goals: (1) characterize the vegetation associations

and land use; (2) prepare a detailed floristic compendium; (3) identify the potential for any special-status plants that may occur within the Project site; and (4) prepare a map showing the distribution of any sensitive botanical resources associated with the Project site, if applicable.

2.1.4 Botanical Surveys

GLA biologists performed general and focused plant surveys for the Project site in 2022 and 2023 (middle segment) and 2024 (northwestern and southeastern segments). In 2022, surveys were performed on March 2 (Jillian Stephens and Wanisa Jaikwang), and April 13 and May 30 (Jillian Stephens). In 2023, focused surveys were performed on February 22 and April 27 (Jillian Stephens), May 26 (Amy Black), and June 1 (Amy Black and David Smith). In 2024, focused surveys were performed on April 8 (Ian Rhodes), June 25 (Amy Black and Bailey Perrizo) and June 26 (Ian Rhodes).

Survey(s) were conducted in accordance with accepted botanical survey guidelines (CDFW 2018, CNPS 2001, Nelson 1984, USFWS 2000). As applicable, survey(s) were conducted at appropriate times based on precipitation and flowering periods. An aerial photograph, a soil map, and/or a topographic map were used to determine the community types and other physical features that may support sensitive and uncommon taxa or communities within the Project site. Survey(s) were conducted by following meandering transects within target areas of suitable habitat. All plant species encountered during the field survey(s) were identified and recorded following the above-referenced guidelines. A complete list of the plant species observed is provided in Appendix A. Scientific nomenclature and common names used in this report follow Baldwin et al. (2012), and Munz (1974).

2.2 Wildlife Resources

Wildlife species were evaluated and detected during the field survey(s) by sight, call, tracks, and scat. Site reconnaissance was conducted in such a manner as to allow inspection of the entire Project site by direct observation, including the use of binoculars. Observations of physical evidence and direct sightings of wildlife were recorded in field notes during the visit(s). A complete list of wildlife species observed within the Project site is provided in Appendix B. Scientific nomenclature and common names for vertebrate species referred to in this report follow the Complete List of Amphibian, Reptile, Bird, and Mammal Species in California (CDFW 2016), Standard Common and Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians 6th Edition, Collins and Taggart (2009) for amphibians and reptiles, and the American Ornithological Society Checklist of Middle and North American Birds (Chesser et al. 2024) for birds. The methodology (including any applicable survey protocols) utilized to conduct general survey(s), habitat assessment(s), and/or focused surveys for special-status animals are included below.

2.2.1 General Surveys

Birds

During the general biological and reconnaissance survey within the Project site, birds were identified incidentally within each habitat type. Birds were detected by both direct observation and by vocalizations and were recorded in field notes.

Mammals

During general biological and reconnaissance survey within the Project site, mammals were identified incidentally within each habitat type. Mammals were detected both by direct observations and by the presence of diagnostic sign (i.e. tracks, burrows, scat, etc.).

Reptiles and Amphibians

During general biological and reconnaissance surveys within the Project site, reptiles and amphibians were identified incidentally during surveys within each habitat type. Habitats were examined for diagnostic reptile sign, which include shed skins, scat, tracks, snake prints, and lizard tail drag marks. All reptiles and amphibian species observed, as well as diagnostic sign, were recorded in field notes.

2.2.2 Special-Status Animal Species Evaluated for the Project Site

A literature search was conducted to obtain a list of special-status wildlife species with the potential to occur within the Project site. Species were evaluated based on three factors, including: 1) species identified by the CNDDB as occurring (either currently or historically) on or in vicinity of the Project site, (2) species survey areas as identified by the MSHCP for the Project site; and 3) any other special-status animals that are known to occur within the vicinity of the Project site, or for which potentially suitable habitat occurs on the Project site.

2.2.3 Habitat Assessment for Special-Status Animal Species

GLA biologists conducted habitat assessments for special-status animal species for the Project site, including on March 2, 2022 (Jillian Stephens and Wanisa Jaikwang) and on March 11 and 15, 2024 (Jeff Ahrens and Chris Waterston). An aerial photograph, soil map and/or topographic map were used to determine the community types and other physical features that may support special-status and uncommon taxa within the Project site.

2.2.4 Focused Surveys for Special-Status Animals Species

Burrowing Owl

The Project site is within the MSHCP Burrowing Owl (*Athene cunicularia*) Survey Area and therefore a habitat assessment is required (in accordance with the 2006 MSHCP Burrowing Owl Survey Instructions) to determine if focused burrowing owl surveys are warranted for the Project

site. The Burrowing Owl Survey Instructions are divided into three components: Step I (habitat assessment), Step II-A (focused burrow survey), and Step II-B (focused burrowing owl survey). The Step I habitat assessment is used to determine if a Project site exhibits the base-habitat conditions for burrowing owls, i.e., whether a site contains open habitats with the potential to contain fossorial mammal burrows to support burrowing owls.

Burrowing owl surveys were performed in 2022 for the middle portion of the Project alignment and in 2024 for the northwestern and southeastern portions of the Project [Exhibit 9 – Burrowing Owl Survey Map]. Step I habitat assessments were conducted by Stephanie Cashin and Wanisa Jaikwang on March 7, 2022, and by Jeff Ahrens on March 20, 2024. The Step I habitat assessments were conducted by walking meandering transects throughout the Project site to identify small mammal burrows or man-made structures that may be used by owls, as well as assessing the vegetation for suitability (i.e., areas of low growing grassland vegetation and/or lacking dense scrub). Additionally, a 500 feet buffer zone around the project boundary was visually inspected with binoculars.

Focused burrow surveys (Step II-A) were conducted on March 7, 2022, and March 20, 2024, concurrent with the first focused survey visits (Step II-B). The remaining focused survey visits for the respective survey areas were conducted on March 14, April 6, April 18, May 4, May 9, June 6 and June 13, 2022 (Amy Black, Stephanie Cashin, Brinna Lee, David Smith, Wanisa Jaikwang, and Joseph Vu), and on April 18, May 9, and July 8, 2024 (David Smith and Brinna Lee). The burrowing owl survey visits are to be conducted during a period from one hour prior to sunrise to two hours after sunrise or two hours before sunset to one hour after sunset. All survey visits were conducted in the morning within the allotted timeframe. The surveys were conducted during weather that was conducive to observing owls outside their burrows and detecting burrowing owl sign, and not during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. Additionally, all work was performed more than 5 days after a rain event.

Focused burrowing owl surveys were conducted by walking meandering transects throughout areas of suitable habitat. Transects were spaced between 22 feet and 65 feet apart, adjusting for vegetation height and density, in order to provide adequate visual coverage of the survey areas. At the start of each transect, and at least every 320 feet along transects, binoculars were used to scan the survey area for burrowing owls. All suitable burrows were inspected for diagnostic owl sign (e.g., pellets, prey remains, whitewash, feathers, bones, and decoration) in order to identify potentially occupied burrows. Exhibit 9 identifies the burrowing owl survey areas, transect locations, and the 500-foot buffer area. Table 2-2 summarizes the 2022 burrowing owl survey visits and Table 2-3 summarizes the 2024 burrowing owl survey visits. The results of the burrowing owl surveys are documented in Section 4.0 of this report.

Table 2-2. Summary of 2022 Burrowing Owl Surveys

Survey Date	Survey Number	Biologist(s)	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
03/07/2022	1	SC/WJ	51/53	0-2	0
03/14/2022	1	SC/BL	45/54	0-1	0
04/06/2022	2	SC/JV	57/63	0-2	0
04/18/2022	2	JV/WJ	52/59	0-6	100
05/04/2022	3	AB/DS	48/56	0-1	0
05/09/2022	3	SC/WJ	47/52	0-6	100
06/06/2022	4	SC/WJ	57/70	0-1	0
06/13/2022	4	SC/WJ	61/65	0-5	100
JA = Jeff Ahrens, AB = Amy Black, SC = Stephanie Cashin; WJ = Wanisa Jaikwang; BL = Brinna Lee, DS = David Smith, JV = Joseph Vu					

Table 2-3. Summary of 2024 Burrowing Owl Surveys

Survey Date	Survey Number	Biologist(s)	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
03/20/2024	1	DS	58/62	0-3	50
04/18/2024	2	DS	68/70	0	100
05/09/2024	3	DS	64/70	0	100
07/8/2024	4	BL	66/72	0-4	0
BL = Brinna Lee, DS = David Smith					

Least Bell's Vireo

GLA biologists Stephanie Cashin, Hannah Craddock, Joseph Vu, and Chris Waterston conducted focused surveys for the least Bell's vireo (*Vireo bellii pusillus*) within the adjacent (offsite) riparian habitat. Surveys were conducted in accordance with the 2001 USFWS survey guidelines, which stipulate that eight surveys should be conducted between April 10 and July 31, with a minimum of ten days separating each survey visit.

Focused surveys were conducted on April 11, April 23, May 7, June 12, June 27, July 9, July 19, and July 29, 2024. Pursuant to the survey guidelines, the surveys were conducted between sunrise and 11:00 a.m. Weather conditions during the surveys were conducive to a high level of bird activity. Table 2-4 summarizes the vireo survey visits. The results of the vireo surveys are documented in Section 4.0 of this report.

Table 2-4. Summary of Least Bell's Vireo Surveys

Survey Date	Survey Number	Biologist(s)	Start/End Time	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
04/11/2024	1	JV	0645/1100	52/80	2-6	100
04/23/2024	2	JV	0630/1100	50/58	1-4	100
05/07/2024	3	JV	0645/1100	56/72	4-9	0
06/12/2024	4	CW	0650/1100	61/73	1-4	100
06/27/2024	5	CW	0600/1030	63/78	2-5	0
07/09/2024	6	HC	0730/1030	77/90	2-6	0
07/19/2024	7	HC	0630/0900	74/82	1-5	0
07/29/2024	8	SC	0645/1045	75/87	1-4	0
SC= Stephanie Cashin, HC = Hannah Craddock, JV = Joseph Vu, CW = Chris Waterston						

Southwestern Willow Flycatcher

GLA biologist Jeff Ahrens (TE 052159-6) conducted focused surveys for the southwestern willow flycatcher (*Empidonax traillii extimus*) within the adjacent (offsite) riparian habitat. Surveys were conducted in accordance with the 2010 USFWS survey guidelines, which stipulate five survey visits between May 15 and July 17, divided into three survey periods. The southwestern willow flycatcher is one of four subspecies of willow flycatcher that occur within southern California but is the only subspecies that breeds in southern California. The other subspecies may occur in southern California as they migrate through the area onwards to northern breeding areas but will not breed in southern California. If present, these subspecies may be detected during the first and/or second survey periods. The presence of the southwestern willow flycatcher is determined by willow flycatchers that remain in southern California during the third survey period.

Focused surveys were conducted on May 20, June 11, June 21, June 27, and July 3, 2024. Mr. Ahrens was accompanied by GLA biologist Chris Waterston (non-permitted) on June 27, 2024. All surveys were conducted between one hour prior to sunrise and were completed before 10:45 a.m. Weather conditions during the surveys were conducive to a high level of bird activity. Table 2-5 summarizes the flycatcher survey visits. The southwestern willow flycatcher report is included as Appendix H.

Table 2-5. Summary of Southwestern Willow Flycatcher Surveys

Survey Date	Survey Number	Biologist(s)	Start/End Time	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover
05/20/20024	1	JA	0555/1030	52/62	2-5	100
06/11/2024	2	JA	0600/1030	80/90	2-5	20
06/21/2024	3	JA	0550/1045	61/84	1-3	0
06/27/2024	4	JA/CW	0600/1030	63/78	2-5	0
07/03/2024	5	JA	0605/1030	68/88	2-5	10
JA = Jeff Ahrens, CW (non-permitted)						

Crotch's Bumble Bee

GLA biologists Jeff Ahrens, Stephanie Cashin, and Ian Rhodes performed focused foraging surveys for Crotch's bumble bee (*Bombus crotchii*; CBB) in suitable habitat areas of the Project during the 2025 survey period. All three biologists are familiar with bumble bee natural history, bumble bee species identification and have detected the CBB on numerous sites throughout southern California. In addition, Ms. Cashin (S-202690004-20273-001) holds a Scientific Collecting Permit (SCP) and a Section 2081(a) permit authorizing capture and release of CESA Candidate and/or TVPICP List bumble bees, including CBB.

Surveys generally followed the methods described by CDFW (2023) in *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*, which is not a mandated survey protocol, but instead "is intended to assist CDFW staff, project proponents, and consultants in developing, proposing, and evaluating survey protocols and surveys on a project-specific basis." The *Survey Considerations* provides an overview of and incorporates the methodology of established protocols (e.g. the USFWS rusty patched bumble bee protocol [USFWS 2019]), while allowing for modifications to the number and type of surveys based on factors including the size of a Project site, the vegetation alliances and the phenology of the floral resources present within those alliances, and the patchiness of suitable habitat. The *Survey Considerations* state that survey efforts should include multiple survey visits, with the timing of the visits determined on a project-by-project basis based on seasonality and when CBB utilization will most likely occur. The timing of the surveys may vary depending on the location, elevation, seasonal rainfall, average ambient air temperatures, and local seasonal weather conditions.

To increase probability of detecting foraging bumble bees, survey efforts at the Project site were conducted during peak bloom periods that encompass the queen flight season (February through March) as well as the Colony Active Period (April through August) when the queen, daughters, and males are generally active. Surveys were spaced at least two to four weeks apart throughout the queen flight season and Colony Active Period to take advantage of the different blooming periods of floral resources.

The Project site supports both annual and perennial floral resources with the potential for utilization by CBB. The annual floral resources onsite (that CBB are known to use) consisted of common fiddleneck (*Amsinckia intermedia)*, which was located primarily east of North Sanderson Avenue and along the edges of agricultural areas within the western portion of the site. Other annual species including smooth tarplant (*Centromadia pungens* ssp.), which have not been documented to be utilized by CBB were also surveyed. Perennial floral resources onsite with potential to be utilized by CBB was limited to alfalfa (*Medicago sativa*). Alfalfa is generally considered to be a perennial plant as it can live for more than two years, but at the Project site, alfalfa is generally grown as a short-season annual row crop that is rotated. Alfalfa within the Project site occurred west of North Sanderson Avenue. In addition to alfalfa, a small patch of branching phacelia (*Phacelia ramosissima*) was detected immediately offsite along the southeasternmost portion of the Project site within riparian habitat and was visually monitored when it was flowering as CBB is known to forage on it. Focused surveys were conducted on March 28, April 18, May 7, June 3, June 12, and June 25, 2025, which captured the peak blooming periods of both annual and perennial floral resources.

Photo vouchers of *Bombus* species were obtained by photographing bumble bees in situ from multiple angles with a professional level telephoto zoom lens and a camera body with a sensor capable of producing highly detailed images to ensure sufficient detail of identifying characteristics. Pursuant to the survey guidelines, the surveys were conducted between an hour after sunrise up until two hours before sunset, during times when weather conditions during the surveys are conducive to a high level of bee activity with temperatures generally 52-90 degrees Fahrenheit and wind less than seven miles per hour. Table 2-6 summarizes the CBB survey visits. The results of the CBB surveys are documented in Section 4.0 of this report. The CBB report is included as Appendix I.

Table 2-6. Summary of Crotch's Bumble Bee Surveys

Survey Date	Biologist(s)	Start/End Time	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
03/28/25	JA/IR	0830/1300	52/62	4-7/3-6	100/100
04/18/25	SC/IR	0730/1230	52/55	2/4	100/100
05/07/25	JA	0900/1300	62/73	2-5/2-3	100/50
06/03/25	JA	1000/1600	70/78	2-4/2-5	0/80
06/12/25	JA/SC	1330/1800	90/74	5-7/5-7	0/0
06/25/25	JA/SC	1245/1750	85/84	3-7/4-6	0/0
JA = Jeff Ahrens, SC = Stephanie Cashin, IR = Ian Rhodes					

Fairy Shrimp

The Project site contains five features/inundation areas that were surveyed by GLA biologists to determine the presence/absence of listed fairy shrimp. Three of the features, identified as #4, 5 and 46, were surveyed in 2021/2022 (wet season) and 2023 (dry season) for a separate project whose study area overlaps with that of the Line E Project site. The other two features, identified as E-1 and E-2, were surveyed in 2023/2024 (wet and dry seasons) for the Project.

Wet Season Surveys

The 2021/2022 wet season surveys (Features 4, 5 and 46) were conducted by GLA biologist Frank Wegscheider (TE-038716-4). The 2023/2024 wet season surveys (Features E-1 and E-2) were conducted by GLA biologists Stephanie Cashin (TE-20280D-0) and Chris Waterston (ESPER-2380694), assisted by GLA field staff David Smith and Velvet Park.

The wet season surveys were performed in accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines) dated November 13, 2017. Prior to the initiation of sampling, site visits were conducted following rainfall events to identify those features meeting the minimum hydrologic conditions for sampling. The Survey Guidelines generally consider that features containing a minimum of three centimeters (cm) of ponding at least 24 hours after rain events should be evaluated for surveys, but more specifically, sampling is required for any features ponded for at least seven days, and every seven days thereafter until the features are dry or have remained inundated continuously for 120 days. Surveys are to be re-initiated for any features that dry up and re-inundate.

Sampling for the presence of fairy shrimp was performed using a dip net within representative portions of the depression bottom, edges, and vertical water column when there was adequate ponding. Specimens were placed into vials, with labels containing identifying each depression with its unique identifying number. The vials contained a 95% ethanol solution to preserve the specimens. Specimens were identified in the field when feasible, otherwise identification was completed in a lab setting.

Dry Season Surveys

Dry season surveys for Features 4, 5 and 46 were initiated in October 2023 with the collection of soil samples by GLA biologist David Moskovitz (PER0010680-0), with assistance from Stephanie Cashin and Chris Waterston, and from GLA trainees David Smith and Velvet Park (under supervision). Soil processing and culturing was performed by Brent Helm (TE-795930-12). The dry season surveys for Features E-1 and E-2 were conducted on September 20, 2024, by GLA biologist Chris Waterston (ESPER-2380694) with assistance from Stephanie Cashin (PER11730977-1), and from GLA trainee Velvet Park (under supervision). Soil processing and culturing was performed by Frank Wegscheider (TE-038716-4).

Soil sample collection followed the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines).[2] Soil samples were collected when the pools were dry using

[2] USFWS. *Survey Guidelines for the Listed Large Branchiopods*, Revised: November 13, 2017.

a hand trowel to collect intact chunks of soil from the top 1–3 cm of pool sediment. The number of soil samples collected from each of features was based on feature size according to the Survey Guidelines. Starting at the edge of each depression, samples were taken from equidistant points along the longest transect and widest transect of each depression. Additional samples were taken at the deepest part of each feature. Soil samples of approximately 100 milliliters (ml) each were removed at each sub-sample location using a hand trowel and were combined into a labeled bag for each feature with the collection date, location and feature ID, and name of collector for future processing.

Special-Status Bats

GLA biologists Jeff Ahrens and Stephanie Cashin conducted a focused bat survey on April 29, 2024, within the adjacent (offsite) riparian habitat. The bat survey was comprised of a combination of acoustic and emergence surveys and focused on detecting potential roosting areas (day and night) that included, but were not limited to, rocky outcroppings, palm trees, eucalyptus trees, and riparian vegetation. Potential roosting areas were inspected visually for evidence of roosting that included urine staining, guano concentrations, and/or audible bats. A Seek Compact Pro Thermal imager attached to an iPhone or iPad was used to assist in detecting heat signatures of bats within and exiting from potential roost areas.

Four ultrasonic acoustic recording devices were deployed throughout the bat Study area. Recording devices included two Pettersson M500-384 microphones attached to two Microsoft Surface Pros running Sonobat Live recording software and also included two Wildlife Acoustics EchoMeter 2 Pro microphones attached to an Apple iPad.

All acoustic data was recorded in full spectrum and was processed and analyzed with Sonobat 4.2.2 bat call analysis software using the California Southwest classifier. All acoustic calls were manually reviewed and vetted using multiple Sonobat acoustic reference libraries and reference materials including Echolocation Call Characteristics of California Bats (Humboldt State University, 2018) and Echolocation Call Characteristics of Western U.S. Bats (Humboldt State University, 2018). Table 2-7 summarizes the focused bat survey visits.

Table 2-7. Summary of Focused Bat Surveys

Survey Date	Biologist(s)	Start/End Time	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover
04/29/2024	JA/SC	1800/2230	71/63	4-5/2-4	None
JA = Jeff Ahrens, SC = Stephanie Cashin					

2.3 Jurisdictional Waters

The Project site was delineated on May 23, May 24, June 27, and September 20, 2024, by GLA regulatory specialists Lesley Lokovic-Gamber and Velvet Park to identify the limits of

jurisdictional waters, including waters of the U.S. (including wetlands) subject to the jurisdiction of the Corps and Regional Board pursuant to Sections 404 and 401 of the CWA, waters of the State (including wetlands) subject to Regional Board jurisdiction pursuant to Section 13260 of the CWC, and streambed/riparian vegetation subject to CDFW jurisdiction pursuant to Section 1600 of the California Fish and Game Code. Prior to beginning the field delineation a 200-scale color aerial photograph and the previously cited USGS topographic maps were examined to determine the locations of potentially jurisdictional areas. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Potential wetland habitats at the subject site were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual[3] (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Arid West Supplement)[4]. The presence of an Ordinary High Water Mark (OHWM) was determined using the 2008 Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States[5] in conjunction with the Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States.[6] While in the field the limits of the OHWM, wetlands (if applicable), and CDFW jurisdiction were recorded using GPS technology and/or on copies of the aerial photography. Other data were recorded onto the appropriate datasheets.

2.4 MSHCP Riparian/Riverine Areas and Vernal Pools

Volume I, Section 6.1.2 of the MSHCP describes the process through which protection of riparian/riverine areas and vernal pools would occur within the MSHCP Plan Area. The purpose is to ensure that the biological functions and values of these areas throughout the MSHCP Plan Area are maintained such that habitat values for species inside the MSHCP Conservation Area are maintained. The MSHCP requires that as projects are proposed within the overall Plan Area, the effect of those projects on riparian/riverine areas and vernal pools must be addressed.

The MSHCP defines riparian/riverine areas as *lands which contain Habitat dominated by trees, shrubs, persistent emergent mosses and lichens, which occur close to or which depend upon soils moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.*

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[3] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

[4] U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Version 2.0). Ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

[5] Lichvar, R. W., and S. M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. (http://www.crrel.usace.army.mil/library/technicalreports/ERDC-CRREL-TR-08-12.pdf).

[6] Curtis, Katherine E. and Robert Lichevar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TN-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.

The MSHCP defines vernal pools as "seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indictors of hydrology and/or vegetation during the drier portion of the growing season."

With the exception of wetlands created for the purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.

GLA surveyed the Project site for riparian/riverine areas and vernal pool/seasonal pool habitat, including features with the potential to support fairy shrimp. To assess for vernal/seasonal pools (including fairy shrimp habitat), GLA biologists evaluated the topography of the site, including whether the site contained depressional features/topography with the potential to become inundated; whether the site contained soils associated with vernal/seasonal pools; and whether the site supported plants that suggested areas of localized ponding. The Project site was evaluated for riparian/riverine areas on May 23 and 24, June 27, and September 20, 2024.

3.0 REGULATORY SETTING

The proposed Project is subject to state and federal laws and regulations associated with a number of regulatory programs. These programs often overlap and were developed to protect natural resources, including state and federally listed plants and animals; aquatic resources including rivers and creeks, ephemeral streambeds, wetlands, and areas of riparian habitat; special-status species which are not listed as threatened or endangered by the state or federal governments; and special-status vegetation communities.

3.1 Endangered Species Acts

3.1.1 California Endangered Species Act

California's Endangered Species Act (CESA) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985, is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list."

Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. Section 1913 of the California Fish and Game Code provides that notification is required prior to disturbance.

3.1.2 Federal Endangered Species Act

The FESA of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

3.1.3 State and Federal Take Authorizations

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(a)(2).
- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and

the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

- In certain circumstances, Section 2080.1 of the California Fish and Game Code allows CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

3.1.4 Take Authorizations Pursuant to the MSHCP

The Western Riverside County MSHCP was adopted on June 17, 2003, and an Implementing Agreement (IA) was executed between the federal and state wildlife agencies and participating entities. The MSHCP is a comprehensive habitat conservation-planning program for western Riverside County. The intent of the MSHCP is to preserve native vegetation and meet the habitat needs of multiple species, rather than focusing preservation efforts on one species at a time. As such, the MSHCP is intended to streamline review of individual projects with respect to the species and habitats addressed in the MSHCP, and to provide for an overall Conservation Area that would be of greater benefit to biological resources than would result from a piecemeal regulatory approach. The MSHCP provides coverage (including take authorization for listed species) for special-status plant and animal species, as well as mitigation for impacts to sensitive species pursuant to Section 10(a) of the FESA.

Through agreements with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW), the MSHCP designates 146 special-status animal and plant species that receive some level of coverage under the plan. Of the 146 "Covered Species" designated under the MSHCP, most of these species have no additional survey/conservation requirements. In addition, through project participation with the MSHCP, the MSHCP provides mitigation for project-specific impacts to Covered Species so that the impacts would be reduced to below a level of significance pursuant to CEQA. As noted above, project-specific survey requirements exist for species designated as "Covered Species not yet adequately conserved". These include Narrow Endemic Plant Species, as identified by the Narrow Endemic Plant Species Survey Areas (NEPSSA); Criteria Area Plant Species identified by the Criteria Area Species Survey Areas (CASSA); animal species as identified by survey area; and plant and animal species associated with riparian/riverine areas and vernal pool habitats (*Volume I, Section 6.1.2* of the MSHCP document).

For projects that have a federal nexus such as through federal Clean Water Act Section 404 permitting, take authorization for federally listed covered species would occur under Section 7 (not Section 10) of FESA and that USFWS would provide a MSHCP consistency review of the proposed project, resulting in a biological opinion. The biological opinion would require no more compensation than what is required to be consistent with the MSHCP.

3.2 California Environmental Quality Act

3.2.1 CEQA Guidelines Section 15380

CEQA requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Sections 5.1.1 and 5.2.2 below set forth these thresholds and guidelines. Furthermore, pursuant

to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW recognizes that plants with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, or 2B in the CNPS *Inventory of Rare and Endangered Plants in California* may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants that are regionally important, such as locally rare species, disjunct populations of more common plants, or plants with a CRPR of 3 or 4.

3.2.2 Special-Status Plants, Wildlife and Vegetation Communities Evaluated Under CEQA

Federally Designated Special-Status Species

Within recent years, the USFWS instituted changes in the listing status of candidate species. Former C1 (candidate) species are now referred to simply as candidate species and represent the only candidates for listing. Former C2 species (for which the USFWS had insufficient evidence to warrant listing) and C3 species (either extinct, no longer a valid taxon or more abundant than was formerly believed) are no longer considered as candidate species. Therefore, these species are no longer maintained in list form by the USFWS, nor are they formally protected. This term is employed in this document but carries no official protection. All references to federally protected species in this report (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS.

For this report the following acronyms are used for federal special-status species:

- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FC Federal Candidate Species (former C1 species)

State-Designated Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (FP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California SSC are designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's CNDDB project. Informally listed taxa are not protected but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For this report the following acronyms are used for State special-status species:

- SE State-listed as Endangered
- ST State-listed as Threatened

- SR State-listed as Rare
- SCE State Candidate for listing as Endangered
- SCT State Candidate for listing as Threatened
- FP State Fully Protected
- SSC State Species of Special Concern

CNDDB Global/State Rankings

The CNDDB provides global and state rankings for species and communities based on a system developed by The Nature Conservancy to measure rarity of a species. The ranking provides a shorthand formula about the rarity of a species/community and is based on the best information available from multiple sources, including state and federal listings, and other groups that recognize species as sensitive (e.g., Bureau of Land Management, Audubon Society, etc.). State and global rankings are used to prioritize conservation and protection efforts so that the rarest species/communities receive immediate attention. In both cases, the lower ranking (i.e., G1 or S1) indicates extreme rarity. Rare species are given a ranking from 1 to 3. Species with a ranking of 4 or 5 is considered to be common. If the exact global/state ranking is undetermined, a range is generally provided. For example, a global ranking of "G1G3" indicates that a species/community global rarity is between G1 and G3. If the animal being considered is a subspecies of a broader species, a "T" ranking is attached to the global ranking. The following are descriptions of global and state rankings:

Global Rankings

- G1 – Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or because of some factor(s) making it especially vulnerable to extinction.
- G2 – Imperiled globally because of rarity (6-20 occurrences), or because of some other factor(s) making it very vulnerable to extinction throughout its range.
- G3 – Either very rare and local throughout its range (21 to 100 occurrences) or found locally (even abundantly at some of its locations) in a restricted range (e.g., a physiographic region), or because of some other factor(s) making it vulnerable to extinction throughout its range.
- G4 – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 – Common, widespread and abundant.

State Rankings

- S1 – Extremely rare; typically 5 or fewer known occurrences in the state; or only a few remaining individuals; may be especially vulnerable to extirpation.
- S2 – Very rare; typically between 6 and 20 known occurrences; may be susceptible to becoming extirpated.
- S3 – Rare to uncommon; typically 21 to 50 known occurrences; S3 ranked species are not yet susceptible to becoming extirpated in the state but may be if additional populations are destroyed.

- S4 - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 - Common, widespread, and abundant in the state.

California Native Plant Society/CNDDB California Rare Plant Ranks

CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. In a collaborative effort with CDFW's CNDDB Project, the CNPS Ninth Edition of the *Inventory of Rare and Endangered Plants of California* categorizes plants of interest into six California Rare Plant Ranks (CRPR) based on their geographic distribution and potential threats to existing populations. The CNPS Inventory is used by CDFW as the candidate species list for plants that may be listed as state Threatened and Endangered by CDFW. The six categories of rarity that are summarized in Table 3-1

Table 3-1. California Rare Plant Ranks 1, 2, 3, & 4, and Threat Code Extensions

CRPR	Comments
Rank 1A – Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere	Thought to be extinct in California based on a lack of observation or detection for many years.
Rank 1B – Plants Rare, Threatened, or Endangered in California and Elsewhere	Species, which are generally rare throughout their range that are also judged to be vulnerable to other threats such as declining habitat.
Rank 2A – Plants presumed Extirpated in California, But Common Elsewhere	Species that are presumed extinct in California but more common outside of California
Rank 2B – Plants Rare, Threatened or Endangered in California, But More Common Elsewhere	Species that are rare in California but more common outside of California
Rank 3 – Plants About Which More Information Is Needed (A Review List)	Species that are thought to be rare or in decline but CNPS lacks the information needed to assign to the appropriate list. In most instances, the extent of surveys for these species is not sufficient to allow CNPS to accurately assess whether these species should be assigned to a specific rank. In addition, many of the Rank 3 species have associated taxonomic problems such that the validity of their current taxonomy is unclear.
Rank 4 – Plants of Limited Distribution (A Watch List)	Species that are currently thought to be limited in distribution or range whose vulnerability or susceptibility to threat is currently low. In some cases, as noted above for Rank 3 species, CNPS lacks survey data to accurately determine status in California. Many species have been placed on Rank 4 in previous editions of the "Inventory" and have been removed as survey data has indicated that the species are more common than previously thought. CNPS recommends that species currently included on this list should be monitored to ensure that future substantial declines are minimized.
Extension	**Comments**
.1 – Seriously endangered in California	Species with over 80% of occurrences threatened and/or have a high degree and immediacy of threat.

CRPR	Comments
.2 – Fairly endangered in California	Species with 20-80% of occurrences threatened.
.3 – Not very endangered in California	Species with <20% of occurrences threatened or with no current threats known.

3.3 Jurisdictional Waters

3.3.1 Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a) as:

(1) Waters which are:

(i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(ii) The territorial seas; or

(iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraphs (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

Corps regulations at 33 CFR Part 328.3(b) exclude the following from being "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(2) through (5) above:

(1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;

(2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water

Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;

(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;

(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

(5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

(6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;

(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the OHWM which is defined at 33 CFR 328.3(c)(4) as:

> ...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

"Adjacent" wetlands are defined by 33 CFR 328.3(c)(2) as those wetlands "having a continuous surface connection" to other waters of the United States.

Wetland Definition Pursuant to Section 404 of the Clean Water Act

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(c)(1) as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." In 1987 the Corps published the Wetland Manual to guide its field personnel in determining jurisdictional wetland boundaries. The methodology set forth in the Wetland Manual and the Arid West Supplement generally require that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the Wetland Manual and Arid West Supplement provide great detail in methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria:

- More than 50 percent of the dominant plant species at the site must be hydrophytic in nature as published in the most current national wetland plant list;

- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and

- Whereas the Wetland Manual requires that hydrologic characteristics indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year, the Arid West Supplement does not include a quantitative criteria with the exception for areas with "problematic hydrophytic vegetation", which require a minimum of 14 days of ponding to be considered a wetland.

Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.

Pursuant to Article I, Section 8 of the U.S. Constitution, federal regulatory authority extends only to activities that affect interstate commerce. In the early 1980s the Corps interpreted the interstate commerce requirement in a manner that restricted Corps jurisdiction on isolated (intrastate) waters. On September 12, 1985, the U.S. Environmental Protection Agency (EPA) asserted that Corps jurisdiction extended to isolated waters that are used or could be used by migratory birds or endangered species, and the definition of "waters of the United States" in Corps regulations was modified as quoted above from 33 CFR 328.3(a).
On January 9, 2001, the Supreme Court of the United States issued a ruling on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* (SWANCC). In this case the Court was asked whether use of an isolated, intrastate pond by migratory birds is a sufficient interstate commerce connection to bring the pond into federal jurisdiction of Section 404 of the Clean Water Act.

The written opinion notes that the court's previous support of the Corps' expansion of jurisdiction beyond navigable waters (*United States v. Riverside Bayview Homes, Inc*.) was for a wetland that abutted a navigable water and that the court did not express any opinion on the question of the authority of the Corps to regulate wetlands that are not adjacent to bodies of open water. The current opinion goes on to state:

> In order to rule for the respondents here, we would have to hold that the jurisdiction of the Corps extends to ponds that are not adjacent to open water. We conclude that the text of the statute will not allow this.

Therefore, we believe that the court's opinion goes beyond the migratory bird issue and says that no isolated, intrastate water is subject to the provisions of Section 404(a) of the Clean Water Act (regardless of any interstate commerce connection). However, the Corps and EPA have issued a joint memorandum which states that they are interpreting the ruling to address only the migratory bird issue and leaving the other interstate commerce clause nexuses intact.

3.3.2 Regional Water Quality Control Board

The State Water Resource Control Board and each of its nine Regional Boards regulate the discharge of waste (dredged or fill material) into waters of the United States[7] and waters of the state. Waters of the United States are defined above in Section II.A and waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code 13050[e]).

Section 401 of the CWA requires certification for any federal permit or license authorizing impacts to waters of the U.S. (i.e., waters that are within federal jurisdiction), such as Section 404 of the CWA and Section 10 of the Safe Rivers and Harbors Act, to ensure that the impacts do not violate state water quality standards. When a project could impact waters outside of federal jurisdiction, the Regional Board has the authority under the Porter-Cologne Water Quality Control Act to issue Waste Discharge Requirements (WDRs) to ensure that impacts do not violate state water quality standards. Clean Water Act Section 401 Water Quality Certifications, WDRs, and waivers of WDRs are also referred to as orders or permits.

State Wetland Definition

The Water Boards define an area as wetland[8] as follows: "An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."

The following wetlands are waters of the state:

1. Natural wetlands;
2. Wetlands created by modification of a surface water of the state;[9] and
3. Artificial wetlands[10] that meet any of the following criteria:

[7] Therefore, wetlands that meet the current definition, or any historic definition, of waters of the U.S. are waters of the state. In 2000, the State Water Resources Control Board determined that all waters of the U.S. are also waters of the state by regulation, prior to any regulatory or judicial limitations on the federal definition of waters of the U.S. (California Code or Regulations title 23, section 3831(w)). This regulation has remained in effect despite subsequent changes to the federal definition. Therefore, waters of the state includes features that have been determined by the U.S. Environmental Protection Agency (U.S. EPA) or the U.S. Army Corps of Engineers (Corps) to be "waters of the U.S." in an approved jurisdictional determination; "waters of the U.S." identified in an aquatic resource report verified by the Corps upon which a permitting decision was based; and features that are consistent with any current or historic final judicial interpretation of "waters of the U.S." or any current or historic federal regulation defining "waters of the U.S." under the federal Clean Water Act.

[8] State Water Resources Control Board. 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. [For Inclusion in the Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California].

[9] "Created by modification of a surface water of the state" means that the wetland that is being evaluated was created by modifying an area that was a surface water of the state at the time of such modification. It does not include a wetland that is created in a location where a water of the state had existed historically, but had already been completely eliminated at some time prior to the creation of the wetland. The wetland being evaluated does not become a water of the state due solely to a diversion of water from a different water of the state.

[10] Artificial wetlands are wetlands that result from human activity.

a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
b. Specifically identified in a water quality control plan as a wetland or other water of the state;
c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):

i. Industrial or municipal wastewater treatment or disposal,
ii. Settling of sediment,
iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
iv. Treatment of surface waters,
v. Agricultural crop irrigation or stock watering,
vi. Fire suppression,
vii. Industrial processing or cooling,
viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
ix. Log storage,
x. Treatment, storage, or distribution of recycled water, or
xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
xii. Fields flooded for rice growing.[11]

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

[11] Fields used for the cultivation of rice (including wild rice) that have not been abandoned due to five consecutive years of non-use for the cultivation of rice (including wild rice) that are determined to be a water of the state in accordance with these Procedures shall not have beneficial use designations applied to them through the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, except as otherwise required by federal law for fields that are considered to be waters of the United States. Further, agricultural inputs legally applied to fields used for the cultivation of rice (including wild rice) shall not constitute a discharge of waste to a water of the state. Agricultural inputs that migrate to a surface water or groundwater may be considered a discharge of waste and are subject to waste discharge requirements or waivers of such requirements pursuant to the Water Board's authority to issue or waive waste discharge requirements or take other actions as applicable.

3.3.3 California Department of Fish and Wildlife

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a stream (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW also defines a stream as "a body of water that flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators."

It is important to note that the Fish and Game Code defines fish and wildlife to include: all wild animals, birds, plants, fish, amphibians, invertebrates, reptiles, and related ecological communities including the habitat upon which they depend for continued viability (FGC Division 0.5, Chapter 1, section 89.5). Furthermore, Division 2, Chapter 5, Article 6, Section 1600 et seq. of the California Fish and Game Code does not limit jurisdiction to areas defined by specific flow events, seasonal changes in water flow, or presence/absence of vegetation types or communities.

4.0 RESULTS

This section provides the results of general biological surveys, vegetation mapping, habitat assessments and focused surveys for special-status plants and animals, an assessment for MSHCP riparian/riverine areas and vernal pools, and a jurisdictional delineation for Waters of the United States (including wetlands) subject to the jurisdiction of the Corps and Regional Board, and streams (including riparian vegetation) and lakes subject to the jurisdiction of CDFW.

4.1 Existing Conditions

The Project site is flat and supports active agricultural uses throughout most of the alignment. Elevation ranges from approximately 1,488 feet above mean sea level (AMSL) to 1,446 feet AMSL. A review of historical aerial photography confirmed that since the late 1960's, most of the Project site and environs have been used for agricultural purposes. As a result, the agricultural lands cycle between periods of vegetation with field crops and periods where the lands are generally unvegetated due to tilling. Other fields that are not consistently farmed are vegetated with a mixture of non-native ruderal plant species and remnant crop plants. The edge areas of the agricultural fields are dominated by non-native plant species, but in some areas support native species, such as smooth tarplant (*Centromadia pungens* ssp. *laevis*), which is discussed later in this report. The Project site also contains disturbed/developed areas including unpaved roadways. The Project site contains agricultural ditches (Drainages A-F) that convey storm runoff and irrigation water through portions of the Project site, as well as an area where

constructed berms and debris-clogged culverts result in a backup of storm flows and irrigation runoff (Drainage Area A). These drainage features are further discussed below in Section 4.10 and 4.11.

As depicted on Exhibit 6 [Soils Map], the National Cooperative Soil Survey (NCSS) has identified the following soil types as occurring (currently or historically) within the Project site:

- Chino silt loam, drained, saline-alkali;
- Chino silt loam, drained, strongly saline-alkali;
- Dello loamy find sand, 0-2% slopes;
- Dello loamy fine sand, saline-alkali, 0-5% slopes;
- Grangeville loamy fine sand, drained, 0-5%slopes;
- Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0-5% slopes;
- Grangeville fine sandy loam, poorly drained, saline-alkali, 0-5% slopes;
- Grangeville fine sandy loam, saline-alkali, 0-5% slopes;
- Grangeville fine sandy loam, loamy substratum drained, saline-alkali, 0-2% slopes;
- Traver loamy fine sand, saline-alkali, eroded;
- Traver fine sandy loam, saline-alkali; and
- Traver fine sandy loam, strongly saline-alkali, eroded; and water.

4.2 Vegetation Mapping

The Project site supports the following five vegetation types: Disturbed Agricultural Areas (Agricultural Fields), Bromus hordeaceus Herbaceous Semi-Natural Alliance (Annual Brome Grasslands), Disturbed/Developed Areas (Disturbed and Developed Areas), Lepidium latifolium – Lactuca serriola Herbaceous Semi-Natural Alliance (Perennial Pepper Weed –Prickly Lettuce Patches), and Eucalyptus globulus Woodland Semi-Natural Alliance (Eucalyptus Groves).

Table 4-1 provides a summary of the vegetation types and their corresponding acreage. Descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 5. Photographs depicting the Project site are provided as Exhibit 10.

Table 4-1. Summary of Vegetation/Land Use Types for the Project Site

Vegetation/Land Use Type	Project Site (acres)
Disturbed Agricultural Areas (Agriculture Fields)	94.41
Bromus hordeaceus Herbaceous Semi-Natural Alliance (Annual Brome Grasslands)	11.92
Disturbed and Developed Areas	10.43
Eucalyptus globulus Woodland Semi-Natural Alliance (Eucalyptus Groves)	0.03

Vegetation/Land Use Type	Project Site (acres)
Lepidium latifolium – Lactuca serriola Herbaceous Semi-Natural Alliance (Perennial Pepper Weed-Prickly Lettuce Patches)	3.54
Total	**120.33**

Disturbed Agricultural Areas (Agriculture Fields)
The Agricultural Fields are areas used for agricultural operations. Notable herbaceous species within these areas in order of descending dominance include summer mustard (*Hirschfeldia incana*), Russian thistle (*Salsola tragus*), foxtail barley (*Hordeum murinum*), common stork's bill (*Erodium cicutarium*), cheeseweed (*Malva parviflora*), smooth tarplant (*Centromadia pungens ssp. laevis*), stinknet (*Oncosiphon pilulifer*), London rocket (*Sisymbrium irio*), slender wild oat (*Avena barbata*), and Menzie's fiddlenecks (*Amsinckia menziesii*). During the growing season, watermelon (*Citrullus lanatus*) is the primary crop being grown.

The Project site supports approximately 94.41 acres of Agricultural Fields. In general, these areas occur in the middle and southeastern portions of the Project site [Exhibit 5 – Vegetation Map].

***Bromus hordeaceus* Herbaceous Semi-Natural Alliance (Annual Brome Grasslands)**
The Annual Brome Grasslands is dominated by soft brome (*Bromus hordeaceus*), which comprises a minimum of thirty to fifty percent relative cover in the herbaceous layer, per the membership rules of the MCV. Co-dominant herbaceous species in order of descending dominance include foxtail barley, common stork's bill, cheeseweed, branching phacelia (*Phacelia ramosissima*), smooth tarplant, stinknet, London rocket, slender wild oat, and Menzie's fiddlenecks.

The Project site supports approximately 11.92 acres of the Annual Brome Grasslands. In general, the alliance occurs in the northwestern and southeastern portions of the Project site [Exhibit 5 – Vegetation Map].

Disturbed/Developed Areas
The Disturbed/Developed Areas are bare areas or spaces with historic or present land use. Notable herbaceous species within these areas in order of descending dominance include foxtail barley, common stork's bill, cheeseweed, smooth tarplant, stinknet, London rocket, slender wild oat, and Menzie's fiddlenecks.

The Project site supports approximately 10.43 acres of Disturbed/Developed Areas. In general, these disturbed areas occur throughout the Project site on roads and other areas with previous or current land use, including greenhouses [Exhibit 5 – Vegetation Map].

***Eucalyptus globulus* Woodland Semi-Natural Alliance (Eucalyptus Groves)**
The Eucalyptus Groves are dominated by blue gum (*Eucalyptus globulus*), which comprises a minimum of fifty to eighty percent relative cover in the tree canopy, per the membership rules of

the MCV. Associated species in the herbaceous understory in order of descending dominance include foxtail barley, common stork's bill, cheeseweed, branching phacelia, smooth tarplant, stinknet, London rocket, slender wild oat, summer mustard, and Menzie's fiddlenecks.

The Project site supports approximately 0.03 acre of Eucalyptus Groves. In general, the alliance occurs in the southeastern portion of the Project site [Exhibit 5 – Vegetation Map].

***Lepidium latifolium – Lactuca serriola* Herbaceous Semi-Natural Alliance (Perennial Pepper Weed-Prickly Lettuce Patches)**

The Perennial Pepper Weed-Prickly Lettuce Patches are dominated by perennial pepper weed (*Lepidium latifolium*) and prickly lettuce (*Lactuca serriola*), which comprise a minimum of thirty to fifty percent relative cover in the herbaceous layer, per the membership rules of the MCV. Co-dominant herbaceous species in order of descending dominance include fivehorn smotherweed (*Bassia hyssopifolia*), spiny cocklebur (*Xanthium spinosum*), Russian thistle (*Salsola tragus*), foxtail barley, smilo grass (*Stipa miliacea*), creeping rye (*Elymus triticoides*), common Mediterranean grass (*Schismus barbatus*), and Menzie's fiddlenecks (*Amsinckia menziesii*).

The Project site supports approximately 3.54 acres of the Perennial Pepper Weed-Prickly Lettuce Patches. In general, the alliance occurs in the middle and southeastern portions of the Project site [Exhibit 5 – Vegetation Map].

4.3 Special-Status Vegetation Communities

The CNDDB identifies the following five special-status vegetation communities for the Lakeview and San Jacinto quadrangle maps: desert fan palm oasis woodland, southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern mixed riparian forest, southern riparian scrub. The Project site does not contain any special-status vegetation types, including those identified by the CNDDB.

4.4 Special-Status Plants

The following special-status plants were detected at the Project site: smooth tarplant. Table 4-2 provides a list of special-status plants evaluated for the Project site through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors: 1) species identified by the CNDDB and CNPS as occurring (either currently or historically) on or in the vicinity of the Project site, 2) applicable MSHCP survey areas, and 3) any other special-status plants that are known to occur within the vicinity of the Project site, or for which potentially suitable habitat occurs within the site.

Table 4-2. Special-Status Plants Evaluated for the Project Site

Species Name	Status	Habitat Requirements	Occurrence
Alvin Meadow beadstraw *Galium californicum* ssp. *primum*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP(f)	Granitic and sandy soils in chaparral and lower montane coniferous forest.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
California beardtongue *Penstemon californicus*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP	Sandy soils in chaparral, lower montane coniferous forest, and pinyon and juniper woodland.	Does not occur.
California Orcutt grass *Orcuttia californica*	Federal: FE State: SE CRPR: Rank 1B.1 MSHCP: MSHCP(b)	Vernal pools	Confirmed absent.
California satintail *Imperata brevifolia*	Federal: None State: None CRPR: Rank 2B.1 MSHCP: None	Mesic soils in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub.	Does not occur.
California screw moss *Tortula californica*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Sandy soil in chenopod scrub, and valley and foothill grassland.	Does not occur.
Chaparral sand-verbena *Abronia villosa* var. *aurita*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: None	Sandy soils in chaparral, coastal sage scrub.	Does not occur.
Coachella Valley milk-vetch *Astragalus lentiginosus* var. *coachellae*	Federal: FE State: None CRPR: Rank 1B.2 MSHCP: None	Desert dunes, sandy Sonoran desert scrub.	Does not occur.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: MSHCP(d)	Playas, vernal pools, marshes and swamps (coastal salt).	Confirmed absent.
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP(d)	Alkaline soils in coastal sage scrub, coastal bluff scrub.	Does not occur.
Engelmann oak *Quercus engelmannii*	Federal: None State: None CRPR: Rank 4.2 MSHCP: MSHCP	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland.	Does not occur.
Horn's milk-vetch *Astragalus hornii* var. *hornii*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: None	Lake margins with alkaline soils, meadows and seeps, and playas.	Confirmed absent.
Intermediate mariposa-lily *Calochortus weedii* var. *intermedius*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP	Rocky soils in chaparral, coastal sage scrub, valley and foothill grassland.	Does not occur.
Jaeger's (bush) milk-vetch *Astragalus pachypus* var. *jaegeri*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: MSHCP	Sandy or rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
Laguna Mountains jewelflower *Streptanthus bernardinus*	Federal: None State: None CRPR: Rank 4.3 MSHCP: None	Chaparral and lower montane coniferous forest.	Does not occur.
Latimer's woodland-gilia *Saltugilia latimeri*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Rocky or sandy, often granitic soils (sometimes washes) in chaparral, Mojavean desert scrub, and Pinyon and juniper woodland.	Does not occur.
Lemon lily *Lilium parryi*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP(f)	Mesic soils in lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest.	Does not occur.
Little mousetail *Myosurus minimus* ssp. *apus*	Federal: None State: None CRPR: Rank 3.1 MSHCP: MSHCP(d)	Valley and foothill grassland, vernal pools (alkaline soils).	Confirmed absent
Long-spined spineflower *Chorizanthe polygonoides* var. *longispina*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP	Clay soils in chaparral, coastal sage scrub, meadows and seeps, and valley and foothill grasslands	Does not occur.
Mesa horkelia *Horkelia cuneata* var. *puberula*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: None	Sandy or gravelly soils in chaparral (maritime), cismontane woodland, and coastal scrub.	Does not occur.
Mojave tarplant *Deinandra mohavensis*	Federal: None State: SE CRPR: Rank 1B.3 MSHCP: MSHCP(e)	Chaparral (mesic soils) and riparian scrub.	Does not occur.
Mud nama *Nama stenocarpum*	Federal: None State: None CRPR: Rank 2B.2 MSHCP: MSHCP(d)	Marshes and swamps	Confirmed absent.
Munz's onion *Allium munzii*	Federal: FE State: ST CRPR: Rank 1B.1 MSHCP: MSHCP(b)	Clay soils in chaparral, coastal sage scrub, and valley and foothill grasslands	Does not occur.
Narrow-leaf sandpaper-plant *Petalonyx linearis*	Federal: None State: None CRPR: Rank 2B.3 MSHCP: None	Sandy or rocky canyons, Mojavean desert scrub, and Sonoran desert scrub.	Does not occur.
Palmer's grapplinghook *Harpagonella palmeri*	Federal: None State: None CRPR: Rank 4.2 MSHCP: MSHCP	Chaparral, coastal sage scrub, valley and foothill grassland. Occurring in clay soils.	Does not occur.
Palmer's mariposa lily *Calochortus palmeri* var. *palmeri*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Mesic soils in chaparral, lower montane coniferous forest, and meadows and seeps.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
Paniculate tarplant *Deinandra paniculata*	Federal: None State: None CRPR: Rank 4.2 MSHCP: None	Usually in vernally mesic, sometimes sandy soils in coastal scrub, valley and foothill grassland, and vernal pools.	Confirmed absent.
Parish's brittlescale *Atriplex parishii*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: MSHCP(d)	Chenopod scrub, playas, vernal pools.	Confirmed absent.
Parry's spineflower *Chorizanthe parryi* var. *parryi*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: MSHCP	Sandy or rocky soils in open habitats of chaparral and coastal sage scrub.	Does not occur.
Payson's jewelflower *Caulanthus simulans*	Federal: None State: None CRPR: Rank 4.2 MSHCP: MSHCP	Sandy or granitic soils in chaparral and coastal scrub.	Does not occur.
Peninsular spineflower *Chorizanthe leptotheca*	Federal: None State: None CRPR: Rank 4.2 MSHCP: MSHCP	Alluvial fan, granitic. Chaparral, coastal scrub, lower montane coniferous forest.	Does not occur.
Plummer's mariposa lily *Calochortus plummerae*	Federal: None State: None CRPR: Rank 4.2 MSHCP: MSHCP	Granitic, rock soils within chaparral, cismontane woodland, coastal sage scrub, lower montane coniferous forest, valley and foothill grassland.	Does not occur.
Robinson's pepper grass *Lepidium virginicum* var. *robinsonii*	Federal: None State: None CRPR: Rank 4.3 MSHCP: None	Chaparral, coastal sage scrub	Does not occur.
Salt Spring checkerbloom *Sidalcea neomexicana*	Federal: None State: None CRPR: Rank 2B.2 MSHCP: None	Mesic, alkaline soils in chaparral, coastal sage scrub, lower montane coniferous forest, Mojavean desert scrub, and playas.	Confirmed absent.
San Bernardino aster *Symphyotrichum defoliatum*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic).	Confirmed absent.
San Felipe monardella *Monardella nana* ssp. *leptosiphon*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Chaparral and lower montane coniferous forest.	Does not occur.
San Jacinto mariposa-lily *Calochortus palmeri* var. *munzii*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP(b)	Chaparral, lower montane coniferous forest, meadows and seeps.	Confirmed absent.
San Jacinto Mountains bedstraw *Galium angustifolium* ssp. *jacinticum*	Federal: None State: None CRPR: Rank 1B.3 MSHCP: MSHCP(b)	Lower montane coniferous forest.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
San Jacinto Valley crownscale *Atriplex coronata* var. *notatior*	Federal: FE State: None CRPR: Rank 1B.1 MSHCP: MSHCP(d)	Alkaline soils in chenopod scrub, valley and foothill grassland, vernal pools.	Confirmed absent.
Slender-horned spineflower *Dodecahema leptoceras*	Federal: FE State: SE CRPR: Rank 1B.1 MSHCP: MSHCP(b)	Sandy soils in alluvial scrub, chaparral, cismontane woodland.	Does not occur.
Smooth tarplant *Centromadia pungens* ssp. *laevis*	Federal: None State: None CRPR: Rank 1B.1 MSHCP: MSHCP(d)	Alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grasslands, disturbed habitats.	Occurs on site.
Southern mountains skullcap *Scutellaria bolanderi* ssp. *austromontana*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Mesic soils in chaparral, cismontane woodland, lower montane coniferous forest.	Does not occur.
Spiny-hair blazing star *Mentzelia tricuspis*	Federal: None State: None CRPR: Rank 2B.1 MSHCP: Noe	Sandy, gravelly, slopes, and washes. Mojavean desert scrub.	Does not occur.
Spreading navarretia *Navarretia fossalis*	Federal: FT State: None CRPR: Rank 1B.1 MSHCP: MSHCP(b)	Vernal pools, playas, chenopod scrub, marshes and swamps (assorted shallow freshwater).	Confirmed absent.
Thread-leaved brodiaea *Brodiaea filifolia*	Federal: FT State: SE CRPR: Rank 1B.1 MSHCP: MSHCP(d)	Clay soils in chaparral (openings), cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, vernal pools.	Confirmed absent.
Vernal barley *Hordeum intercedens*	Federal: None State: None CRPR: Rank 3.2 MSHCP: MSHCP	Coastal dunes, coastal sage scrub, valley and foothill grassland (saline flats and depressions), vernal pools.	Confirmed absent.
White rabbit-tobacco *Pseudognaphalium leucocephalum*	Federal: None State: None CRPR: Rank 2B.2 MSHCP: None	Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland.	Does not occur.
White-bracted spineflower *Chorizanthe xanti* var. *leucotheca*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: None	Sandy or gravelly soils in Mojavean desert scrub and pinyon and juniper woodland.	Does not occur.
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	Federal: None State: None CRPR: Rank 2B.1 MSHCP: MSHCP(b)	Alkaline soils in meadows and seeps, marshes and swamps, riparian scrub, vernal pools.	Confirmed absent.

Species Name	Status	Habitat Requirements	Occurrence
Yucaipa onion *Allium marvinii*	Federal: None State: None CRPR: Rank 1B.2 MSHCP: MSHCP(b)	Chaparral (clay, openings).	Does not occur.

STATUS

Federal
FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate

State
SE – State Endangered
ST – State Threatened

CNPS
Rank 1A – Plants presumed extirpated in California and either rare or extinct elsewhere.
Rank 1B – Plants rare, threatened, or endangered in California and elsewhere.
Rank 2A – Plants presumed extirpated in California, but common elsewhere.
Rank 2B – Plants rare, threatened, or endangered in California, but more common elsewhere.
Rank 3 – Plants about which more information is needed (a review list).
Rank 4 – Plants of limited distribution (a watch list).

Threat Code extension
.1 – Seriously endangered in California (over 80% occurrences threatened)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

MSHCP
MSHCP = No additional action necessary
MSHCP(a) = Surveys may be required as part of wetlands mapping
MSHCP(b) = Surveys may be required within the Narrow Endemic Plant Species survey area
MSHCP(c) = Surveys may be required within locations shown on survey maps
MSHCP(d) = Surveys may be required within Criteria Area
MSHCP(e) = Conservation requirements identified in species-specific conservation objectives need to be met before classified as a Covered Species
MSHCP(f) = Covered species when a Memorandum of Understanding is executed with the Forest Service Land

OCCURRENCE

- Does not occur – The site does not contain habitat for the species and/or the site does not occur within the geographic range of the species.
- Confirmed absent – The site contains suitable habitat for the species, but the species has been confirmed absent through focused surveys.
- Not expected to occur – The species is not expected to occur onsite due to low habitat quality, however absence cannot be ruled out.
- Potential to occur – The species has a potential to occur based on suitable habitat, however its presence/absence has not been confirmed.
- Confirmed present – The species was detected onsite incidentally or through focused surveys.

4.4.1 Special-Status Plants Detected at the Project Site

Smooth Tarplant (*Centromadia pungens* ssp. *laevis***)** is a CRPR 1B.1 species, indicating that it is rare, threatened, or endangered in California and elsewhere, and is seriously endangered in

California. This species is an annual herb in the sunflower family that blooms from April to September. It is adapted to disturbed areas, and poorly drained flats, depressions, and grasslands.

A population of approximately 2,500 individuals was detected at the Project site during the 2024 focused plant surveys. The majority of smooth tarplant was detected in the northwestern portion of the Project site [Exhibit 8 – Smooth Tarplant Survey Results Map]. The majority of the mapped smooth tarplant was in disturbed areas on either side of a dirt access road within the MWD property, as well as three other locations associated with disturbed areas. A portion of the smooth tarplant individuals are associated with the Riparian/Riverine Resources. As is discussed further below, the Line E alignment is not within the CAPSSA for smooth tarplant.

4.5 Special-Status Animals

No special-status animals were detected at the Project site, although some special-status species were detected offsite in the adjacent riparian habitat, including least Bell's vireo, yellow warbler, yellow-breasted chat, northern harrier, western mastiff bat and western yellow bat. Table 4-3 provides a list of special-status animals evaluated for the Project site through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors, including: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the Project site, 2) applicable MSHCP survey areas, and 3) any other special-status animals that are known to occur within the vicinity of the Project site, for which potentially suitable habitat occurs on the site.

Table 4-3. Special-Status Animals Evaluated for the Project Site

Species Name	Status	Habitat Requirements	Occurrence
Invertebrates			
Crotch bumble bee *Bombus crotchii*	Federal: None State: CE (candidate endangered) MSHCP: None	Relatively warm and dry sites, including the inner Coast Range of California and margins of the Mojave Desert.	Confirmed absent during focused surveys.
Quino checkerspot butterfly *Euphydryas editha quino*	Federal: FE State: None MSHCP: MSHCP	Larval and adult phases each have distinct habitat requirements tied to host plant species and topography. Larval host plants include *Plantago erecta* and *Castilleja exserta*. Adults occur on sparsely vegetated rounded hilltops and ridgelines, and are known to disperse through disturbed habitats to reach suitable nectar plants.	Does not occur.
Riverside fairy shrimp *Streptocephalus woottoni*	Federal: FE State: None MSHCP: MSHCP(a)	Restricted to deep seasonal vernal pools, vernal pool-like ephemeral ponds, and stock ponds.	Confirmed absent during focused surveys.
Vernal pool fairy shrimp *Branchinecta lynchi*	Federal: FT State: None	Seasonal vernal pools	Confirmed absent during focused surveys.

Species Name	Status	Habitat Requirements	Occurrence
	MSHCP: MSHCP(a)		
Amphibians			
Arroyo toad *Anaxyrus californicus*	Federal: FE State: SSC MSHCP: MSHCP(c)	Breed, forage, and/or aestivate in aquatic habitats, riparian, coastal sage scrub, oak, and chaparral habitats. Breeding pools must be open and shallow with minimal current, and with a sand or pea gravel substrate overlain with sand or flocculent silt. Adjacent banks with sandy or gravely terraces and very little herbaceous cover for adult and juvenile foraging areas, within a moderate riparian canopy of cottonwood, willow, or oak.	Does not occur.
Southern mountain yellow-legged frog *Rana muscosa*	Federal: FE State: SE MSHCP: MSHCP(c)	Streams and small pools in ponderosa pine, montane hardwood-conifer, and montane riparian habitat types.	Does not occur.
Western spadefoot *Spea hammondii*	Federal: None State: SSC MSHCP: MSHCP	Seasonal pools in coastal sage scrub, chaparral, and grassland habitats.	Not expected to occur.
Reptiles			
California glossy snake *Arizona elegans occidentalis*	Federal: None State: SSC MSHCP: None	Inhabits arid scrub, rocky washes, grasslands, chaparral.	Not expected to occur.
Coast horned lizard *Phrynosoma blainvillii*	Federal: None State: SSC MSHCP: MSHCP	Occurs in a variety of vegetation types including coastal sage scrub, chaparral, annual grassland, oak woodland, and riparian woodlands.	Not expected to occur.
Coast patch-nosed snake *Salvadora hexalepis virgultea*	Federal: None State: SSC MSHCP: None	Occurs in coastal chaparral, desert scrub, washes, sandy flats, and rocky areas.	Does not occur.
Coastal whiptail *Aspidoscelis tigris stejnegeri (multiscutatus)*	Federal: None State: SSC MSHCP: MSHCP	Open, often rocky areas with little vegetation, or sunny microhabitats within shrub or grassland associations.	Not expected to occur.
Red-diamond rattlesnake *Crotalus ruber*	Federal: None State: SSC MSHCP: MSHCP	Habitats with heavy brush and rock outcrops, including coastal sage scrub and chaparral.	Not expected to occur.
San Diego banded gecko *Coleonyx variegatus abbotti*	Federal: None State: SSC MSHCP: MSHCP	Primarily a desert species, but also occurs in cismontane chaparral, desert scrub, and open sand dunes.	Does not occur.
Southern California legless lizard *Anniella stebbinsi*	Federal: None State: SSC MSHCP: None	Broadleaved upland forest, chaparral, coastal dunes, coastal scrub; found in a broader range of habitats that any of the other species in the genus. Often locally abundant, specimens are found in	Not expected to occur.

Species Name	Status	Habitat Requirements	Occurrence
		coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans	
Southern rubber boa *Charina umbratica*	Federal: None State: ST MSHCP: MSHCP(f)	Restricted to the San Bernardino and San Jacinto Mountain, in a variety of montane forest habitats. Found in vicinity of streams or wet meadows. Requires loose, moist soil for burrowing. Seeks cover in rotting logs.	Does not occur.
Southwestern pond turtle *Emys marmorata*	Federal: Proposed Threatened State: SSC MSHCP: MSHCP	Slow-moving permanent or intermittent streams, small ponds and lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and treatment lagoons. Abundant basking sites and cover necessary, including logs, rocks, submerged vegetation, and undercut banks.	Not expected to occur.
Birds			
Black swift (nesting) *Cypseloides niger*	Federal: None State: SSC MSHCP: MSHCP	Nests in forested areas near rivers in dark, damp areas. Forages in skies over mountainous areas and on coastal cliffs.	Does not occur.
Burrowing owl (burrow sites & some wintering sites) *Athene cunicularia*	Federal: None State: CE, SSC MSHCP: MSHCP(c)	Shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), coastal dunes, desert floors, and some artificial, open areas as a year-long resident. Occupies abandoned ground squirrel burrows as well as artificial structures such as culverts and underpasses.	Confirmed absent during focused surveys.
Coastal cactus wren (San Diego & Orange County only) *Campylorhynchus brunneicapillus sandiegensis*	Federal: None State: SSC MSHCP: MSHCP	Occurs almost exclusively in cactus (cholla and prickly pear) dominated coastal sage scrub.	Does not occur.
Coastal California gnatcatcher *Polioptila californica californica*	Federal: FT State: SSC MSHCP: MSHCP	Low elevation coastal sage scrub and coastal bluff scrub.	Does not occur.
Golden eagle (nesting & wintering) *Aquila chrysaetos*	Federal: None State: FP MSHCP: MSHCP	In southern California, occupies grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. Nests on rock outcrops and ledges.	Does not nest on site. Potential to forage opportunistically over the Project site and environs.
Le Conte's thrasher *Toxostoma lecontei*	Federal: None State: SSC MSHCP: None	Desert scrub, mesquite, tall riparian brush and, locally, chaparral.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
Least Bell's vireo (nesting) *Vireo bellii pusillus*	Federal: FE State: SE MSHCP: MSHCP(a)	Dense riparian habitats with a stratified canopy, including southern willow scrub, mule fat scrub, and riparian forest.	Does not occur in the Project site due to the absence of suitable habitat. Detected offsite immediately south of the Project site during focused surveys.
Loggerhead shrike (nesting) *Lanius ludovicianus*	Federal: None State: SSC MSHCP: MSHCP	Forages over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs.	Low potential to nest on site due to a general lack of suitable habitat. Potential to forage on site.
Northern harrier (nesting) *Circus hudsonius*	Federal: None State: SSC MSHCP: MSHCP	A variety of habitats, including open wetlands, grasslands, wet pasture, old fields, dry uplands, and croplands.	Occurs on site foraging. Not expected to nest onsite due to historic and current agricultural practices.
Purple martin (nesting) *Progne subis*	Federal: None State: SSC MSHCP: MSHCP	Forage over towns, cities, parks, open fields, dunes, streams, wet meadows, beaver ponds, and other open areas. Nest in woodpecker holes in mountain forests or Pacific lowlands.	Potential to forage on site. Not expected to nest onsite due to lack of suitable nesting habitat on site.
Southwestern willow flycatcher (nesting) *Empidonax traillii extimus*	Federal: FE State: SE MSHCP: MSHCP(a)	Riparian woodlands along streams and rivers with mature dense thickets of trees and shrubs.	Does not occur onsite. Confirmed absent during focused surveys conducted offsite, adjacent to the southernmost portion of the Project site.
Swainson's hawk (nesting) *Buteo swainsoni*	Federal: None State: ST MSHCP: MSHCP	Summer in wide open spaces of the American West. Nest in grasslands, but can use sage flats and agricultural lands. Nests are placed in lone trees.	Has potential to forage onsite when wintering. Does not nest onsite – outside known nesting range of the species.
Tricolored blackbird (nesting colony) *Agelaius tricolor*	Federal: None State: CE, SSC MSHCP: MSHCP	Breeding colonies require nearby water, a suitable nesting substrate, and open-range foraging habitat of natural grassland, woodland, or agricultural cropland.	Not expected to nest onsite. Potential to forage on site.
Western yellow-billed cuckoo (nesting) *Coccyzus americanus occidentalis*	Federal: FT State: SE MSHCP: MSHCP(a)	Dense, wide riparian woodlands with well-developed understories.	Does not occur onsite.
White-tailed kite (nesting) *Elanus leucurus*	Federal: None State: FP MSHCP: MSHCP	Low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Dense canopies used for nesting and cover.	Not expected to nest on site due to a lack of suitable habitat. Potential to forage onsite.

Species Name	Status	Habitat Requirements	Occurrence
Yellow warbler (nesting) *Setophaga petechia*	Federal: None State: SSC MSHCP: MSHCP	Breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs typical of low, open-canopy riparian woodland. During migration, forages in woodland, forest, and shrub habitats.	Does not occur onsite. Detected offsite, adjacent to the southernmost portion of the Project site.
Yellow-breasted chat (nesting) *Icteria virens*	Federal: None State: SSC MSHCP: MSHCP	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories.	Does not occur onsite. Detected offsite, adjacent to the southernmost portion of the Project site.
Yellow-headed blackbird (nesting) *Xanthocephalus xanthocephalus*	Federal: None State: SSC MSHCP: None	Breed and roost in freshwater wetlands with dense, emergent vegetation such as cattails. Often forage in fields, typically wintering in large, open agricultural areas.	Not expected to nest onsite. Potential to forage on site.
Mammals			
American badger *Taxidea taxus*	Federal: None State: SSC MSHCP: None	Most abundant in drier open stages of most scrub, forest, and herbaceous habitats, with friable soils.	Does not occur onsite.
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	Federal: None State: SSC MSHCP: MSHCP(c)	Fine, sandy soils in coastal sage scrub and grasslands.	Not expected to occur due to high levels of soil disturbance associated with past and current agricultural operations.
Pallid bat *Antrozous pallidus*	Federal: None State: SSC WBWG: H MSHCP: None	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Does not occur on site. Not detected during offsite focused surveys.
Palm Springs round-tailed ground squirrel *Xerospermophilus tereticaudus chlorus*	Federal: None State: SSC MSHCP: None	Sandy desert in low, flat areas, commonly in communities dominated by mesquite and creosotebush. Also in urban areas and parks.	Does not occur onsite.
San Bernardino kangaroo rat *Dipodomys merriami parvus*	Federal: FE State: SC (state candidate) MSHCP: MSHCP(c)	Typically found in Riversidean alluvial fan sage scrub and sandy loam soils, alluvial fans and floodplains, and along washes with nearby sage scrub.	Does not occur onsite.
San Diego desert woodrat *Neotoma lepida intermedia*	Federal: None State: SSC MSHCP: MSHCP	Occurs in a variety of shrub and desert habitats, primarily associated with rock outcrops, boulders, cacti, or areas of dense undergrowth.	Does not occur onsite.
Southern grasshopper mouse *Onychomys torridus ramona*	Federal: None State: SSC MSHCP: None	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	Not expected to occur due to high levels of soil disturbance associated with past and current agricultural operations.
Stephens' kangaroo rat *Dipodomys stephensi*	Federal: FE State: ST MSHCP: MSHCP SKR HCP: Covered	Open grasslands or sparse shrublands with less than 50% vegetation cover during the summer.	Not expected to occur due to high levels of soil disturbance associated with

Species Name	Status	Habitat Requirements	Occurrence
			historic and current agricultural operations.
Townsend's big-eared bat *Corynorhinus townsendii*	Federal: None State: SSC WBWG: H MSHCP: None	Coniferous forests and woodlands, deciduous riparian woodland, semi-desert and montane shrublands.	Does not occur on site. Not detected during offsite focused surveys.
Western mastiff bat *Eumops perotis californicus*	Federal: None State: SSC WBWG: H MSHCP: None	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Does not roost on site. Detected offsite acoustically during focused surveys.
Western yellow bat *Lasiurus xanthinus*	Federal: None State: SSC WBWG: H MSHCP: None	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Does not roost on site. Detected offsite acoustically during focused surveys.

STATUS

Federal
FE – Federally Endangered
FT – Federally Threatened
FPT – Federally Proposed Threatened
FC – Federal Candidate
BGEPA– Bald and Golden Eagle Protection Act

State
SE – State Endangered
ST – State Threatened
SC– State Candidate
CFP – California Fully-Protected Species
SSC – Species of Special Concern

MSHCP
MSHCP = No additional action necessary
MSHCP(a) = Surveys may be required as part of wetlands mapping
MSHCP(b) = Surveys may be required within the Narrow Endemic Plant Species survey area
MSHCP(c) = Surveys may be required within locations shown on survey maps
MSHCP(d) = Surveys may be required within Criteria Area
MSHCP(e) = Conservation requirements identified in species-specific conservation objectives need to be met before classified as a Covered Species
MSHCP(f) = Covered species when a Memorandum of Understanding is executed with the Forest Service Land

Western Bat Working Group (WBWG)
H – High Priority
LM – Low-Medium Priority
M – Medium Priority
MH – Medium-High Priority

OCCURRENCE

- Does not occur – The site does not contain habitat for the species and/or the site does not occur within the geographic range of the species.
- Confirmed absent – The site contains suitable habitat for the species, but the species has been confirmed absent through focused surveys.
- Not expected to occur – The species is not expected to occur onsite due to low habitat quality, however absence cannot be ruled out.
- Potential to occur – The species has a potential to occur based on suitable habitat, however its presence/absence has not been confirmed.
- Confirmed present – The species was detected onsite incidentally or through focused surveys.

4.5.1 Special-Status Wildlife Species Observed

No special-status animals were detected within the disturbance limits of the Project; however, several species were detected adjacent to the Project site (to the south) in areas that were evaluated for potential indirect effects and/or for mitigation opportunities. These species are described below.

Least Bell's Vireo (*Vireo bellii pusillus*) – The least Bell's vireo (LBV) is state and federally listed as endangered, and is covered under the MSHCP. The LBV is typically associated with dense riparian habitats with a stratified canopy, including southern willow scrub, mule fat scrub, and riparian forest.

Three LBV territories were detected in the offsite riparian habitat adjacent to the Project footprint, two of which were detected within 300 feet of the Project, with third located about 800 feet from Project footprint [Exhibit 12 – LBV Survey Results]. Based on observed behavior, the LBV in all three locations appeared to be paired and nesting.

Northern Harrier (*Circus cyaneus*) - The northern harrier is designated as a CDFW SSC when nesting, but is a common, often abundant, winter visitor throughout California. The northern harrier is a MSHCP covered species. Characteristically, this hawk inhabits marshlands, both coastal salt and freshwater, but often forages over grasslands, fields, and low open scrub. It glides and flies low over open habitats searching for prey.

One northern harrier was detected flying offsite within agricultural and riparian areas during the biological surveys and would be expected to forage opportunistically over the Project site. The Project site does not support nesting habitat for northern harriers due to the historical and current land practices at the site.

Western Mastiff Bat (*Eumops perotis californicus*) – The western mastiff bat is designated as a CDFW SSC and a WBWG high priority species. This species is not covered under the MSHCP. The western mastiff bat occurs year-round in southern California and is typically associated with open, semi-arid to arid habitats including dry desert washes, flood plains, chaparral, oak woodland, montane meadows, grassland and agricultural areas. This species roosts in cliff faces and occasionally in buildings that provide unobstructed entry and exit access.

The western mastiff bat was detected faintly acoustically during the focused bat survey conducted in the offsite (adjacent) habitat located south of the Project footprint. The adjacent area contains suitable roosting habitat, including for maternity roosting. Although the Project site does not contain any roosting habitat, the site provides opportunistic foraging habitat as part of the mastiff bat's large foraging range, which can exceed 24 kilometers from roost sites.

Western Yellow Bat (*Lasiurus xanthinus*) – The western yellow bat is designated as a CDFW SSC and a WBWG high priority species. This species is not covered under the MSHCP. The western yellow bat occurs year-round in southern California and is typically associated with valley foothill, riparian, desert wash, desert riparian and palm oasis habitats, where they often roost in trees taller than three meters in height. Native and non-native palm trees are also known to provide suitable roosting habitat for the species.

The western yellow bat was detected acoustically during the focused bat survey conducted in the offsite (adjacent) habitat located south of the Project footprint. The adjacent area contains suitable roosting habitat, including for maternity roosting. Although the Project site does not contain any roosting habitat, the site provides opportunistic foraging habitat as part of the yellow bat's large foraging range.

Yellow-breasted chat (*Icteria virens*) – The yellow-breasted chat is designated as a CDFW SSC and is a MSHCP covered species. Yellow-breasted chats in southern California (including within the MSHCP Plan Area) are primarily found in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds.

The Project site does not contain habitat for the yellow-breasted chat, but at least one chat was detected in riparian habitat located immediately adjacent to the southern end of the Project footprint. The chat was detected in the same area occupied by least Bell's vireo that was part of broader study area surveyed to evaluate the potential for indirect effects during construction.

Yellow warbler (*Setophagia petechia*) – The yellow warbler is designated as a CDFW SSC and is a MSHCP covered species. Yellow warblers in southern California breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs typical of low, open-canopy riparian woodland. The yellow warbler is found at elevations from 100 meters to 2,700 meters within riparian habitat and at higher elevations along watercourses with riparian growth.

The Project site does not contain habitat for the yellow warbler, but at least one warbler was detected in riparian habitat located immediately adjacent to the southern end of the Project footprint. The warbler was detected in the same area occupied by least Bell's vireo that was part of broader study area surveyed to evaluate the potential for indirect effects during construction.

4.5.2 Special-Status Wildlife Species Not Observed, but with a Potential to Occur at the Project Site

Golden eagle (*Aquila chrysaetos*) – The golden eagle is designated as a CDFW Fully Protected species and is a MSHCP covered species. Golden eagles prefer open areas with hills, cliffs, and bluffs including prairies, grasslands and tundra. They can also be found in forests, mountains, and deserts. Golden eagles nest in rugged areas generally with cliffs or bluffs or large trees.

The golden eagle was not detected during the biological surveys. However, historical records show the golden eagle occurs in the region. The Project site does not support suitable nesting habitat for the golden eagle, but the agricultural fields would provide limited low quality opportunistic foraging habitat for the species.

Loggerhead shrike (*Lanius ludovicianus*) – The loggerhead shrike is designated as a CDFW SSC and is a MSHCP covered species. The loggerhead shrike is a common resident and winter visitor in lowlands throughout California. Loggerhead shrikes prefer open habitats with scattered shrubs, trees, posts, fences, utility lines, and other perches and will eat mostly large insects, but will also take small birds, mammals, amphibians, reptiles, fish, carrion, and various other invertebrates. Shrikes usually fly directly to prey on ground or in a shrub; sometimes hovering. Occasionally this species will hawk aerial insects in mid-air. This species was not detected during the biological surveys but is historically known from the area. The shrike has a low potential to nest on site due to the general absence of suitable nesting habitat. However, the Project site does provide foraging habitat for the loggerhead shrike.

Purple martin (*Progne subis)* – The purple martin is designated as a CDFW SSC and is a MSHCP covered species. The purple martin was not detected during the biological studies but is historically known to occur in the area. The purple martin is not expected to nest on site due to the general absence of cavities. However, the Project site does provide suitable foraging habitat for this species.

Swainson's hawk (*Buteo swainsoni*) – The Swainson's hawk is State Threatened and is a MSHCP covered species. The Swainson's hawk was not detected during the biological studies but is historically known to occur in the area. The Swainson's hawk is expected to opportunistically forage within the agricultural fields in the region during the winter, which could include portions of the Project site. The Project site is not expected to provide suitable nesting habitat due to overall general absence of trees (especially solitary trees) on site.

Tricolored blackbird (*Agelaius tricolor)* – The tricolored blackbird is designated as State Threatened and CDFW SSC and is a MSHCP covered species. The tricolored blackbird was not detected during the biological studies but is historically known to occur in the area. The tricolored blackbird is not expected to nest on site due to the majority of the Project site being used for active agriculture and the Project site lacks wetland habitat. However, the Project site does provide foraging habitat for this species.

White-tailed kite (*Elanus leucurus)* – The white-tailed kite is a CDFW Fully Protected species and is a MSHCP covered species. The white-tailed kite was not detected during the biological

studies but is historically known to occur in the area. The white-tailed kite is not expected to nest on site due to the general absence of trees within the Project site. However, the Project site does provide foraging habitat for this species.

Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) – The yellow-headed blackbird is designated as a CDFW SSC but is not a MSHCP covered species. The yellow-headed blackbird was not detected during the biological studies but is historically known to occur in the area. The yellow-headed blackbird is not expected to nest on site due to the majority of the Project site being used for active agriculture and the Project site lacks wetland habitat. However, the Project site does provide foraging habitat for this species.

Crotch's Bumble Bee (*Bombus crotchii*) - Crotch's bumble bee (CBB) is designated as a State Candidate Endangered (CE) species under CESA. CBB also has a State Ranking of S2 ("imperiled"), which conveys special status to CBB independent of its CESA status. CBB is not a covered species under the MSHCP, meaning that the MSHCP does not grant authorization to "take" CBB and does not directly mitigate the loss of habitat occupied by CBB.

CBB was not detected during the 2025 focused surveys [Appendix I], meaning that there was no evidence that CBB occupied the site in 2025. However, the site contains herbaceous floral resources suitable to support CBB for foraging, including common fiddleneck (*Amsinckia menziesii*) and alfalfa (*Medicago sativa*). In addition, the site contains substrates suitable to support nesting and/or overwintering, although due to the regular disturbance of much of the site for agricultural operations, CBB is less likely to utilize the site for those purposes. Because the Project site contains suitable for foraging, and CBB has been documented in the vicinity of the Project site, it is possible for CBB to utilize the site during the 2026 season and future seasons. Potential impacts to CBB and its habitat are discussed below in Section 5.2.2.

4.5.3 Special-Status Wildlife Species Confirmed Absent Through Focused Surveys

Burrowing Owl (*Athene cunicularia*) - The burrowing owl is designated as a CDFW Candidate Endangered species and is a covered species not adequately conserved under the MSHCP, which means that projects located within the Burrowing Owl Survey Area may have to evaluate avoidance and/or mitigation measures if burrowing owls are present. The Project site is located within the MSHCP Burrowing Owl Survey Area.

GLA biologists did not observe burrowing owls during the focused burrowing owl surveys performed in 2022 and 2024. Although the Project site contains multiple suitable burrows, no evidence of burrowing owls (e.g., cast pellets, preened feathers, or whitewash clustered at a burrow) were detected at any of the burrows. Therefore, the species was confirmed absent.

Fairy Shrimp – Five features that pond seasonally (4, 5, 46, E-1, and E-2) were surveyed for fairy shrimp. The non-listed versatile fairy shrimp (*Branchinecta lindahli*) was detected in just one of the five features during the wet season surveys (Feature 5), which consists of vehicle ruts within a dirt road. The dry season survey of Feature 5 detected *Branchinecta* cysts, which were successfully hatched and reared to identify individuals as the versatile fairy shrimp, thus corroborating the results of the wet season survey.

No fairy shrimp were detected in the other five features during the wet season surveys. Features 4, 46, and E-2 also consist of vehicle ruts in dirt roads. Feature E-1 corresponds with the large inundation area associated with Drainage Area A. No *Branchinecta* cysts were detected within Feature 4 and 46 during the 2023 dry season surveys. No *Branchinecta* cysts were detected within Features E-1 and E-2 during the 2025 dry season surveys. Fairy shrimp survey reports are provided as Appendices D, E, F and G.

4.5.4 Raptor Use

The Project site is disturbed and primarily used for agricultural purposes; however, it does provide suitable foraging habitat for a number of raptor species, including special-status raptors. Southern California holds a diversity of birds of prey (raptors), and many of these species are in decline. For most of the declining species, foraging requirements include extensive open, undisturbed, or lightly disturbed areas, especially grasslands. This type of habitat has declined severely in the region, affecting many species, but especially raptors. A few species, such as red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*), are somewhat adaptable to low-level human disturbance and can be readily observed adjacent to neighborhoods and other types of development. These species still require appropriate foraging habitat and low levels of disturbance in the vicinity of nesting sites.

Many of the raptors that would be expected to forage and nest within western Riverside are fully covered species under the MSHCP with the MSHCP providing the necessary conservation of both foraging and nesting habitats. Some common raptor species (e.g., American kestrel and red-tailed hawk) are not covered by the MSHCP but are expected to be conserved with implementation of the Plan due to the parallel habitat needs with those raptors covered under the Plan. However, the MSHCP does not provide MBTA and Fish and Game Code take for raptors covered under the Plan.

Appendix B (faunal compendium) provides a list of the raptors detected over the course of the field studies (both onsite, but adjacent). These species include the red-tailed hawk (*Buteo jamaicensis*) and turkey vulture (*Cathartes aura*). In addition, the Cooper's hawk (*Accipiter cooperi*), red-shouldered hawk (*Buteo lineatus*), great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*) and northern harrier (*Circus cyaneus*) were detected offsite, but adjacent to the Project site. In addition, the American kestrel (*Falco sparverius*), Ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), merlin (*Falco columbarius*), and peregrine falcon (*Falco peregrinus*) were not detected during field studies but would be expected to forage and/or winter within Project site opportunistically.

4.6 Bats

Eight species of bats were detected adjacent to the southern portion of the Project site during the focused bat survey: big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*), canyon bat (*Parastrellus hesperus*), Mexican free-tailed bat (*Tadarida brasiliensis*), western small-footed myotis (*Myotis ciliolabrum*), western mastiff bat (*Eumops perotis*), western yellow

bat (*Lasiurus xanthinus*), and Yuma myotis (*Myotis yumanensis*).[12]

The western mastiff bat and western yellow bat are both designated as CDFW Species of Special Concern and are designated by the WBWG as high priority species. The western yellow bat is strongly tied to palm trees which occur offsite, but adjacent to the southern Project site boundary. The western mastiff is strongly tied to cliff areas and is a strong flyer capable of flying over 24 kilometers in a night. The faint acoustic signatures detected from outside the Project site were indicative of individuals flying high over or near the Project site as part of their foraging foray. The Project site is generally devoid of trees and does not support suitable roosting habitat (including maternity roosts) for both species.

4.7 Nesting Birds

The Project site contains shrubs, ground cover and some trees that provide suitable habitat for nesting native birds. Mortality of native birds (including eggs) is prohibited under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.[13]

4.8 Wildlife Linkages/ Corridors and Nursery Sites

Habitat linkages are areas which provide a connection between two or more other habitat areas which are often larger or superior in quality to the linkage. Such linkage sites can be quite small or constricted but still be vital to the long-term health of connected habitats. Linkage values are often addressed in terms of "gene flow" between populations, with movement taking potentially many generations.

Corridors are like linkages but provide specific opportunities for individual animals to disperse or migrate between areas, generally extensive but otherwise partially or wholly separated regions. Adequate cover and tolerably low levels of disturbance are common requirements for corridors. Habitat in corridors may be quite different than that in the connected areas, but if used by the wildlife species of interest, the corridor will still function as desired.

Wildlife nurseries are sites where wildlife concentrate for hatching and/or raising young, such as rookeries, spawning areas, and bat colonies. Nurseries can be important to both special-status species as well as commonly occurring species.

The Project site may provide for local movement by common urban-adapted mammal species such as coyote, striped skunk, raccoon, and opossum through the agricultural fields and disturbed areas. However, the Project site is not located within a regionally significant wildlife linkage or corridor. The Project site does not contain any wildlife nursery habitat.

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[12] Because both the Yuma myotis and California myotis have very similar echolocation call signatures within the 45 to 50 kilohertz (kHz) range and are both known to occur in the general vicinity, both species are presumed present based on calls recorded and from individual echolocation calls that appear diagnostic for each species.

[13] The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R.21). In addition, Sections 3505, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs.

4.9 Critical Habitat

The Project site is not located within an area designated as critical habitat by USFWS.

4.10 Jurisdictional Waters

The Project site contains six ditches (Ditches A-F), Drainage Area A and a constructed agricultural basin (Basin A). Drainage Area A consists of a large inundation area that resulted from above-normal rainfall during the 2023 and 2024 wet seasons, supplemented by agricultural irrigation.

4.10.1 Corps Jurisdiction

No Corps jurisdiction is present within the Project site.

Ditches A, B, D, E, and F and Drainage Area A flow and/or collect water only in direct response to precipitation and were completely dry during the most recent field investigation. Therefore, they are not relatively permanent, standing or continuously flowing bodies of water and are not considered waters of the U.S. as defined in 33 CFR Part 328.3(a). Additionally, ditches that are excavated wholly in and draining only dry land and do not carry a relatively permanent flow of water, and artificial ponds used as stock watering, irrigation, and/or settling basins, are excluded from being waters of the waters of the U.S. pursuant to 33 CFR Part 328.3(b).

Basin A was constructed in uplands for the sole purpose of capturing and storing agricultural waste runoff from the adjacent active dairy operation. Similarly, Drainage C functions as a closed irrigation system, capturing irrigation runoff from adjacent irrigated row crop fields and transporting this runoff to irrigate row crop fields to the north and northeast. These features are also frequently modified (i.e. filled in, reconfigured) as a part of ongoing agricultural operations and are isolated and do not have a surface connection to jurisdictional resources. Therefore, these facilities are excluded from regulation as waters of the waters of the U.S. pursuant to 33 CFR Part 328.3(b) as Ditch C is a ditch that was excavated wholly in and draining only dry land and that does not carry a relatively permanent flow of water, and Basin A and Ditch C are artificially irrigated areas that would revert to dry land if the irrigation ceased.

4.10.2 Regional Water Quality Control Board Jurisdiction

Regional Board jurisdiction associated with the Project site totals 3.83 acres, none of which consist of wetland waters of the State. A total of 4,283 linear feet of ephemeral stream is present. Regional Board jurisdiction within the Project site is limited to Ditches A, B, D, E, and F, and Drainage Area A. These features exhibited flow sign indicators as demonstrated by changes in soil characteristics and incised channel banks. These features convey surface flow with the potential to support beneficial uses and therefore meet the definition of waters of the State as defined in Section 13050(e) of the Clean Water Code.

There are also two non-jurisdictional features constructed wholly in uplands that do not convey flows and/or or support any beneficial uses identified in the Regional Board Basin Plan. These

features were created specifically to capture agricultural runoff from the surrounding areas and do not represent regulated aquatic resources (See Section D, below). Such features are not considered waters of the State as defined in Section 13050(e) of the Clean Water Code and should not be regulated under Section 13260 of the CWC.

Table 4-4 below summarizes Regional Board jurisdiction associated with the Project site. The boundaries of Regional Board jurisdiction are depicted on the enclosed jurisdictional delineation map [Exhibit 13A].

Table 4-4. Summary of Regional Board Jurisdiction

Feature Name	Regional Board Non-Wetland Waters (acres)	Regional Board Jurisdictional Wetlands (acres)	Total Regional Board Jurisdiction (acres)	Length (linear feet)
Drainage Area A	3.30	0.00	3.30	-
Ditch A	0.17	0.00	0.17	980
Ditch B	0.03	0.00	0.03	302
Ditch D	0.11	0.00	0.11	2,303
Ditch E	0.04	0.00	0.04	279
Ditch F	0.18	0.00	0.18	419
Total	**3.83**	**0.00**	**3.83**	**4,283**

Drainage Area A

Regional Board jurisdiction associated with Drainage Area A totals 3.30 acres, none of which consists of State wetlands. Drainage Area A is located in the northwestern portion of the Project site. Drainage Area A consists of relatively flat undeveloped land that appears to have been disced as recently as December 2020, according to historic aerial imagery. Since then, it does not appear that this area has been planted or otherwise maintained. Instead, Drainage Area A conveys flows in a generally northwestern direction towards Drainage A during periods following heavy precipitation when adjacent agricultural ditches have flooded. Furthermore, corrugated metal culverts that convey flows within Drainage A under a dirt access road appear to have been clogged by debris, which likely contributes to backup of flood waters in Drainage Area A.

Drainage Area A was assessed for wetland indicators. Drainage Area A contained two dominant plant species, salt heliotrope (FACU) and alkali mallow (*Malvella leprosa*; FACU), which did not meet the parameters for hydrophytic vegetation. A 12-inch deep soil pit was dug within Drainage Area A which contained silty loam and a color of 2.5Y 3/2. No redox features or other

indicators of hydric soils were observed, however, soils within this area are strongly alkali. Primary indicators of hydrology were observed within Drainage Area A (i.e., surface soil cracks). Drainage Area A met the indicators for hydrology but lacked hydrophytic vegetation and hydric soils. Therefore, Drainage Area A was determined not to be a wetland. See Appendix A for further details regarding the wetland assessment.

Other vegetation associated with Drainage Area A consists of five horn bassia (*Bassia hyssopifolia*; FACU), London rocket (NI), perennial pepperweed (FAC), Canada horseweed (*Erigeron canadensis*; FACU), black mustard (NI), fiddleneck (NI), Bermuda grass (FACU), ripgut brome (NI), and red brome (UPL).

Ditch A

Regional Board jurisdiction associated with Ditch A totals 0.17 acre, none of which consists of State wetlands. Ditch A is located in the northwestern portion of the Project site. Ditch A consists of several man-made earthen ditches that together convey agricultural runoff in a northwestward direction for approximately 980 linear feet before continuing offsite and eventually terminating in a basin adjacent to Ramona Expressway, which ultimately conveys water downstream to the San Jacinto River. Ditch A exhibits an OHWM that ranges from one (1) to 15 feet in width.

Vegetation associated with Ditch A consists of non-native upland grasses and forbs including ripgut brome (NI), red brome (UPL), black mustard, fiddleneck, cheeseweed (NI), Russian thistle (FACU), stinknet (FACU).

Ditch B

Regional Board jurisdiction associated with Ditch B totals 0.03 acre, none of which consists of State wetlands. Ditch B is located in the center of the Project site. Ditch B is a man-made earthen ditch that crosses the alignment and conveys agricultural runoff in a northward direction for approximately 302 linear feet before leaving the Project site. Ditch B exhibits an OHWM that averages four (4) feet in width. The offsite portion of Ditch B, to the north of the alignment, appears to convey flows to Drainage Area A during periods of heavy precipitation. Ditch B is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle (FACU), Canada horseweed (FACU), and black mustard (NI) were observed immediately adjacent to the drainage along the top of the bank.

Ditch D

Approximately 0.11 acre of Regional Board jurisdiction is associated with Ditch D. Ditch D is located in the center of the Project site. Ditch D is a constructed earthen ditch that crosses the alignment along the western side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 2,303 linear feet before leaving the Project site. Ditch D exhibits a stream course that averages two feet in width. Ditch D is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated.

However, Russian thistle (FACU) and non-native grasses such as Bermuda grass (FACU) and red brome (UPL) were observed immediately adjacent to this ditch along the top of the bank.

Ditch E

Approximately 0.04 acre of Regional Board jurisdiction is associated with Ditch E. Ditch E is located in the center of the Project site. Ditch E is a constructed earthen ditch that crosses the alignment along the eastern side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 279 linear feet before leaving the Project site. Ditch E exhibits a stream course that averages six feet in width. Ditch E is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, five horn bassia (FACU), Russian thistle (FACU), stinknet (FACU), and non-native grasses such as red brome were observed immediately adjacent to the drainage along the top of the bank.

Ditch F

Regional Board jurisdiction associated with Ditch F totals 0.18 acre, none of which consists of State wetlands. Ditch F is located in the southeastern portion of the Project site. Ditch F is a man-made earthen ditch that conveys flows northward away from the San Jacinto Reservoir Overflow for approximately 419 linear feet before continuing offsite and terminating as sheet flow in an adjacent agricultural field. Ditch F exhibits an OHWM ranging from 10 to 30 feet in width. A rip-rap headwall and culvert previously existed separating the offsite riparian area to the south from the remainder of Ditch F to the north. Currently, the rip-rap headwall and culvert appear to have been destroyed and flows now bypass the culvert and continue around the riprap through a highly eroded area to the east of the culvert. According to historic aerial imagery, Ditch F is typically characterized by an ephemeral flow regime. However, at the time of the initial site visit, Ditch F contained surface water in the southernmost reach, immediately adjacent to the San Jacinto Reservoir Overflow area. Ditch F was completely dry during the most recent site visit.

Vegetation associated with Ditch F includes a mix of native and non-native species such as Bermuda grass (FACU), stinknet (FACU), annual yellow sweetclover (FACU), Canada horseweed (FACU), alkali mallow (FACU), cocklebur (FAC), and various other non-native grasses.

4.10.3 CDFW Jurisdiction

CDFW jurisdiction associated with the Project site totals 4.03 acres, none of which consists of riparian stream. A total of 4,283 linear feet of stream is present.

CDFW jurisdiction within the Project site is limited to Ditches A, B, D, E, and F and Drainage Area A. These features exhibited defined stream flow indictors (i.e., change in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, and/or incised channel banks). Since these features exhibited a discernable stream course and/or riparian vegetation, they are subject to regulation by the CDFW under Section 1600 of the Fish and Game Code.

There are also two features within the Project site that do not meet CDFW's definition of a river, stream, or lake, Basin A and Ditch C [Exhibit 13B – CDFW Jurisdictional Delineation Map]. These features were created specifically to capture runoff from the surrounding agricultural areas and were constructed wholly in the uplands, are not associated with any river, stream, or lake, and do not contain habitat or riparian resources upon which fish or wildlife depend for continued viability (See Section D, below). As a result, these features should not be subject to CDFW jurisdiction pursuant to Section 1600 of the California Fish and Game Code.

Table 4-5 below summarizes CDFW jurisdictional waters associated with the Project site. The boundaries of CDFW jurisdiction are depicted on the enclosed jurisdictional delineation map [Exhibit 13B].

Table 4-5. Summary of CDFW Jurisdiction

Feature Name	CDFW Non-Riparian Stream (acres)	CDFW Riparian Stream (acres)	Total CDFW Jurisdiction (acres)	Length (linear feet)
Drainage Area A	3.30	0.00	3.30	-
Ditch A	0.26	0.00	0.26	980
Ditch B	0.03	0.00	0.03	302
Ditch D	0.11	0.00	0.11	2,303
Ditch E	0.04	0.00	0.04	279
Ditch F	0.29	0.00	0.29	419
Total	**4.03**	**0.00**	**4.03**	**4,283**

Drainage Area A

CDFW jurisdiction associated with Drainage Area A totals 3.30 acres, none of which consists of riparian habitat. Drainage Area A is located in the northwestern portion of the Project site. Drainage Area A consists of relatively flat undeveloped land that appears to have been disced as recently as December 2020, according to historic aerial imagery. Since then, it does not appear that this area has been planted or otherwise maintained. Instead, Drainage Area A conveys flows in a generally northwestern direction towards Drainage A during periods following heavy precipitation when adjacent agricultural ditches have flooded. Furthermore, corrugated metal

culverts that convey flows within Drainage A under a dirt access road appear to have been clogged by debris, which likely contributes to backup of flood waters in Drainage Area A.

Vegetation associated with Drainage Area A consists of five horn bassia, London rocket, perennial pepperweed, Canada horseweed, black mustard, Bermuda grass, ripgut brome, red brome, salt heliotrope, and alkali mallow.

Ditch A

CDFW jurisdiction associated with Ditch A totals 0.26 acre, none of which consists of riparian habitat. Ditch A is located in the northwestern portion of the Project site. Ditch A consists of several man-made earthen ditches that together convey agricultural runoff in a northwestward direction for approximately 980 linear feet before continuing off site and eventually terminating in a basin adjacent to Ramona Expressway, which ultimately conveys water downstream to the San Jacinto River. Ditch A exhibits a stream course that ranges from one (1) to 25 feet in width.

Vegetation associated with Ditch A consists of non-native upland grasses and forbs including ripgut brome, red brome, black mustard, fiddleneck, cheeseweed, Russian thistle, and stinknet.

Ditch B

CDFW jurisdiction associated with Ditch B totals 0.03 acre, none of which consists of riparian habitat. Ditch B is located in the center of the Project site. Ditch B is a constructed earthen ditch that crosses the alignment and conveys agricultural runoff in a northward direction for approximately 302 linear feet before leaving the Project site. Ditch B exhibits a stream course that averages four (4) feet in width. The off-site portion of Ditch B, to the north of the alignment, appears to convey flows to Drainage Area A during periods of heavy precipitation. Ditch B is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle, Canada horseweed, and black mustard were observed immediately adjacent to the drainage along the top of the bank.

Ditch D

Approximately 0.11 acre of CDFW jurisdiction is associated with Ditch D, none of which consists of riparian habitat. Ditch D is located in the center of the Project site. Ditch D is a constructed earthen ditch that crosses the alignment along the western side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 2,303 linear feet before leaving the Project site. Ditch D exhibits a stream course that averages two feet in width. Ditch D is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle and non-native grasses such as Bermuda grass and red brome were observed immediately adjacent to this ditch along the top of the bank.

Ditch E

Approximately 0.04 acre of CDFW jurisdiction is associated with Ditch E, none of which consists of riparian habitat. Ditch E is located in the center of the Project site. Ditch E is a constructed earthen ditch that crosses the alignment along the eastern side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 279 linear feet before leaving the Project site. Ditch E exhibits a stream course that averages six feet in width. Ditch E is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, five horn bassia, Russian thistle, stinknet, and non-native grasses such as red brome were observed immediately adjacent to the drainage along the top of the bank.

Ditch F

CDFW jurisdiction associated with Ditch F totals 0.29 acre, none of which consists of riparian habitat. Ditch F is located in the southeastern portion of the Project site. Ditch F is a constructed earthen ditch that conveys flows northward away from the San Jacinto Reservoir Overflow for approximately 419 linear feet before continuing offsite and terminating as sheet flow in an adjacent agricultural field. Ditch F exhibits a stream course ranging from 10 to 30 feet in width. Based on the review of aerial imagery, Ditch F is typically characterized by an ephemeral flow regime. However, at the time of the initial site visit, Ditch F contained surface water in the southernmost reach, immediately adjacent to the San Jacinto Reservoir Overflow area. Ditch F was completely dry during the most recent site visit.

Vegetation associated with Ditch F includes a mix of native and non-native species such as Bermuda grass, stinknet, annual yellow sweetclover, Canada horseweed, alkali mallow, cocklebur, and various other non-native grasses.

4.10.4 Non-jurisdictional Agricultural Features

Table 4-6, below, summarizes one agricultural ditch (Ditch C) and an agricultural basin (Basin A), which both function as a closed agricultural system [Exhibit 13A – RWQCB Jurisdictional Delineation Map and Exhibit 13B – CDFW Jurisdictional Delineation Map].

Basin A was constructed in uplands for the sole purpose of capturing and storing agricultural waste runoff from the adjacent active dairy operation. Similarly, Drainage C functions as a closed irrigation system, capturing irrigation runoff from adjacent irrigated row crop fields and transporting this runoff to irrigate row crop fields to the north and northeast. These features are also frequently modified (i.e., filled in, reconfigured) as a part of ongoing agricultural operations and are isolated and do not have a surface connection to jurisdictional resources.

Therefore, these facilities are excluded from regulation as waters of the waters of the U.S. pursuant to 33 CFR Part 328.3(b) as Ditch C is a ditch that was excavated wholly in and draining only dry land and that does not carry a relatively permanent flow of water, and Basin A and Ditch C are artificially irrigated areas that would revert to dry land if the irrigation ceased. Similarly, Basin A and Ditch C are not considered jurisdictional under the Porter-Cologne Water

Quality Control Act or FGC Section 1600 et Seq. as closed agricultural systems dependent upon irrigation as an artificial water source and do not represent manipulated natural surface waters.

Table 4-6. Non-jurisdictional Agricultural Features

Feature Name	Area (acres)	Length (linear feet)
Ditch C	0.02	331
Basin A	0.13	--
Total	**0.15**	**331**

4.11 MSHCP Riparian/Riverine Areas and Vernal Pools

The Project site contains 4.03 acres of MSHCP non-riparian riverine areas, associated with six features (Ditches A, B, D, E, and F and Drainage Area A). These features exhibited defined stream flow indictors (i.e., change in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, and/or incised channel banks). Table 4-7 below summarizes the riverine areas associated with the Project site. The boundaries of riverine areas are depicted on the enclosed map [Exhibit 7 – MSHCP Riverine Areas].

Table 4-7. Summary of MSHCP Riverine Areas

Feature Name	Riverine (acres)	Riparian (acres)	Total (acres)
Drainage Area A*	3.30	0.00	3.30
Ditch A*	0.26	0.00	0.26
Ditch B	0.03	0.00	0.03
Ditch D*	0.11	0.00	0.11
Ditch E	0.04	0.00	0.04
Ditch F	0.29	0.00	0.29
Total	**4.03**	**0.00**	**4.03**

*Indicates MSHCP Riverine Areas that support smooth tarplant.

Drainage Area A

Approximately 3.30 acres of unvegetated riverine areas area associated with Drainage Area A. Drainage Area A is in the northwestern portion of the Project site. Drainage Area A consists of relatively flat undeveloped land that appears to have been disced as recently as December 2020, according to historic aerial imagery. Since then, it does not appear that this area has been planted or otherwise maintained. Instead, Drainage Area A conveys flows in a generally northwestern direction towards Drainage A during periods following heavy precipitation when adjacent

agricultural ditches have flooded. Furthermore, corrugated metal culverts that convey flows within Drainage A under a dirt access road appear to have been clogged by debris, which likely contributes to backup of flood waters in Drainage Area A.

Vegetation associated with Drainage Area A consists of five horn bassia, London rocket, perennial pepperweed, Canada horseweed, black mustard, Bermuda grass, ripgut brome, red brome, salt heliotrope and alkali mallow.

Ditch A

Approximately 0.26 acre of unvegetated riverine areas are associated with Ditch A. Ditch A is in the northwestern portion of the Project site. Ditch A consists of several man-made earthen ditches that together convey agricultural runoff in a northwestward direction for approximately 980 linear feet before continuing offsite and eventually terminating in a basin adjacent to Ramona Expressway. Ditch A exhibits a stream course that ranges from 1 to 25 feet in width.

Vegetation associated with Ditch A consists of non-native upland grasses and forbs including ripgut brome, red brome, black mustard, fiddleneck, cheeseweed, Russian thistle, stinknet.

Ditch B

Approximately 0.03 acre of unvegetated riverine areas are associated with Ditch B. Ditch B is located in the center of the Project site. Ditch B is a man-made earthen ditch that crosses the alignment and conveys agricultural runoff in a northward direction for approximately 302 linear feet before leaving the Project site. Ditch B exhibits a stream course that averages four feet in width. The offsite portion of Ditch B, to the north of the alignment, appears to convey flows to Drainage Area A during periods of heavy precipitation. Ditch B is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle, Canada horseweed, and black mustard were observed immediately adjacent to the drainage along the top of the bank.

Ditch D

Approximately 0.11 acre of unvegetated riverine areas are associated with Ditch D. Ditch D is located in the center of the Project site. Ditch D is a man-made earthen ditch that crosses the alignment along the western side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 2,337 linear feet before leaving the Project site. Ditch D exhibits a stream course that averages two feet in width. Ditch D is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle and non-native grasses such as Bermuda grass and red brome were observed immediately adjacent to this ditch along the top of the bank.

Ditch E

Approximately 0.04 acre of unvegetated riverine areas are associated with Ditch E. Ditch E is located in the center of the Project site. Ditch E is a man-made earthen ditch that crosses the

alignment along the eastern side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 279 linear feet before leaving the Project site. Ditch E exhibits a stream course that averages six feet in width. Ditch E is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, five horn bassia, Russian thistle, stinknet, and non-native grasses such as red brome were observed immediately adjacent to the drainage along the top of the bank.

Ditch F

Approximately 0.29 acre of unvegetated riverine areas are associated with Ditch F. Ditch F is in the southeastern portion of the Project site. Ditch F is a man-made earthen ditch that conveys flows northward away from the San Jacinto Reservoir Overflow for approximately 419 linear feet before continuing offsite and terminating as sheet flow in an adjacent agricultural field. Ditch F exhibits a stream course that averages approximately 10 feet in width. A rip-rap headwall and culvert previously existed separating the offsite riparian area to the south from the remainder of Ditch F to the north. Currently, the rip-rap headwall and culvert appear to have been destroyed and flows now bypass the culvert and continue around the riprap through a highly eroded area to the east of the culvert. According to historic aerial imagery, Ditch F is typically characterized by an ephemeral flow regime. However, at the time of the initial site visit, Ditch F contained surface water in the southernmost reach, immediately adjacent to the San Jacinto Reservoir Overflow area. Ditch F was completely dry during the most recent site visit.

Vegetation associated with Ditch F includes a mix of native and non-native species such as Bermuda grass, stinknet, annual yellow sweetclover, Canada horseweed, alkali mallow, and various other non-native grasses.

Approximately 1,670 smooth tarplant individuals were documented as occurring within portions of the Project site that support MSHCP Riparian/Riverine resources [Exhibit 7 – MSHCP Riverine Areas]. Smooth tarplant is a species identified by MSHCP Section 6.1.2 as being associated with MSHCP Riparian/Riverine resources. Therefore, these approximately 1,670 smooth tarplant individuals are considered as an MSHCP Riparian/Riverine resource in the context of the Project, occupying a total of approximately 0.50 acre occurring throughout Ditches A and D and Drainage Area A [Exhibit 7 – MSHCP Riverine Areas; Table 4-7. Summary of MSHCP Riverine Areas]. Additional smooth tarplant individuals were documented in upland areas and not associated with any of the features outlined on Table 4-6 and were therefore not considered as an MSHCP Riparian/Riverine resource, and are discussed in Section 5.1 of this document.

Table 4-7 summarizes one additional agricultural ditch (Ditch C) and an agricultural basin (Basin A) that are not riparian/riverine areas [Exhibit 7 – MSHCP Riverine Areas]. These features are frequently modified (i.e. filled in, recreated) as a part of ongoing agricultural operations and are isolated and do not drain to a downstream MSHCP Conservation Area (San Jacinto River).

Therefore, these facilities are not considered as MSHCP Riparian/Riverine Areas, as they are artificially created and do not provide biological functions supporting Section 6.1.2 species.

Table 4-7. Summary of Non-Riparian/Riverine Features

Feature	Acreage
Basin A	0.13
Ditch C	0.02
Total	**0.15**

Vernal Pools

The Project site does not contain MSHCP vernal pools. Five areas were noted as inundated within the Project site, corresponding to the five features (4, 5, 46, E-1 and E2) that are described below as having been evaluated through focused surveys for listed fairy shrimp. Features 4, 5, 46 and E-2 are all unvegetated vehicle ruts in dirt roads. Feature E-1 consists of a large, inundated area that is described above as Drainage Area A. Drainage Area A was determined not to exhibit all three parameters of a wetland, specifically the inundated area did not exhibit a predominance of hydrophytic vegetation, and therefore the feature is not considered as a vernal pool.

4.12 Local Policies or Ordinances

There are no local policies or ordinances that apply to the Project site.

5.0 IMPACT ANALYSIS

The following discussion examines the potential impacts to plant and wildlife resources that would occur as a result of the proposed project. Impacts (or effects) can occur in two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of plant communities, which in turn, directly affect the flora and fauna of those habitats. Direct impacts also include the destruction of individual plants or animals, which may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and population stability.

Indirect impacts pertain to those impacts that result in a change to the physical environment, but which is not immediately related to a project. Indirect (or secondary) impacts are those that are reasonably foreseeable and caused by a project but occur at a different time or place. Indirect impacts can occur at the urban/wildland interface of projects, to biological resources located downstream from projects, and other offsite areas where the effects of the project may be experienced by plants and wildlife. Examples of indirect impacts include the effects of increases in ambient levels of noise or light; predation by domestic pets; competition with exotic plants and animals; introduction of toxics, including pesticides; and other human disturbances such as

hiking, off-road vehicle use, unauthorized dumping, etc. Indirect impacts are often attributed to the subsequent day-to-day activities associated with project build-out, such as increased noise, the use of artificial light sources, and invasive ornamental plantings that may encroach into native areas. Indirect effects may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in a slow replacement of native plants by non-native invasive species, as well as changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to project sites.

Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. A cumulative impact can occur from multiple individual effects from the same project, or from several projects. The cumulative impact from several projects is the change in the environment resulting from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

5.1 California Environmental Quality Act (CEQA)

5.1.1 Thresholds of Significance

Environmental impacts to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State of California:

> Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities...

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to CEQA, Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Appendix G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to

eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species...

Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following criteria discussed below would result from implementation of the proposed project.

5.1.2 Criteria for Determining Significance Pursuant to CEQA

Appendix G of the 2018 State CEQA guidelines indicate that a project may be deemed to have a significant effect on the environment if the project is likely to:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2 Special-Status Species

Appendix G(a) of the CEQA guidelines asks if a project is likely to "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service."

5.2.1 Special-Status Plants

The proposed Project will impact one special-status plant species: smooth tarplant. As described above, approximately 2,500 smooth tarplant individuals were detected within the Project site

during focused plant surveys. The plants are generally associated with disturbed areas adjacent to agricultural fields and/or roadways (Exhibit 8); however, approximately 1,670 of the plants detected are associated with disturbed ditches that are considered MSHCP riparian/riverine areas, and therefore the plants are considered as riparian/riverine resources.

The MSHCP provides coverage for the impacts to smooth tarplant, provided that the Project is consistent with requirements pertaining to the species. The Project site is not located within a survey area for smooth tarplant and therefore MSHCP avoidance/conservation requirements pursuant to *Section 6.3.2* do not apply to the Project. However, as noted above, just over half of the mapped smooth tarplant individuals are considered as MSHCP riparian/riverine resources and therefore impacts to these specific areas of must be addressed pursuant to the *Section 6.1.2* riparian/riverine policies. As described in the Project's DBESP, impacts to smooth tarplant associated with the riparian/riverine areas will be mitigated by incorporating smooth tarplant seed into the restoration plant palette of the HMMP that will address the overall mitigation for impacts to riparian/riverine areas.

5.2.2 Special-Status Animals

Based on the results of the biological studies performed for the Project site, the proposed Project will not directly impact special-status animals. Although the Project site does not contain nesting habitat for special-status bird species, the site could potentially be used for foraging by special-status birds as described below, including Swainson's hawk, tricolored blackbird, golden eagle, loggerhead shrike, northern harrier, purple martin, white-tailed kite and yellow-headed blackbird. In addition, the Project could result in indirect impacts to special-status animals that utilize the riparian habitat located immediately adjacent to the Project site at the southern end, including the least Bell's vireo, yellow-breasted chat and yellow warbler.

Special-status species evaluated in this section for impacts are organized below as either "listed" or "non-listed" species. "Listed" species refers to those designated as FESA and/or CESA Endangered or Threatened species, including Candidate species (CESA).

Impacts to Listed Species

Crotch's Bumble Bee – As noted above in Section 4.5.2, CBB was not detected at the Project site in 2025 during focused surveys. This establishes a CEQA biological baseline for CBB absence, supporting a determination that the Project, following that baseline, would not impact CBB. Furthermore, without CBB detected, there is no evidence that the Project would "take" CBB. However, because portions of the Project site contain floral resources to attract CBB for foraging and there is limited potential for nesting and/or overwintering uses, and the results of absence surveys are only valid for one season, it is possible for CBB to be present at the site when grading commences for the Project.

As the Project site has been heavily modified through agricultural practices and other land uses, even if CBB were to be detected in the future, the loss of habitat should not be construed as an adverse impact to CBB as a species, and therefore such habitat loss would not be potentially significant. Agriculture is recognized as one factor that has led to the decline of CBB as a species

and although agricultural sites (such as the Project site) can contain floral resources with the potential to attract CBB for foraging, the soil disturbance and management make it unlikely for nesting and/or overwintering uses, although those uses are theoretically possible. Furthermore, the suitable floral resources at the Project site are limited to a few annual/herbaceous species, including alfalfa (a crop plant), and due to ongoing plowing/planting, mowing/disking and other disturbances, the presence of suitable plant resources is limited and inconsistent.

If CBB were to be detected at the site in the same season that the site (or portions of the site) is to be disturbed for construction, assuming that CBB is a CESA-listed species at the time of disturbance, then the Project activities might cause "take" of CBB individuals. Any "take" of CBB would require authorization from CDFW through their issuance of an Incidental Take Permit (ITP). If CBB were to be detected, but the species is no longer CESA-listed, then an ITP would not apply. However, CBB also has a State Ranking of S2 ("imperiled"), which conveys special status to CBB under CEQA independent of its CESA status. But the loss of CBB habitat relative to the Project would not be substantial and adverse to the species. If CBB were to be confirmed absent from the site during the season that impacts would be completed, affirming the CEQA baseline, then no further actions would be required relative to those applicable portions of the Project site.

Since future potential action for the site relative to CBB would be limited to obtaining an ITP from CDFW predicated on the presence of CBB and its status of a CESA-listed species, then Section 6.0 of this report includes a measure to conduct updated focused CBB surveys at the site prior to disturbance of the site if the CBB remains CESA-listed at that time, and, if detected, to coordinate with CDFW to determine of an ITP would be needed. Any mitigation for loss of occupied habitat would be based on CESA authorization for "take" and would be determined during the ITP process.

Least Bell's Vireo – The Project does not contain riparian habitat to support the least Bell's vireo (LBV). As previously described, the southern (upstream) end of the proposed Project is adjacent to habitat occupied by LBV where overflows from the San Jacinto Reservoir would enter the proposed channel facility. Construction of the facility would not remove any riparian habitat; however, because of the adjacency there is a potential for temporary noise impacts during construction of the facility adjacent to the riparian habitat if work were to occur while LBV are present. Objective 3 of the MSHCP Species Conservation Objectives for LBV states that avoidance of occupied LBV habitat must include a 100-meter (approximately 300 feet) buffer, which is meant to address the potential for edge effects from development. The proposed Project limits are within 100 feet of the nearest occupied habitat for LBV, and although no indirect impacts would be anticipated after the completion of construction activities, temporary indirect effects are possible if construction activities occur within 300 feet. Because LBV is a federal listed species, noise from construction would have the potential to "harass" LBV individuals, which can constitute "take" under FESA. As such, temporary measures are recommended (described below in Section 6.0) to prevent the harassment of LBV individuals from construction noise.

Swainson's hawk – The Swainson's hawk was not detected during the biological surveys, and the Project site does not support suitable nesting habitat for the Swainson's hawk; however, the

Project will impact potential foraging habitat for the species. As the Swainson's hawk is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Tricolored blackbird –The tricolored blackbird was not detected during the biological surveys but is historically known to occur in the area. Tricolored blackbird colonies are not expected to nest at the site due to the lack of suitable habitat. However, the Project would impact potential foraging habitat for the species. As the tricolored blackbird is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Impacts to Non-Listed Species

In addition to the listed species discussed above, the proposed Project would impact (directly or indirectly) habitat for non-listed, special-status species that have either been observed within the Project footprint, or that have the potential to occur. The analysis presented in this section is split into those listed species covered by the MSHCP and those that are not covered by the MSHCP.

MSHCP Covered Species

Burrowing owl - The Project site is in the MSHCP burrowing owl survey area. GLA biologists conducted focused burrowing owl surveys in 2022 and 2024, and no burrowing owls were detected within the Project footprint. Based on the survey results, the Project will not impact burrowing owl habitat with long-term conservation value, and therefore MSHCP avoidance/mitigation requirements due not apply to the Project. However, because the Project site does contain suitable habitat, including burrows, a pre-construction burrowing owl survey is required by *Section 6.3.2* of the MSHCP. Refer to Section 6.0 for details.

The burrowing owl was recently designated by CDFW as a Candidate for listing as Endangered under CESA. However, because the burrowing owl is already a MSHCP covered species, the listing of the burrowing owl does not affect how projects covered by the MSHCP address impacts to burrowing owls. Projects are still required to comply with MSHCP objectives for burrowing owls, and if projects are consistent with those objectives, any "take" of burrowing owls pursuant to CESA would be covered.

Golden eagle – The golden eagle was not detected during the biological surveys. However, historical records show that the golden eagle occurs in the region. The Project site does not support suitable nesting habitat for the golden eagle; however, the Project will impact potential foraging habitat for the species. As the golden eagle is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Loggerhead shrike – The majority of the Project site consists of active agricultural fields and is therefore disturbed on a regular basis. The loggerhead shrike was not detected during the biological studies; however, this species is known to occur in the region. The proposed Project would impact potential foraging habitat for the shrike; however, due to the disturbed nature of the Project site from agricultural practices, there are limited nesting opportunities for the species. As the loggerhead shrike is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Northern harrier – One northern harrier was detected flying offsite within agricultural and the adjacent riparian areas during the biological surveys. The Project site does not support nesting habitat for northern harriers due to the historical and current land practices at the site; however, the Project will impact potential foraging habitat. As the northern harrier is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Purple martin – The purple martin was not detected during the biological studies but is historically known to occur in the area. The purple martin is not expected to nest on site due to the absence of trees with cavities. However, the Project will impact foraging habitat for the species. As the purple martin is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

White-tailed kite –The white-tailed kite was not detected during the biological studies but is historically known to occur in the area. The white-tailed kite is not expected to nest on site due to the absence of suitable trees; however, the Project will impact potential foraging habitat. As the white-tailed kite is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Yellow-breasted chat - The Project site does not contain riparian habitat to support the yellow-breasted chat. However, as discussed above, the Project is adjacent to riparian habitat where the yellow-breasted chat was observed. Although the Project will not remove habitat supporting the chat, there is a potential for temporary noise impacts during Project construction adjacent to the riparian habitat. Measures included below in Section 6.0 to address the least Bells' vireo during construction will also benefit the yellow-breasted chat to avoid or minimize indirect effects.

Yellow-headed blackbird – The yellow-headed blackbird was not detected during the biological studies but is historically known to occur in the area. The yellow-headed blackbird is not expected to nest on site due to most of the site being used for active agriculture; however, the Project will impact potential foraging habitat for this species. As the yellow-headed blackbird is a MSHCP covered species, no avoidance/mitigation requirements apply to the Project.

Yellow warbler – The Project site does not contain riparian habitat to support the yellow warbler. However, as discussed above, the Project is adjacent to riparian habitat where the yellow warbler was observed. Although the Project will not remove habitat supporting the warbler, there is a potential for temporary noise impacts during Project construction adjacent to the riparian habitat. Measures included below in Section 6.0 to address the least Bells' vireo during construction will also benefit the yellow warbler to avoid or minimize indirect effects.

Species That Are Not Covered by the MSHCP

Sensitive Bats – The Project site does not contain habitat to support roosting bats (including maternity roosting), including for sensitive bat species such as the western mastiff and the western yellow bat, which were both detected acoustically offsite in the adjacent riparian habitat located south of the Project footprint. Although the mastiff bat and yellow bat were not confirmed roosting offsite, potential roosting habitat including palm trees are located more than 200 feet from the Project's limits of disturbance. As such, the Project is not expected to indirectly affect roosting bats. The Project does have the potential to impact bat foraging habitat; however, the loss of foraging habitat would not be considered as a substantial adverse effect because of the presence of foraging habitat on surrounding lands.

5.3 Impacts to Raptor Use

Raptors include owls, hawks, eagles, and falcons. Common species of raptors (e.g. red-tailed hawk, American kestrel, great horned owl) have potential to forage on the Project site within the agricultural fields. The proposed Project would impact foraging habitat for raptors.

During the field studies, no raptors were observed nesting within the Project site as the majority vast majority of the Project site lacks trees. Two raptor species, the red-tailed hawk and turkey vulture, were detected flying over the site. Other common raptor species including the Cooper's hawk, red-shouldered hawk, northern harrier, great horned owl, and barn owl were detected offsite, but adjacent to the Project site and would be expected to also forage opportunistically onsite. The Project site also including the agricultural fields would provide potential foraging and/or wintering habitat for other common and sensitive species including the American kestrel, ferruginous hawk, Swainson's hawk, merlin, and golden eagle. However, except for burrowing owls, the MSHCP does not have requirement pertaining to these various raptor species, and the loss of foraging habitat would be covered by the MSHCP.

5.4 Sensitive Vegetation Communities

Appendix G of the CEQA guidelines asks if a project is likely to "have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service."

The proposed Project will not impact sensitive vegetation communities. The proposed Project would permanently impact approximately 87.10 acres of lands through grading, including areas of remedial grading that will not be restored to pre-project conditions. Permanent impacts include approximately 69.34 acres of agricultural fields, 8.49 acres of annual brome grasslands, 6.17 acres of disturbed and developed areas, and 3.10 acres of perennial pepper weed-prickly lettuce patches.

The proposed Project would also temporarily impact approximately 33.22 acres of lands through project implementation. The temporary impacts consist of narrow construction easements along either side of the proposed facilities where disturbance will be required to construct the facilities,

but there will not be any permanent structures in these areas. The temporary impact areas will be restored to pre-construction contours and can be hydroseeded with a native plant mix. The temporary impacts include approximately 25.07 acres of agricultural fields, 3.43 acres of annual brome grasslands, 4.26 acres of disturbed and developed areas, 0.03 acre of eucalyptus groves, and 0.44 acre of perennial pepper weed-prickly lettuce patches. Impacts to vegetation communities are summarized in Table 5-1 below.

Table 5-1. Summary of Vegetation/Land Use Impacts

Vegetation/Land Use Type	Direct Impacts		Total Project (Acres)
	Permanent (acres)	Temporary (acres)	
Agriculture Fields	69.34	25.07	94.41
Annual Brome Grasslands	8.49	3.43	11.92
Disturbed and Developed Areas	6.17	4.26	10.43
Eucalyptus Groves	0	0.03	0.03
Perennial Pepper Weed-Prickly Lettuce Patches	3.10	0.44	3.54
Total	**87.10**	**33.22**	**120.33**

5.5 Wetlands

Appendix G of the State CEQA guidelines asks if a project is likely to "have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means."

The Project site does not contain any state or federally protected wetlands.

5.6 Wildlife Movement and Native Wildlife Nursery Sites

Appendix G of the State CEQA guidelines asks if a project is likely to "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites."

The Project site is not located within a regionally significant wildlife linkage or corridor, including any Core Areas or MSHCP existing or proposed Linkages. Additionally, the development of the Project would not preclude the movement of wildlife through the Project site. As such, the Project would not "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors". The Project site does not contain any wildlife nursery sites.

The Project has the potential to impact active bird nests if vegetation is removed during the nesting season (February 1 to September 15). Impacts to nesting birds are prohibited by the

MBTA and California Fish and Game Code. The native birds with potential to nest on the Project site would be those that are extremely common to the region and highly adapted to human landscapes (e.g., house finch, killdeer). The number of individuals potentially affected by the Project would not significantly affect regional, let alone local populations of such species. A measure is identified in Section 6.0 of this report to avoid impacts to nesting birds.

5.7 Local Policies or Ordinances

Appendix G of the State CEQA guidelines asks if a project is likely to "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance." The Project will not conflict with any local policies or ordinances protecting biological resources.

5.8 Habitat Conservation Plans

Appendix G of the State CEQA guidelines asks if a project is likely to "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan." As discussed throughout this report, the Project is within the Western Riverside County MSHCP. Section 7.0 of this report analyzes compliance of the Project with the Reserve Assembly and species/habitat requirements of the MSHCP. Through compliance with the applicable requirements, the Project will not conflict with the provisions of the MSHCP.

5.9 Jurisdictional Waters

The Project will impact several drainage features during construction, at a maximum of 3.88 acres of direct impact. The purpose of the impacts is to re-route the flows into the proposed channel, although the general direction of flows from the southeast (starting at the San Jacinto Reservoir) to the northwest (across Ramona Expressway) will be maintained. The proposed Line E channel will be subject to flood control maintenance (vegetation management and structural repairs, as needed); however, the channel will have approximately 10.02 acres with a soft (unpaved) bottom and will function in the same or similar manner as the existing, human-altered drainage features. Nonetheless, the impacts to the existing drainage features will be considered permanent since the segments of the exact features will not be restored in the same configuration.

5.9.1 Corps Jurisdiction

No Corps jurisdiction is present within the Project site.

5.9.2 Regional Board Jurisdiction

The Project will impact 3.83 acres of Waters of the State Regional Board jurisdiction, none of which consists of wetlands. A total of 4,283 linear feet of ephemeral stream is present. Regional Board jurisdiction within the Project site is limited to Drainages A, B, C, and Drainage Area A. Because the waters are not Corps jurisdiction, the Project must process a dredge and fill permit (Waste Discharge Requirements) for impacts to Waters of the State.

5.9.3 CDFW Jurisdiction

The Project will impact 4.03 acres of CDFW jurisdiction, none of which supports riparian vegetation. A total of 4,283 linear feet of stream is present. CDFW jurisdiction within the Project site is associated with Ditches A, BD, E and F, and Drainage Area A. Impacts to CDFW jurisdiction will require a Section 1602 Streambed Alteration Agreement from CDFW.

5.10 MSHCP Riparian/Riverine Areas

The Project will impact all 4.03 acres of riverine features associated with the Project site. In each instance, the riverine areas will be replaced by the Line E drainage facilities, with the proposed channel re-routing the hydrology that will ultimately end up at the same location at the northwestern end of the Project alignment. As described above in Section 2.2, the proposed Line E channel would begin downstream of (north of) the San Jacinto Reservoir Spillway where it would extend north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue, turning west underneath Sanderson Avenue, entering the SJCCSP property. The proposed channel would then turn north and then west just before Record Road, extending west to the proposed Confluence Basin. The outflows from the proposed Confluence Basin would be conveyed north in a concrete-lined channel across Casa Loma Barrel No. 1 and outflow to an existing low-flow drainage channel, representing the terminus of the proposed Line E facilities. Impacts to MSHCP riverine areas require the approval of a DBESP by the MSHCP Wildlife Agencies. A separate DBESP Analysis will be provided to the Wildlife Agencies for compliance with *Section 6.1.2* of the MSHCP.

Table 5-2 summarizes Project impacts to MSHCP Riparian/Riverine Areas, which include 3.49 acres of permanent impacts associated with the permanent Line E facility and 0.54 acres of temporary impacts associated with construction access. For the purpose of this analysis, both permanent and temporary impacts are proposed, as described in Section 5.10, to be mitigated entirely as permanent impacts at a 2:1 ratio.

Table 5-2. Summary of MSHCP Riverine Area Impacts

Feature Name	Riverine Permanent Impacts (acres)	Riparian Temporary Impacts (acres)
Drainage Area A	2.92	0.38
Ditch A	0.23	0.03
Ditch B	0.02	0.01
Ditch D	0.01	0.10
Ditch E	0.03	0.01
Ditch F	0.28	0.01
Total	**3.49**	**0.54**

5.11 Indirect Impacts to Biological Resources

In the context of biological resources, indirect effects are those effects associated with developing areas adjacent to adjacent native open space. The MSHCP requires that projects occurring adjacent to the MSHCP Conservation Area incorporate measures pursuant to the MSHCP Urban/Wildlands Interface Guidelines (*Volume I, Section 6.1.4* of the MSHCP). These guidelines are intended to address indirect effects associated with locating projects (particularly development) in proximity to the MSHCP Conservation Area. To minimize potential edge effects, the guidelines are to be implemented in conjunction with review of individual public and private development projects in proximity to the MSHCP Conservation Area. The Project will not be located adjacent to the MSHCP Conservation Area; however, the beginning (upstream) portion of the Line E will be located adjacent to existing riparian habitat that supports sensitive species and that will be enhanced/restored as mitigation for the proposed Project. The Project will implement measures pertaining to the adjacent riparian habitat consistent with the MSHCP guidelines to address the following, as applicable.

5.11.1 Drainage

Proposed projects in proximity to the MSHCP Conservation Area shall incorporate measures, including measures required through the National Pollutant Discharge Elimination System (NPDES) requirements, to ensure that the quantity and quality of runoff discharged to the MSHCP Conservation Area is not altered in an adverse way when compared with existing conditions. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP Conservation Area. This can be accomplished using a variety of methods including natural detention basins, grass swales or mechanical trapping devices. Regular maintenance shall occur to ensure effective operations of runoff control systems.

Although the proposed riparian mitigation will not be part of the MSHCP Conservation Area, best management practices (BMPs) will still apply. As the waters exiting the San Jacinto Reservoir and the existing riparian area flow to the northwest, which will be collected into the Line E channel, the drainage will continue to the northwest, i.e., away from the riparian habitat. Therefore, the Line E Project will not drain into the riparian habitat area and will not introduce pollutants to the riparian area. Nonetheless, the Project's contractor will develop a Stormwater Pollution Prevention Plan (SWPPP) to address runoff and water quality during construction.

5.11.2 Toxics

Land uses proposed in proximity to the MSHCP Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife species, habitat or water quality shall incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. Measures such as those employed to address drainage issues shall be implemented. As noted above, since drainage

occurs from the southeast to the northwest, i.e., away from the riparian habitat area, the Project is not expected to introduce toxics to the adjacent riparian habitat area. Nonetheless, the proposed Project will implement a SWPPP that will address runoff during construction.

5.11.3 Lighting

Night lighting shall be directed away from the existing riparian habitat proposed for enhancement/restoration to protect animal species from direct night lighting. If night lighting is required during construction, shielding shall be incorporated to ensure ambient lighting in the riparian habitat area is not increased. The Project will not require night lighting after construction.

5.11.4 Noise

As described above, the southern (upstream) end of the proposed Project is adjacent to riparian habitat occupied by least Bell's vireo (and other non-listed, but sensitive riparian birds). Because of the adjacency of the proposed Project, there is a potential for temporary noise impacts during construction of the portion of the facility adjacent to the existing riparian habitat, if work were to occur while the least Bell's vireo is present. The following measure is proposed to avoid or minimize temporary edge effects to the least Bell's vireo.

- To avoid indirect impacts to least Bell's vireo (LBV), project construction and site preparation activities including but not limited to vegetation clearing and grubbing within 300 feet of LBV habitat will be conducted outside of the LBV breeding season (March 15 to September 30), if feasible. This will require that a qualified biologist oversee the establishment of a highly visible and maintained 300-foot buffer. Maintenance of the buffer will be performed weekly, but more often if needed.

  If construction activities must occur during the breeding season and have not yet already begun within the 300-foot buffer by March 15 of any given year, pre-construction surveys will commence after March 15 and will occur once a week for three consecutive weeks to confirm the presence of LBV, with the last visit no more than 3 days prior to commencement of construction activities. The preconstruction survey visits will be conducted by a qualified biologist familiar with songs, whisper songs, calls, scolds, and plumage characteristics of adult and juvenile vireos. Surveys will be conducted between dawn and 11:00 am. Surveys will not be conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather that individually or collectively may reduce the likelihood of detection. Prior to performing the preconstruction surveys, a map will be created illustrating the LBV habitat and all detections of LBV will be mapped and tracked.

  If LBV are not detected during the initial three preconstruction surveys, then weekly clearance surveys will continue following the same methodology stated above for the preconstruction surveys. Again, all detections of LBV are to be mapped with behavior tracked across detections/sightings. The qualified biologist must have experience with nesting ecology and behavior of LBV to determine pre-nesting/nesting behavior. The

MSHCP does not provide "take" of LBV which includes negatively modifying foraging and nesting behavior. If at any time it is determined by the qualified biologist that construction activities are negatively affecting LBV, including modification of behavior, work will be halted and CDFW and USFWS will be contacted on next steps. However, if LBV are not detected after a minimum of eight survey visits (three preconstruction surveys and five additional clearance surveys), then the weekly visits will cease and work within the 300-foot buffer will be allowed to continue without additional restrictions.

If construction activities within the 300-foot buffer have already begun before March 15, then the qualified biologist will simply initiate the weekly clearance surveys after March 15 while the construction activities continue, and if LBV are detected, then the additional measures will be implemented. However, if LBV are not detected after a minimum of nine clearance surveys, then as noted above, the weekly visits will cease and work within the 300-foot buffer will be allowed to continue without additional restrictions.

Daily noise monitoring will be required during the breeding season if LBV are detected at any point during preconstruction surveys or weekly clearance surveys. A qualified biological monitor must be present to measure noise levels at the edge of all suitable habitat and work shall cease if, at any time, noise levels exceed 60 dB due to construction activities, or the existing ambient level if that is over 60 dB. For areas where pre-construction ambient noise levels exceed 60 dB, pre-construction, ambient noise measurements can be taken by a qualified entity during the full daylight period (sunrise to sunset), and subsequently, the median average ambient noise level can be used as the baseline in lieu of 60 dB. For projects that need to perform nighttime construction activities the same would be done as above but with measurements taken during the full nighttime period (sunset to sunrise). Noise monitoring will continue throughout the breeding season or until construction activities have halted within 300 feet of occupied LBV habitat. CDFW and USFWS can be contacted on next steps if the project is not able to reduce the noise.

Although not proposed here, it may be prudent to construct a temporary noise wall between the construction area and the habitat to maximize avoidance of indirect effects to LBV and reduce potential for project halts. Preconstruction ambient noise levels will be taken into consideration by CDFW and USFWS when deciding whether noise attenuation measures are prudent. The preconstruction and clearance surveys will still be required to ensure full avoidance has been met by the project during the LBV breeding season unless USFWS and CDFW have confirmed in writing that such surveys are not necessary.

5.11.5 Invasive Species

Projects adjacent to the MSHCP Conservation Area shall avoid the use of invasive plant species in landscaping, including invasive, non-native plant species listed in Volume I, *Table 6-2* of the MSHCP. The Project facilities will not include any landscaping that will contain invasive species identified in MSHCP *Table 6-2*.

5.11.6 Barriers

Proposed land uses adjacent to the MSHCP Conservation Area shall incorporate barriers, where appropriate in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass or dumping in the MSHCP Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls, signage and/or other appropriate mechanisms. Although the proposed riparian restoration area will not be part of the MSHCP Conservation, since the restoration is proposed to satisfy mitigation requirements for impacts to MSHCP riverine areas, and will be preserved in perpetuity, the boundary between the Line E facility and the riparian habitat area will be managed to minimize unauthorized access. The HMMP to be provided to the Wildlife Agencies will describe fencing (or other barriers), signage, and/or other mechanisms to manage access.

5.11.7 Grading/Land Development

The MSHCP states that manufactured slopes associated with development shall not extend into the MSHCP Conservation Area. Although not part of the MSHCP Conservation Area, the Line E facilities will not encroach into the riparian habitat that will be proposed for protection via the conservation easement.

5.12 Cumulative Impacts to Biological Resources

Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered potentially significant. “Related projects” refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed project.

Anticipated cumulative impacts are addressed by the MSHCP, which, as currently adopted, addresses 146 “Covered Species” that represent a broad range of habitats and geographical areas within Western Riverside County, including threatened and endangered species and regionally or locally sensitive species that have specific habitat requirements and conservation and management needs. The MSHCP addresses biological impacts for take of Covered Species within the MSHCP area. Impacts to Covered Species and establishment and implementation of a regional conservation strategy and other measures included in the MSHCP are intended to address the federal, state, and local mitigation requirements for these species and their habitats. Specifically, Section 4.4 of the MSHCP states that:

> *The MSHCP was specifically designed to cover a large geographical area so that it would protect numerous endangered species and habitats throughout the region. It is the projected cumulative effect of future development that has required the preparation and implementation of the MSHCP to protect multiple habitats and multiple endangered species.*

As the construction of buildings, infrastructure, and all alterations of the land within areas that are outside of the Criteria Area are permitted under the MSHCP (see MSHCP Section 2.3.3),

cumulative impacts to biological resources (with the exception of MSHCP non-covered species) would be less than significant provided that the terms of the MSHCP are fully implemented (MSHCP Final EIR/EIS, Section 4.1.6). The Project would be required to pay the MSHCP mitigation fees. The MSHCP database was consulted for the proposed Project and the recommended focused surveys (rare plants, burrowing owl, least Bell's vireo, listed fairy shrimp, sensitive bats, and southwestern willow flycatcher) were conducted. The proposed Project would comply with the requirements of the MSHCP and thus would not conflict with its adopted policies.

6.0 RECOMMENDED AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

As noted above, the SJV MDP was approved in 2013 by the City of San Jacinto and in 2015 by the Riverside County Flood Control and Water Conservation District. In 2008, GLA performed a general biological resource analysis for the SJV MDP, which included some focused surveys for portions of the MDP alignments. GLA recommended measures to be applied to future studies of specific facilities, such as Line E. The following recommended measures have been developed based on the current studies for Line E, which themselves were recommended as part of the original MDP analysis. The following measures are intended to avoid or minimize impacts to sensitive resources as a result of the development of the Line E Project, as well as a mitigation measures to offset impacts to jurisdictional waters/MSHCP riverine areas.

6.1 Burrowing Owl

The Project site contains suitable habitat for burrowing owls; however, burrowing owls were not detected onsite during focused surveys. MSHCP Objective 6 for burrowing owls requires pre-construction surveys prior to site grading. As such, the following measure is recommended to avoid direct impacts to burrowing owls and to ensure consistency with the MSHCP.

- A 30-day pre-construction survey for burrowing owls is required prior to future ground-disturbing activities (e.g., vegetation clearing, clearing and grubbing, tree removal, site watering, equipment staging, etc.) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the project proponent will immediately inform the Regional Conservation Authority (RCA) and the Wildlife Agencies and will need to coordinate in the future with the RCA and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure that burrowing owl have not colonized the site since it was last disturbed. If burrowing owls are found, the same coordination described above will be necessary.

6.2 Crotch's Bumble Bee

Although CBB was not detected during focused surveys conducted in 2025, because the Project site has the potential to support CBB and absence results for CBB are only valid for one year, if CBB is still CESA-listed when Project-related disturbance is to begin at the site, then Project could potentially cause "take" of CBB individuals. The following measure includes steps to update focused CBB surveys, and if detected, to coordinate with CDFW to determine if an ITP might be required:

- If Crotch's bumble bee (CBB) is a California Endangered Species Act (CESA) Candidate or listed species when the Project is anticipated to start ground-disturbing activities, then a qualified CBB biologist (i.e., at least 1-2 years of experience performing CBB surveys, or, has a Memorandum of Understanding [MOU] with California Department of Fish and Wildlife [CDFW]) shall perform updated focused surveys for CBB. The surveys will follow the "Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species" (CDFW 2023) or subsequent document that supersedes CDFW 2023. The focused surveys will be conducted during the CBB Colony Active Period (generally April to August) but focusing on the timeframe when floral resources at the Project site area blooming when the surveys are performed. If CBB is detected at the site, then the Project proponent will coordinate with CDFW to determine whether an ITP is recommended if determined that "take" of CBB is possible. If CBB is not detected, then ground-disturbing activities can proceed without additional coordination with CBB and provided compliance with any other applicable pre-construction measures. If the ground-disturbing activities are not completed before January 31 of the following year that updated CBB surveys are conducted, then the surveys will be repeated.

6.3 Least Bell's Vireo

The following measure is designed to avoid or minimize indirect effects to least Bell's vireo during construction activities adjacent to the occupied LBV habitat:

- To avoid indirect impacts to least Bell's vireo (LBV), Project construction and site preparation activities including but not limited to vegetation clearing and grubbing within 300 feet of LBV habitat will be conducted outside of the LBV breeding season (March 15 to September 30), if feasible. This will require that a qualified biologist oversee the establishment of a highly visible and maintained 300-foot buffer. Maintenance of the buffer will be performed weekly, but more often if needed.

  If construction activities must occur during the breeding season and have not yet already begun within the 300-foot buffer by March 15 of any given year, pre-construction surveys will commence after March 15 and will occur once a week for three consecutive weeks to confirm the presence of LBV, with the last visit no more than 3 days prior to commencement of construction activities. The preconstruction survey visits will be conducted by a qualified biologist familiar with songs, whisper songs, calls, scolds, and plumage characteristics of adult and juvenile vireos. Surveys will be conducted between dawn and 11:00 am. Surveys will not be conducted during periods of excessive or

abnormal cold, heat, wind, rain, or other inclement weather that individually or collectively may reduce the likelihood of detection. Prior to performing the preconstruction surveys, a map will be created illustrating the LBV habitat and all detections of LBV will be mapped and tracked.

If LBV are not detected during the initial three preconstruction surveys, then weekly clearance surveys will continue following the same methodology stated above for the preconstruction surveys. Again, all detections of LBV are to be mapped with behavior tracked across detections/sightings. The qualified biologist must have experience with nesting ecology and behavior of LBV to determine pre-nesting/nesting behavior. The MSHCP does not provide "take" of LBV which includes negatively modifying foraging and nesting behavior. If at any time it is determined by the qualified biologist that construction activities are negatively affecting LBV, including modification of behavior, work will be halted and CDFW and USFWS will be contacted on next steps. However, if LBV are not detected after a minimum of eight survey visits (three preconstruction surveys and five additional clearance surveys), then the weekly visits will cease and work within the 300-foot buffer will be allowed to continue without additional restrictions.

If construction activities within the 300-foot buffer have already begun before March 15, then the qualified biologist will simply initiate the weekly clearance surveys after March 15 while the construction activities continue, and if LBV are detected, then the additional measures will be implemented. However, if LBV are not detected after a minimum of nine clearance surveys, then as noted above, the weekly visits will cease and work within the 300-foot buffer will be allowed to continue without additional restrictions.

Daily noise monitoring will be required during the breeding season if LBV are detected at any point during preconstruction surveys or weekly clearance surveys. A qualified biological monitor must be present to measure noise levels at the edge of all suitable habitat and work shall cease if, at any time, noise levels exceed 60 dB due to construction activities, or the existing ambient level if that is over 60 dB. For areas where pre-construction ambient noise levels exceed 60 dB, pre-construction, ambient noise measurements can be taken by a qualified entity during the full daylight period (sunrise to sunset), and subsequently, the median average ambient noise level can be used as the baseline in lieu of 60 dB. For projects that need to perform nighttime construction activities the same would be done as above but with measurements taken during the full nighttime period (sunset to sunrise). Noise monitoring will continue throughout the breeding season or until construction activities have halted within 300 feet of occupied LBV habitat. CDFW and USFWS can be contacted on next steps if the project is not able to reduce the noise.

Preconstruction ambient noise levels will be taken into consideration by CDFW and USFWS when deciding whether noise attenuation measures are prudent. The preconstruction and clearance surveys will still be required to ensure full avoidance has been met by the project during the LBV breeding season unless USFWS and CDFW have confirmed in writing that such surveys are not necessary. If daily noise levels are expected to exceed 60 dB due to construction activities, a temporary noise wall will be

constructed between the construction area and the habitat to maximize avoidance of indirect effects to LBV.

6.4 Nesting Birds

The Project site contains vegetation with the potential to support native nesting birds. As discussed above, the California Fish and Game Code prohibits mortality of native birds, including eggs. The following measure is recommended to avoid mortality to nesting birds:

- As feasible, vegetation clearing should be conducted outside of the nesting season, which is generally identified as February 1 through September 15. If avoidance of the nesting season is not feasible, then a qualified biologist shall conduct a nesting bird survey within three days prior to any disturbance of the site, including disking, demolition activities, and grading. If active nests are identified, the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

6.5 Jurisdictional Waters

As noted above, the Project will impact 3.83 acres of non-wetland waters regulated by the Regional Board and 4.03 acres of non-riparian streambed regulated by CDFW.

- Prior to impacting jurisdictional waters, the Project will obtain a Section 1602 Streambed Alteration Agreement from CDFW and will process a Waste Discharge Requirement (WDR) through the Regional Board.
- The proposed Line E channel will include at least 10.02 acres of soft-bottom channel that will function in the same or similar manner as the existing, human-altered drainage features. Although the Line E channel will be subject to flood control maintenance (vegetation management, clean out of debris, slope and bottom repairs, and access road maintenance and repair), the maintained channel will still partially mitigate impacts to the existing waters.
- The Project will additionally mitigate impacts to jurisdictional waters by restoring at a minimum 2:1 ratio over the CDFW impacts (at least 8.06 acres) lands within the existing San Jacinto River 100-year floodplain, immediately north of the Line E alignment and west of Sanderson Avenue within the City of San Jacinto. The proposed mitigation site contains alkaline soils that support a remnant alkali flora and/or that has the potential to support additional plants (including sensitive species) associated with alkali playa, meadow grassland, or other similar habitat types. A Habitat Mitigation and Monitoring Plan (HMMP) will be prepared that will detail the methods to implement the proposed restoration. The HMMP will identify the proposed plant palettes, maintenance, and monitoring efforts, and will propose success criteria.

6.6 MSHCP Riverine Areas

As noted above, the Project will impact 4.03 acres of MSHCP riverine areas, which are identical to the areas of CDFW jurisdiction.

- Prior to impacting MSHCP riverine areas, the Project will submit a DBESP Analysis to Wildlife Agencies (USFWS and CDFW) for review and approval.
- Mitigation for impacts to MSHCP riverine areas will be approved through the DBESP process.

7.0 MSHCP CONSISTENCY ANALYSIS

The purpose of this section is to provide an analysis of the proposed Project with respect to compliance with biological aspects of the Western Riverside County MSHCP. Specifically, this analysis evaluates the proposed Project with respect to the Project's consistency with MSHCP Reserve assembly requirements, *Section 6.1.2* (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), *Section 6.1.3* (Protection of Narrow Endemic Plant Species), *Section 6.1.4* (Guidelines Pertaining to the Urban/Wildlands Interface), and *Section 6.3.2* (Additional Survey Needs and Procedures).

7.1 Project Relationship to Reserve Assembly

The Project site is not in the MSHCP Criteria Area and therefore the Project is not subject to MSHCP Reserve Assembly requirements. Furthermore, Joint Project Review (JPR) will not be required.

7.2 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools

The Project will impact 0.15 acre of non-riparian riverine areas. The purpose of the Project is to re-route the flows into the proposed Line E channel, although the general direction of MSHCP non-riparian riverine flows from the southeast (starting at the San Jacinto Reservoir) to the northwest (across Ramona Expressway) will be maintained after implementation of Line E. The proposed Line E channel will be subject to flood control maintenance (vegetation management and structural repairs, as needed); however, the channel will have at least 10.02 acres with a soft (unpaved) bottom and will function in the same or similar manner as the existing, human-altered drainage features. Nonetheless, the impacts to the existing drainage features will be considered permanent since the segments of the exact features will not be restored in the same configuration. Mitigation for impacts to MSHCP riverine areas will be approved through the DBESP process.

Approximately 1,670 smooth tarplant individuals were documented as occurring within portions of the Project site that support MSHCP Riparian/Riverine resources [Exhibit 7 – MSHCP Riverine Areas]. Smooth tarplant is a species identified by MSHCP Section 6.1.2 as being associated with MSHCP Riparian/Riverine resources. Therefore, these approximately 1,670 smooth tarplant individuals are considered as an MSHCP Riparian/Riverine resource in the context of the Project, occupying a total of approximately 0.50 acre occurring throughout Ditches A and D and Drainage Area A. Smooth tarplant seeds will be incorporated into the plant palette for the proposed restoration area. The Project's HMMP will also further detail the

incorporation of smooth tarplant in the plant palette and will identify success criteria for smooth tarplant.

The Project has the potential to indirectly effect least Bell's vireo within the riparian habitat located adjacent to the southern (upstream) end of the Project alignment due to construction noise. The measure proposed above in Section 6.3 is designed to avoid or minimize indirect effects to least Bell's vireo.

The Project will not impact any vernal pools, nor will the Project impact listed fairy shrimp.

7.3 Protection of Narrow Endemic Plants

Volume I, Section 6.1.3 of the MSHCP requires that within identified Narrow Endemic Plant Species Survey Areas (NEPSSA), site-specific focused surveys for Narrow Endemic Plants Species will be required for all public and private projects where appropriate soils and habitat are present.

Most of the Project site is located within the MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA) [Exhibit 4B], except for approximately 3,000 linear feet of the Project alignment corresponding with the northeastern corner of the SJCCSP property. No NEPSSA plant species were detected during the focused surveys, and therefore the Project will not impact Narrow Endemic Plants.

7.4 Guidelines Pertaining to the Urban/Wildland Interface

The MSHCP Urban/Wildland Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area. As the MSHCP Conservation Area is assembled, development is expected to occur adjacent to the Conservation Area. Future development in proximity to the MSHCP Conservation Area may result in edge effects with the potential to adversely affect biological resources within the Conservation Area.

As described above, the Project will not be located adjacent to the MSHCP Conservation Area; however, the beginning (upstream) portion of the Line E will be located adjacent to existing riparian habitat that supports sensitive species and that will be enhanced/restored as mitigation for the proposed Project. Section 5.10 describes measures that will be implemented relative to the adjacent riparian habitat consistent with the MSHCP guidelines.

7.5 Additional Survey Needs and Procedures

The proposed Project site occurs within the burrowing owl survey area but does not occur within the amphibian or mammal survey areas, or within the CAPSSA. Focused burrowing owl surveys were conducted for the proposed Project site, and no burrowing owls were detected. As indicated in Section 6.1 of this report, preconstruction burrowing owl surveys shall be conducted within 30 days of site disturbance in compliance with MSHCP requirements.

7.6 Conclusion of MSHCP Consistency

As outlined above, the proposed Project will be consistent with the biological requirements of the MSHCP; specifically pertaining to the Project's relationship to reserve assembly, *Section 6.1.2* (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), *Section 6.1.3* (Protection of Narrow Endemic Plant Species), *Section 6.1.4* (Guidelines Pertaining to the Urban/Wildlands Interface), and *Section 6.3.2* (Additional Survey Needs and Procedures).

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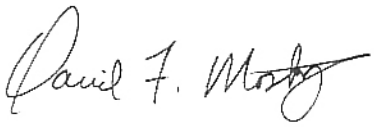
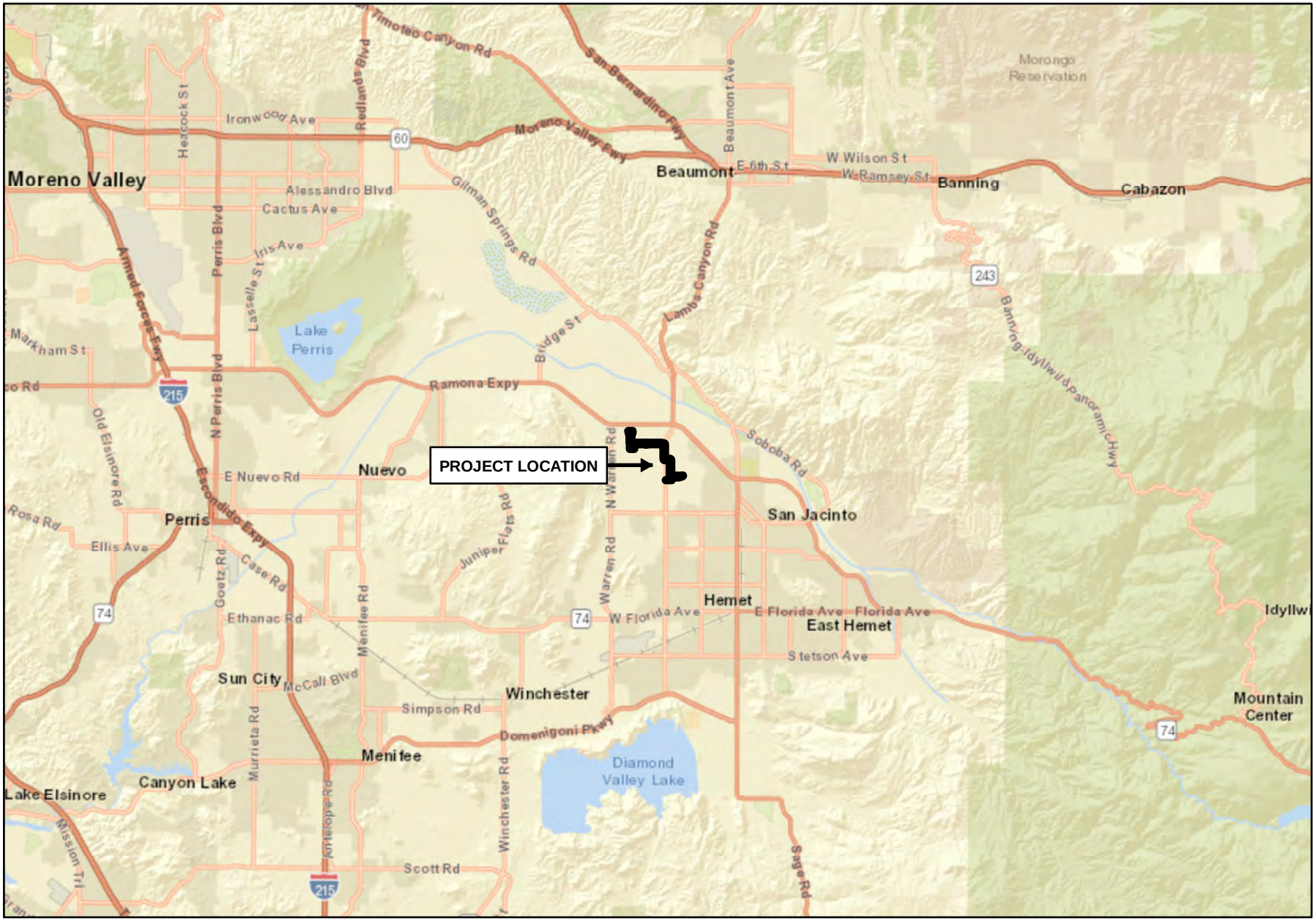
9.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.



Signed:_____ Date: 03/09/26

P:0640-68b.biotech



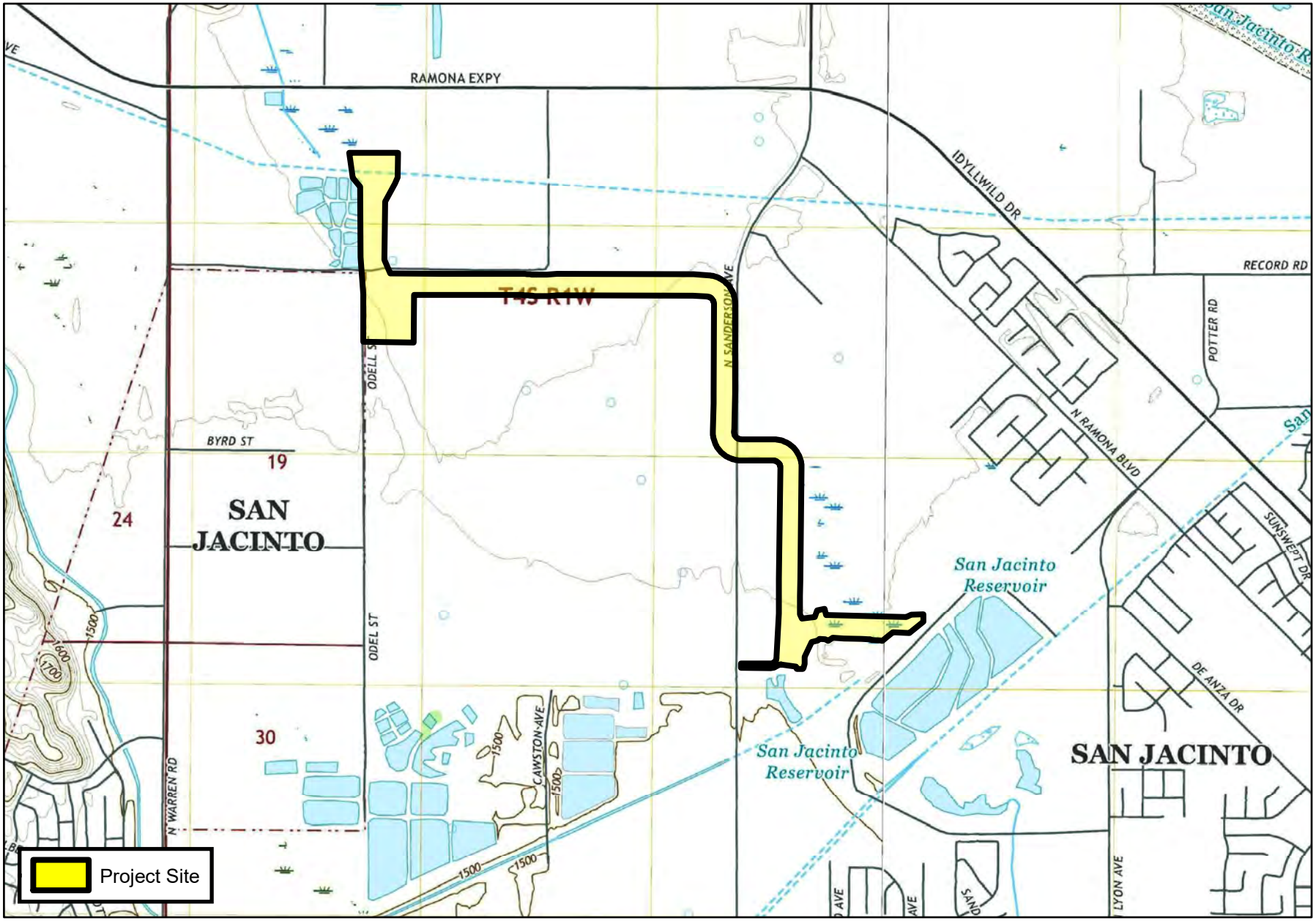
Source: ESRI World Street Map

MDP LINE E PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Lakeview & San Jacinto, CA quadrangles

N

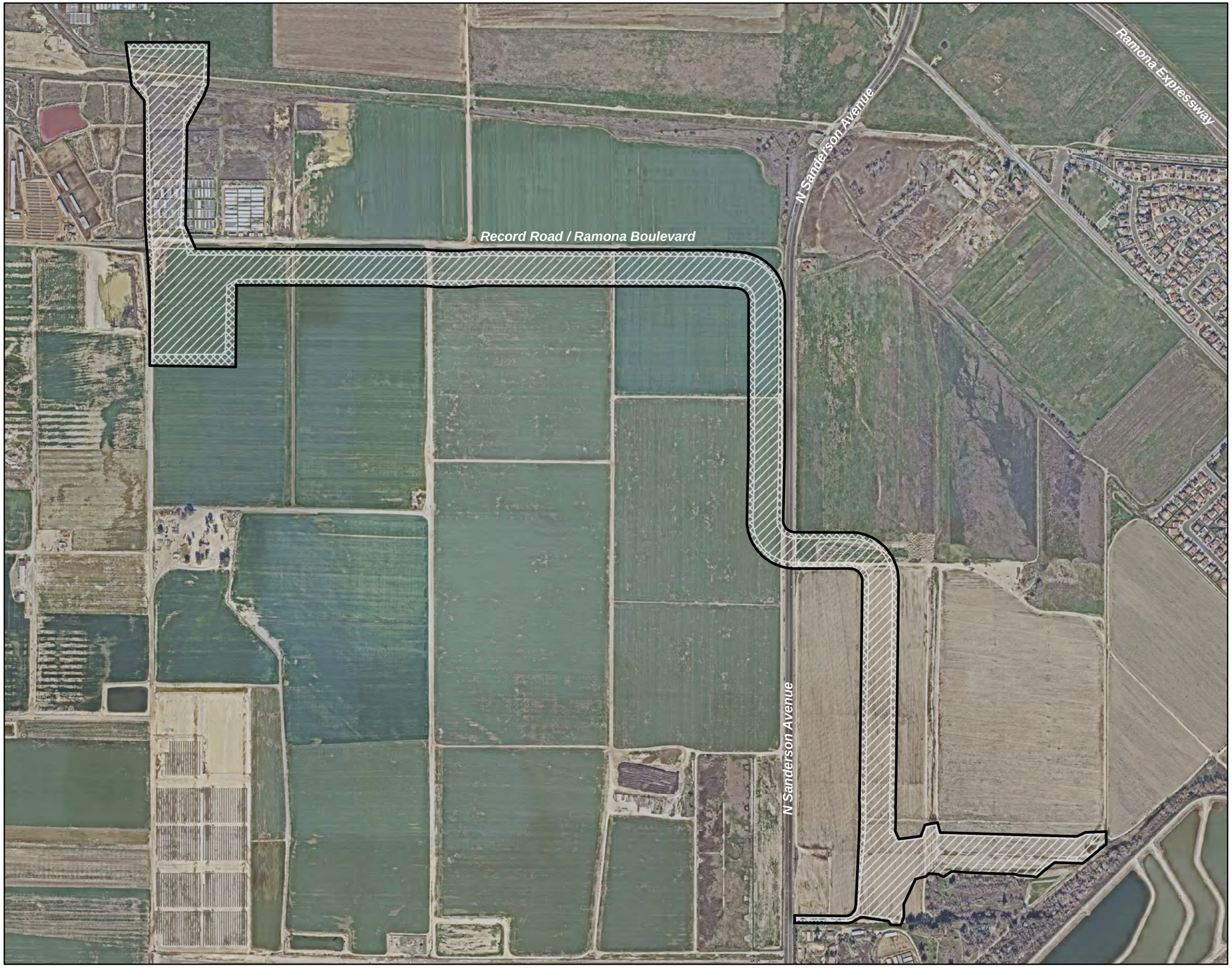
0 1,000 2,000 4,000 Feet

MDP LINE E PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project Site

Permanent Impact

Temporary Impact

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

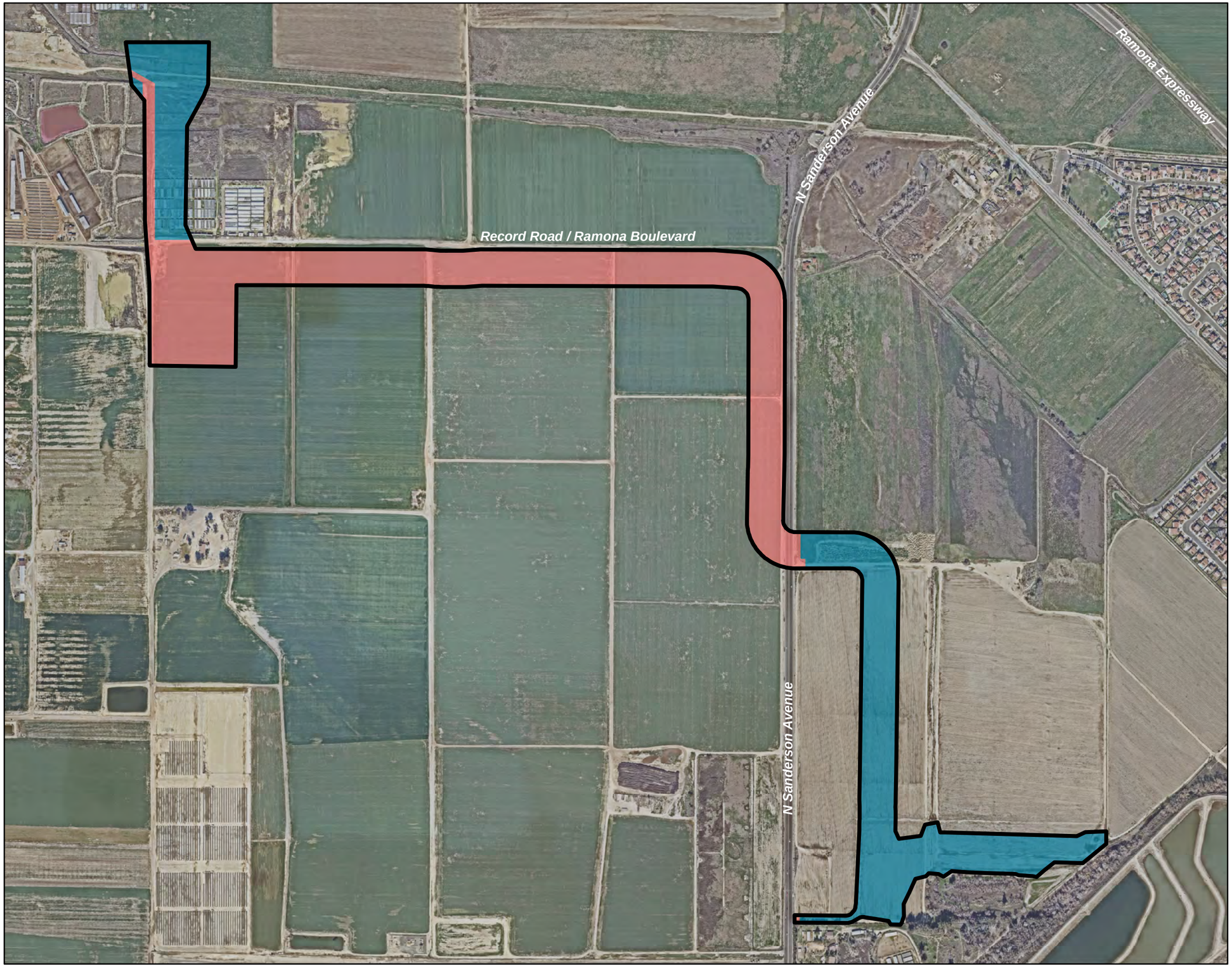
MDP LINE E PROJECT

Aerial Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

X:\0363-THE REST\0640-86MDPE\GIS\0640-86+84_Aerial.mxd



Project Site

2022 / 2023 Survey Area

2024 / 2025 Survey Area

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: January 30, 2026

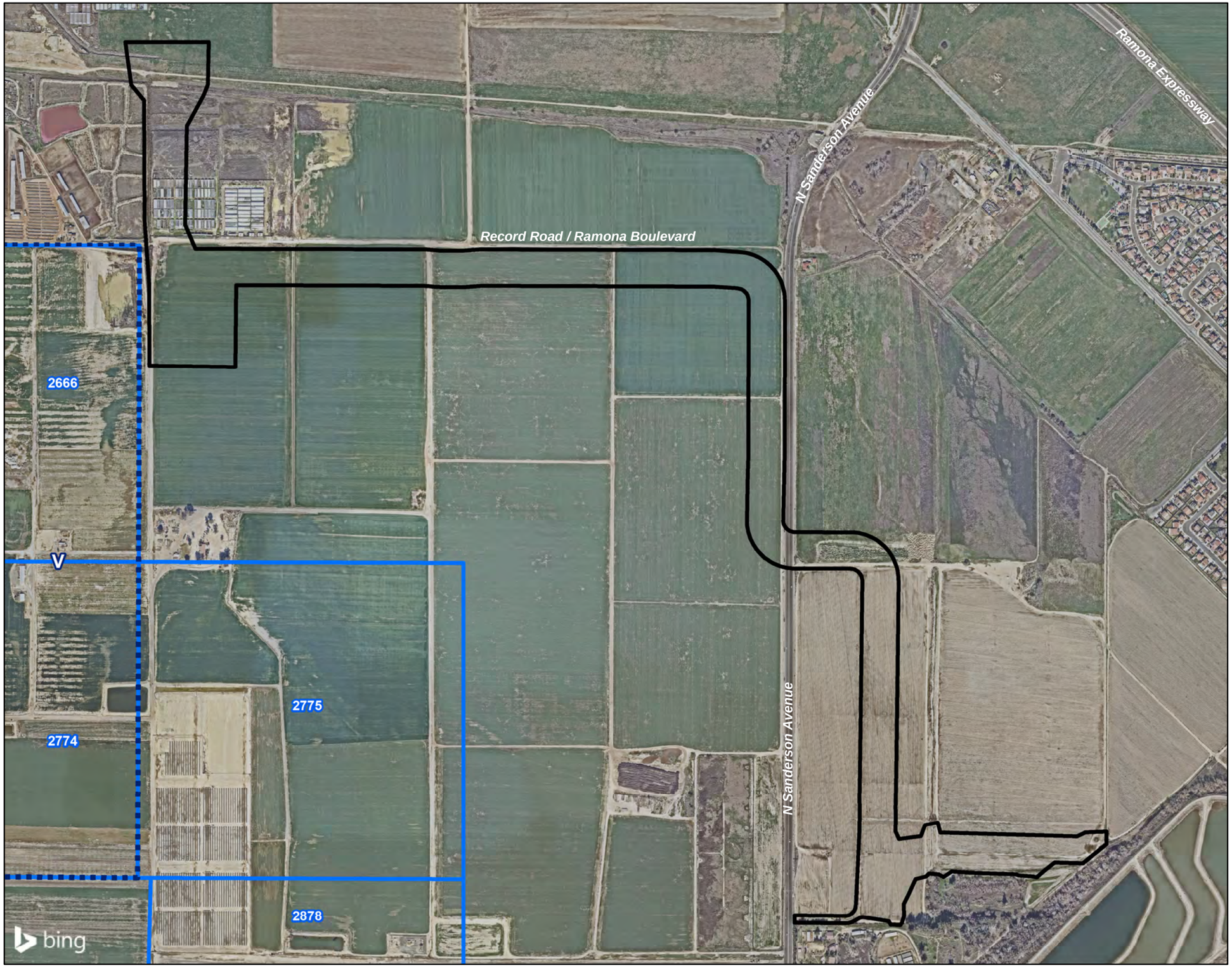
MDP LINE E PROJECT

Survey Areas

GLENN LUKOS ASSOCIATES

Exhibit 3B

X:\0363-THE REST\0640-86MDPE\GIS\0640-86+84_SurveyAreas.mxd



Project Site

Cell Group

Criteria Cell

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

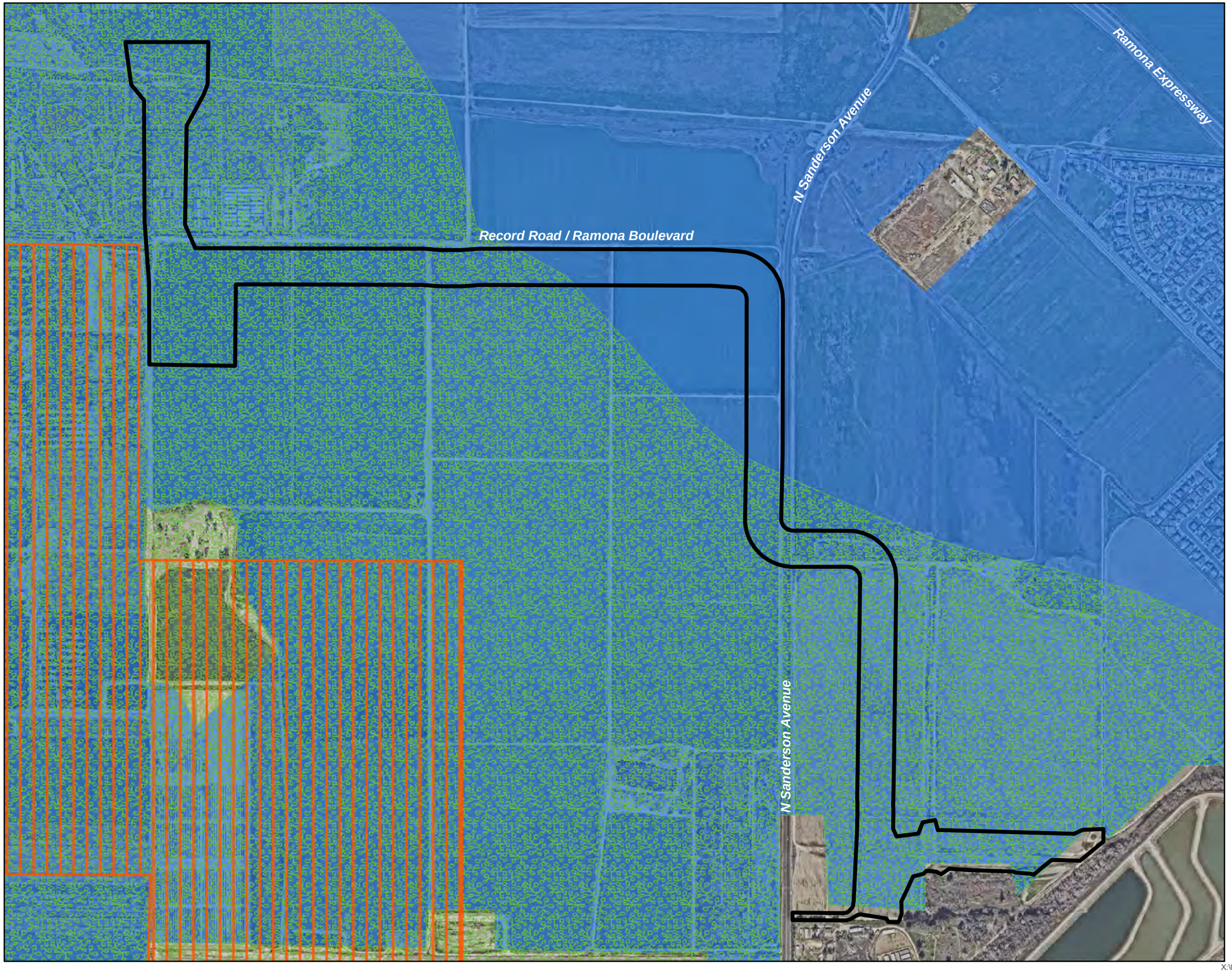
MDP LINE E PROJECT

MSHCP Overlay Map

GLENN LUKOS ASSOCIATES

Exhibit 4A

X:\0363-THE REST\0640-86MDPE\GIS\MSHCP_GIS\0640-86_MSHCPOverlay.mxd



Project Site

Burrowing Owl Survey Area

Criteria Area Species Survey Area

Narrow Endemic Plant Species Survey Areas

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

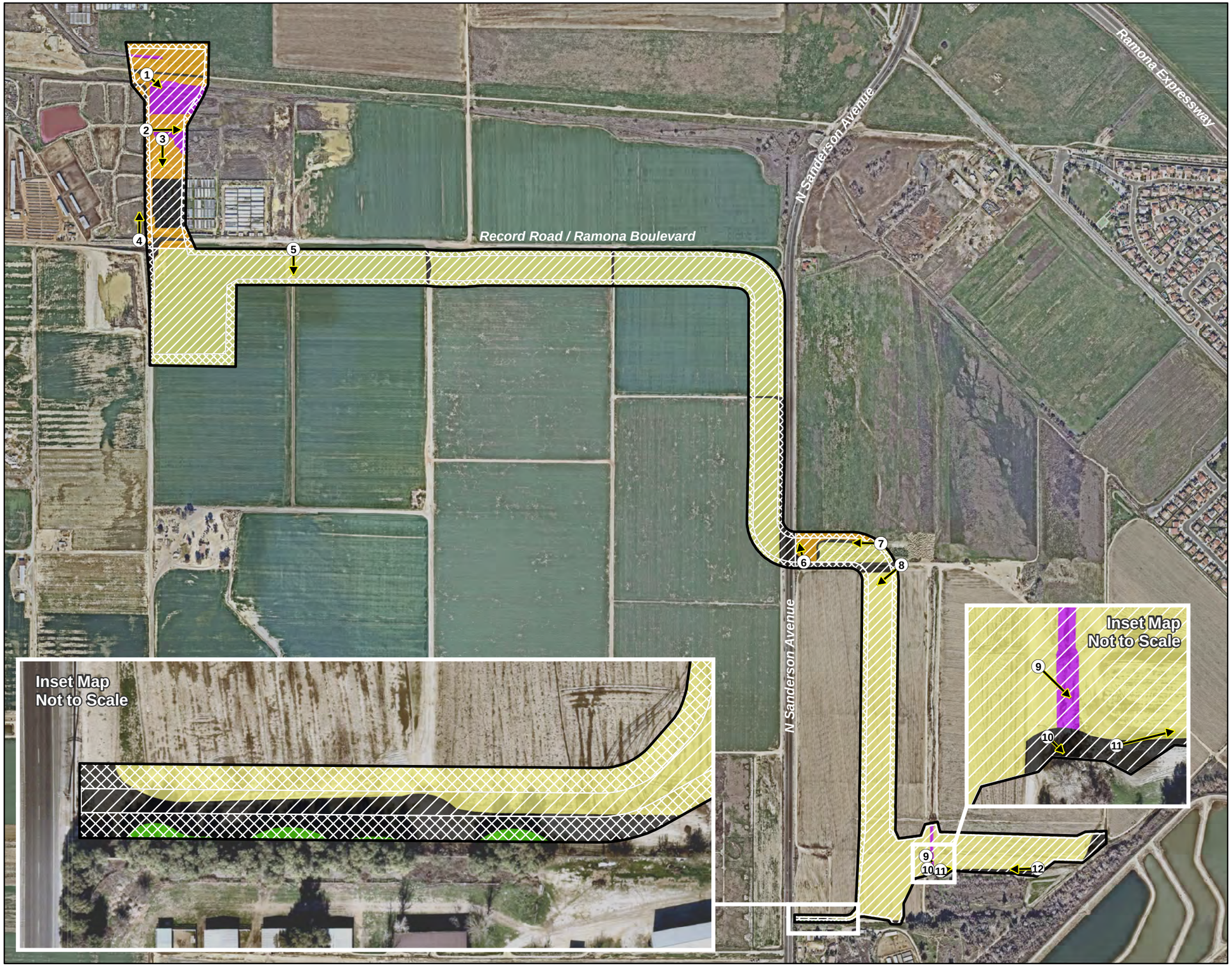
MDP LINE E PROJECT

MSHCP Survey Areas Map

GLENN LUKOS ASSOCIATES

Exhibit 4B

X:\0363-THE REST\0640-86MDPE\GIS\MSHCP_GIS\0640-86_MSHCPSurveyAreas.mxd



Project Site

Permanent Impact

Temporary Impact

Disturbed Agricultural Areas
(Agricultural Fields)

Bromus hordeaceus
Herbaceous Semi-Natural Alliance
(Annual Brome Grasslands)

Disturbed/Developed Areas
(Disturbed and Developed Areas)

Lepidium latifolium – Lactuca serriola
Herbaceous Semi-Natural Alliance
(Perennial Pepper Weed –
Prickly Lettuce Patches)

Eucalyptus globulus
Woodland Semi-Natural Alliance
(Eucalyptus Groves)

(#) → Photo Location

N

0 400 800 1,600
Feet

1 inch = 800 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 24, 2024

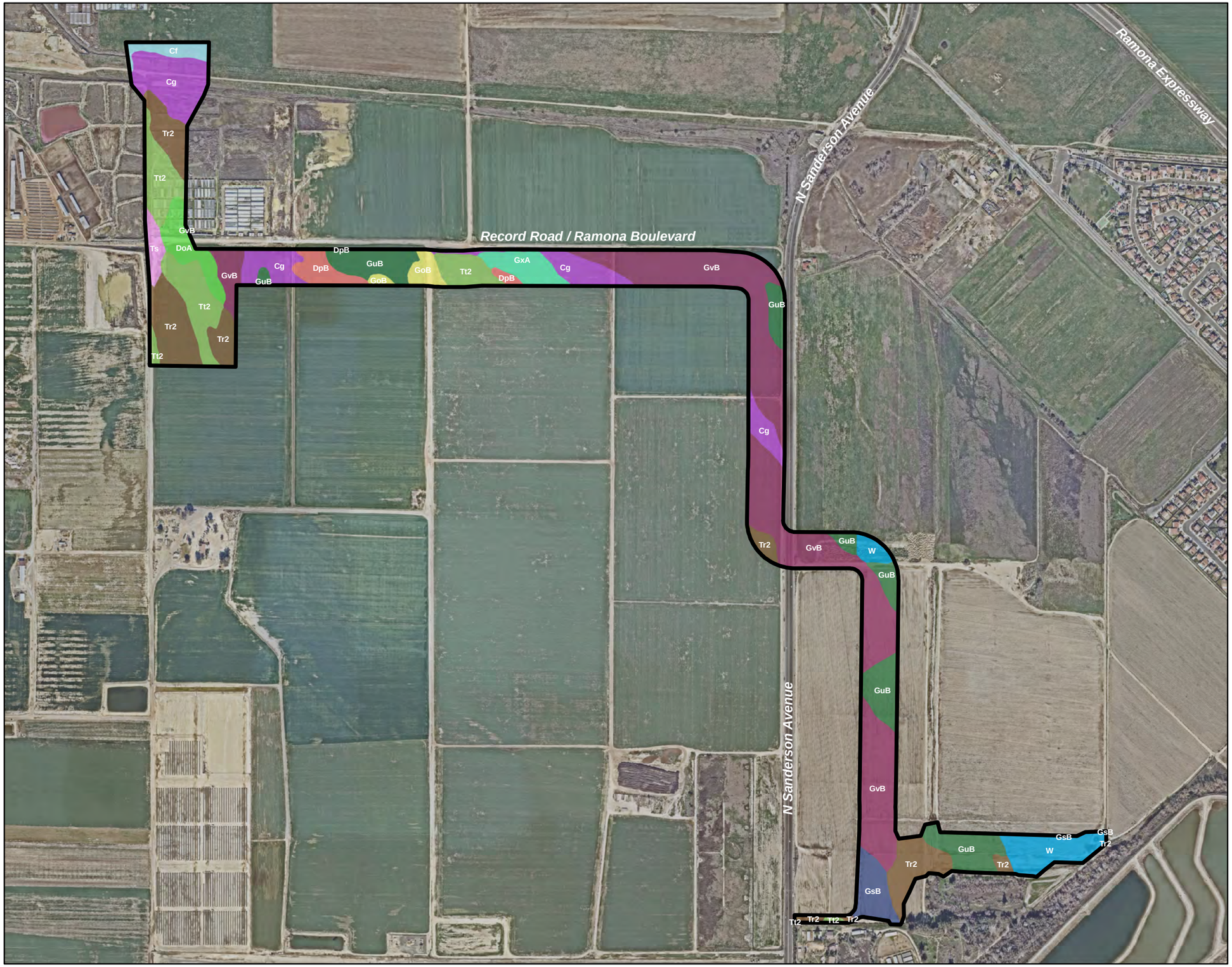
MDP LINE E PROJECT

Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\0363-THE REST\0640-86MDPE\GIS\VegetationGIS\0640-86+84_Vegetation_wPhotos.mxd



Project Site

Cf	Chino silt loam, drained, saline-alkali
Cg	Chino silt loam, drained, strongly saline-alkali
DoA	Dello loamy fine sand, 0 to 2 percent slopes
DpB	Dello loamy fine sand, saline-alkali, 0 to 5 percent slopes
GoB	Grangeville loamy fine sand, drained, 0 to 5 percent slopes
GsB	Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
GuB	Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
GvB	Grangeville fine sandy loam, saline-alkali, 0 to 5 percent slopes
GxA	Grangeville fine sandy loam, loamy substratum, drained, saline-alkali, 0 to 2 percent slopes
Tr2	Traver loamy fine sand, saline-alkali, eroded
Ts	Traver fine sandy loam, saline-alkali
Tt2	Traver fine sandy loam, strongly saline-alkali, eroded
W	Water

0 400 800 1,600

Feet

1 inch = 800 feet

N

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Soils Map

GLENN LUKOS ASSOCIATES

Exhibit 6

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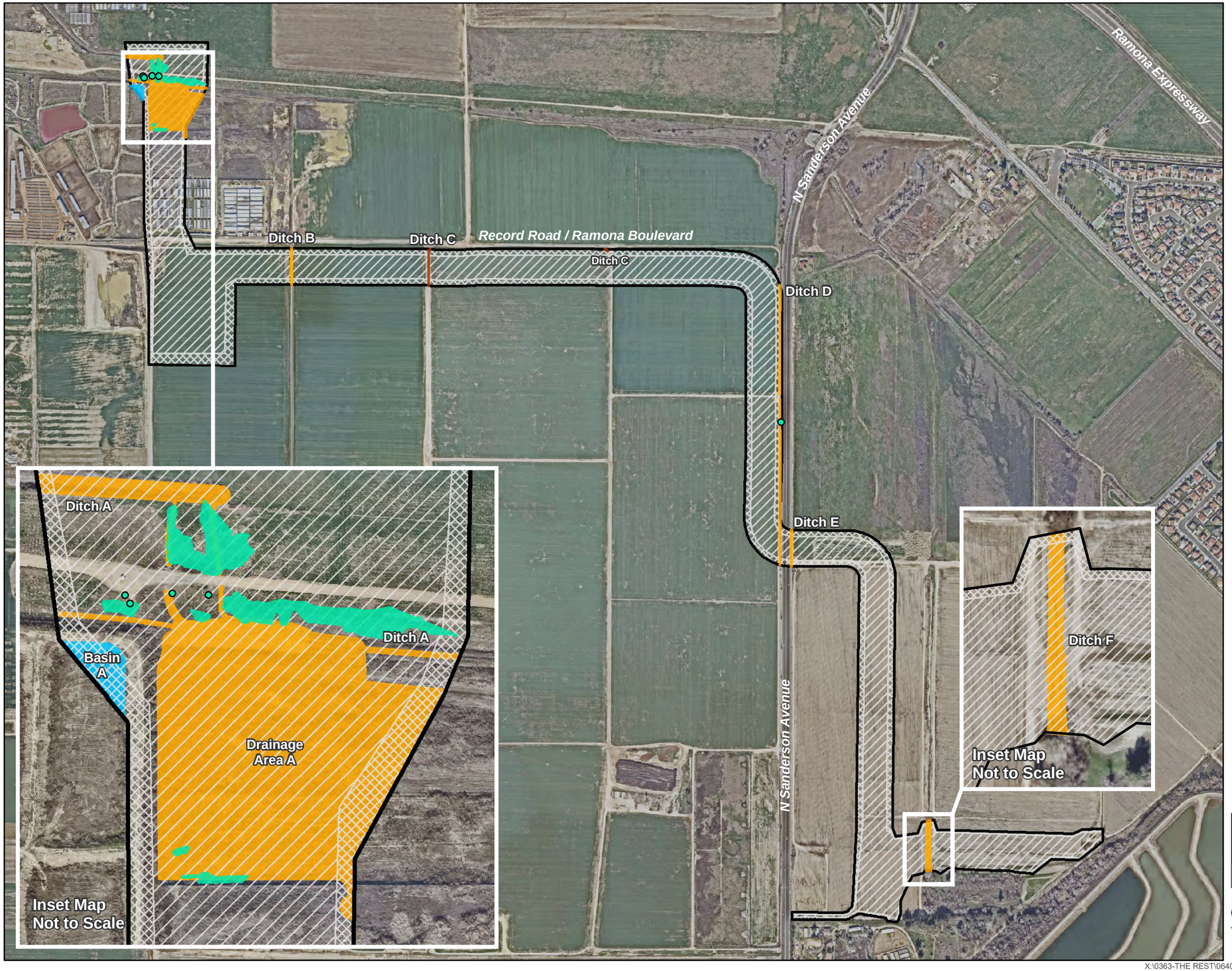


Project Site

Permanent Impact

Temporary Impact

MSHCP Riverine

Agricultural Ditch (Non-Riparian/Riverine)

Basin (Non-Riparian/Riverine)

Smooth Tarplant

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 17, 2025

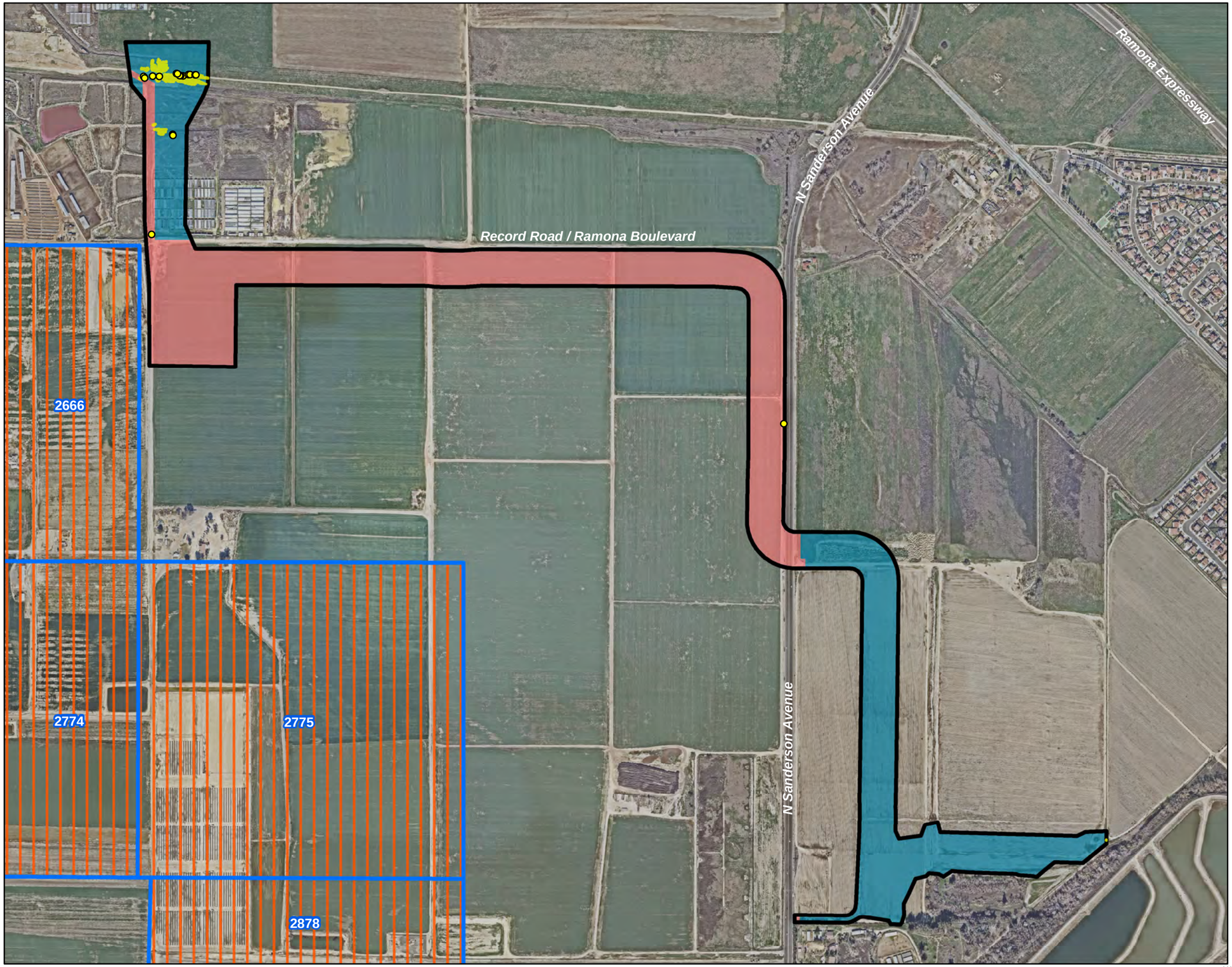
MDP LINE E PROJECT

MSHCP Riverine Areas

GLENN LUKOS ASSOCIATES

Exhibit 7

X:\0363-THE REST\0640-86MDPE\GIS\DelineationGIS\REV1\0640-86+84_JD_MSHCP_REV1_noPhotos.mxd



Project Site

2022 / 2023 Survey Area

2024 Survey Area

Smooth Tarplant

Criteria Cell

Criteria Area
Species Survey Area

N

0 400 800 1,600
Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Smooth Tarplant Location Map

GLENN LUKOS ASSOCIATES

Exhibit 8

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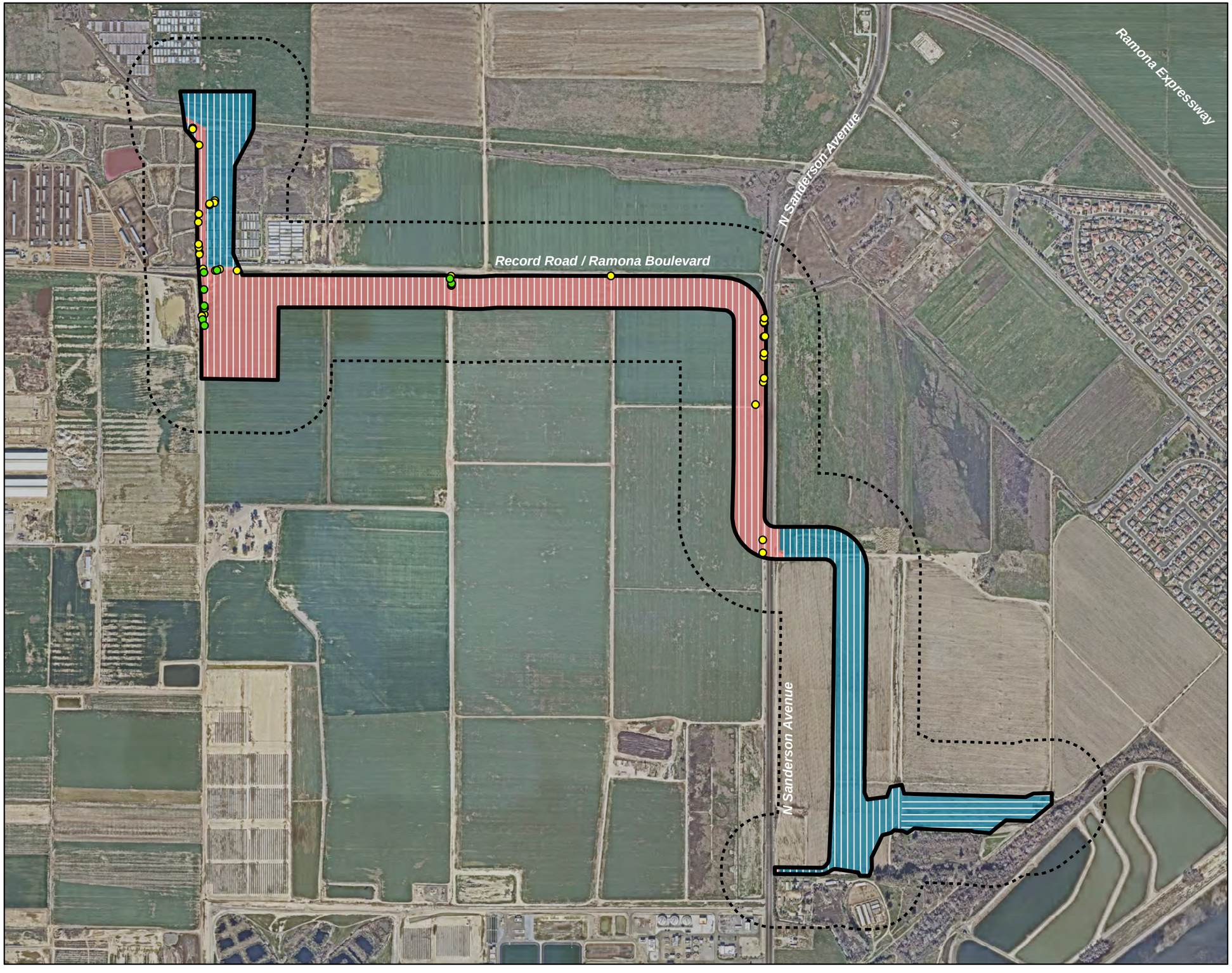


Project Site

2022 / 2023 Survey Area

2024 Survey Area

500' Visual Survey Buffer

Burrowing Owl Transect

Burrow

Burrow Complex

N

0 450 900 1,800

Feet

1 inch = 900 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Burrowing Owl Survey Map

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\0363-THE REST\0640-86MDPE\GIS\BUOW_GIS\0640-86+84_BUOW.mxd



Photograph 1: View of Drainage Area A located in the northwestern portion of the Project site, east of an unnamed dirt access road that lies adjacent to ponding areas. Photograph taken June 27, 2024.



Photograph 2: View looking east from northwestern portion of Project site at both ponded and non ponded areas in Drainage Area A . Photograph taken August 6, 2024.



Photograph 3: View looking south in Drainage Area A from the fence depicted in Photograph 2 and at former commercial facilities in the background. Photograph taken August 6, 2024.



Photograph 4: View looking north within the northwestern portion of the Project site along an earthen berm located between basins and a former commercial facility. Photograph taken September 20, 2024.



Photograph 5: View of Drainage B looking south from the northern Project site boundary along a dirt access road. Photograph taken September 20, 2024.



Photograph 6: View looking from a dirt access road, north at a fallow field located adjacent to Sanderson Avenue. Photograph taken August 6, 2024.



Photograph 7: View looking west at agricultural area located near the southern Project site boundary. Photograph taken August 6, 2024.



Photograph 8: View looking southwest at an agricultural area located near the southern Project site boundary. Photograph taken August 6, 2024.



Photograph 9: View of Drainage C looking southeast from a dirt access road near the southern Project site boundary. Photograph taken August 6, 2024.



Photograph 10: View of Drainage C looking southeast from a dirt access road near the southern Project site boundary. Photograph taken August 6, 2024.

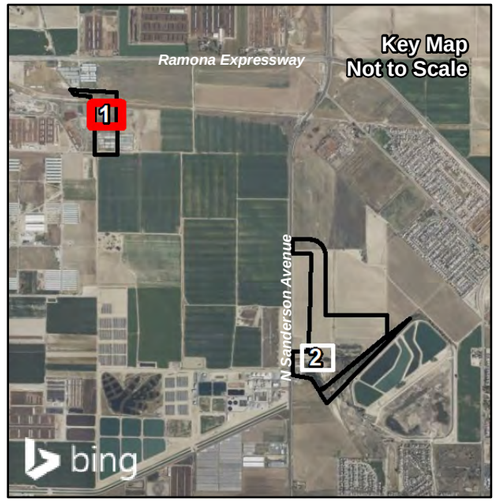


Photograph 11: View looking east at agricultural areas near the southern Project site boundary. Photograph taken August 6, 2024.



Photograph 12: View looking west at agricultural areas near the southern Project site boundary. Photograph taken August 6, 2024.





Fairy Shrimp Survey Area

Ponded Feature

N

0 35 70 140

Feet

1 inch = 70 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 24, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 1

X:\0363-THE REST\0640-86MDPE\GIS\FairyShrimpGIS\0640-86_FSSurveyResults.mxd





Fairy Shrimp Survey Area

Ponded Feature

N

0 35 70 140

Feet

1 inch = 70 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 16, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 2

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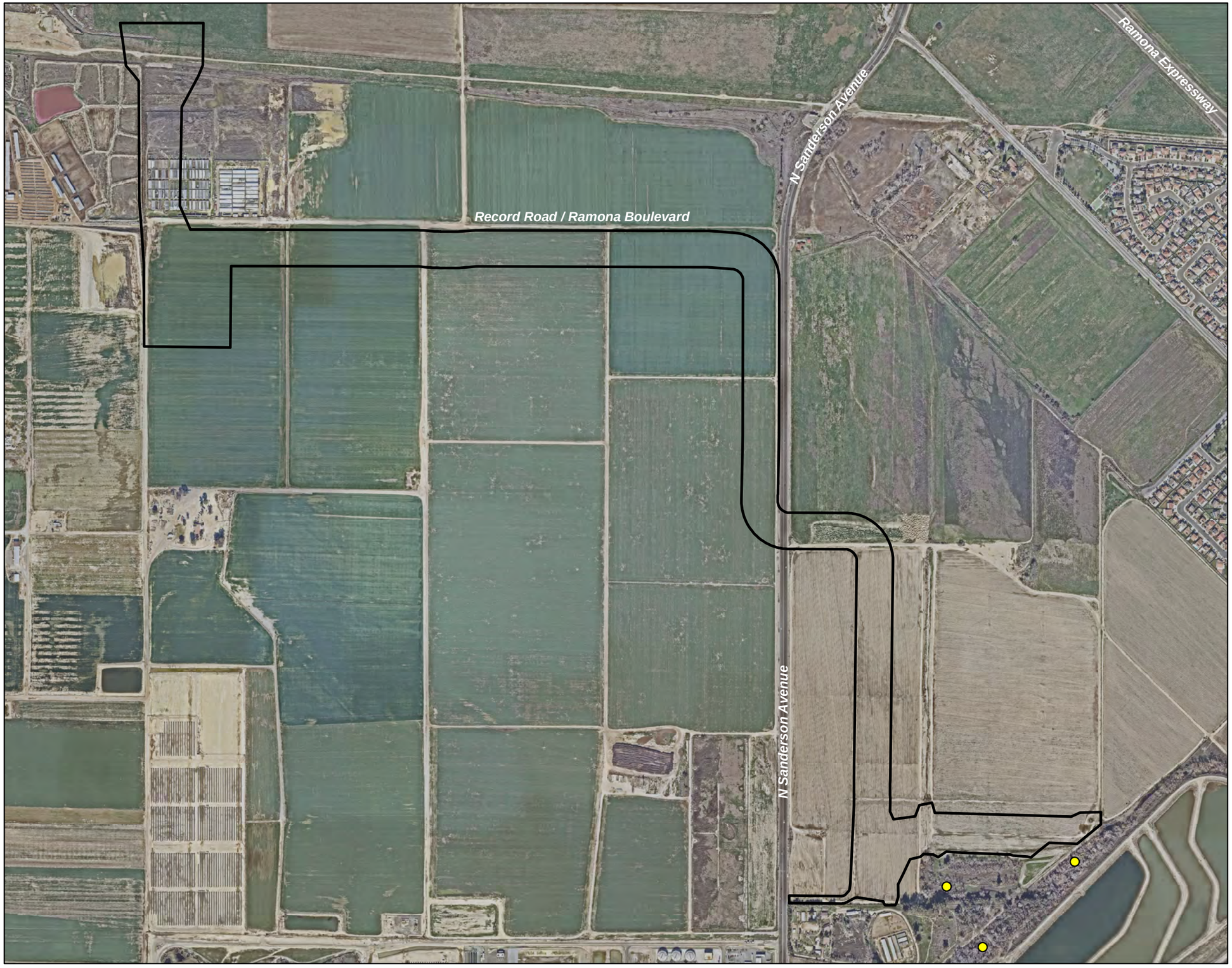

Project Site

LBV Territory

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Least Bell's Vireo Survey Results

GLENN LUKOS ASSOCIATES

Exhibit 12

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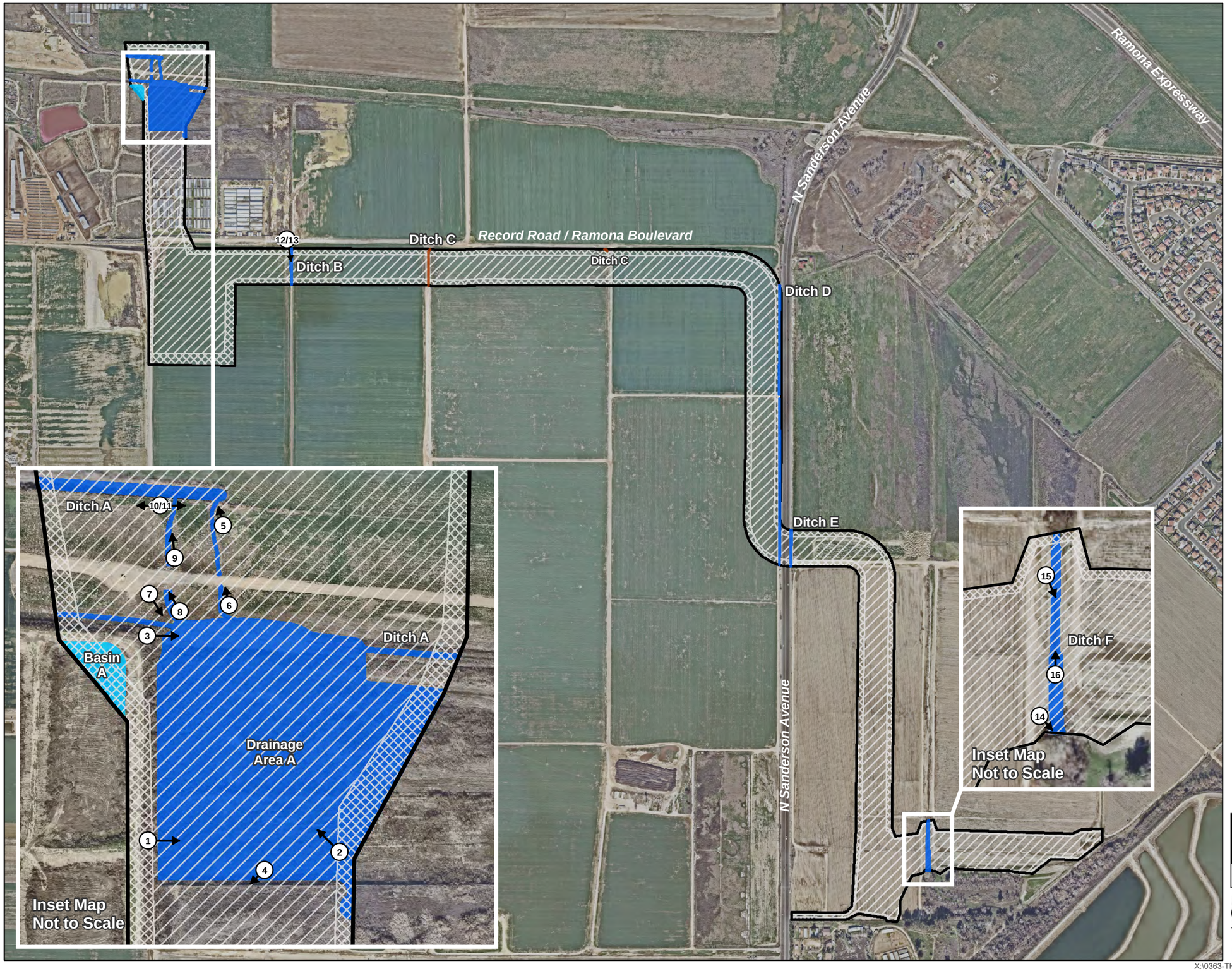


Project Site

Permanent Impact

Temporary Impact

RWQCB Non-Wetland Waters of the State

Agricultural Ditch (Non-Jurisdictional)

Basin (Non-Jurisdictional)

#→ Photo Location

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: February 3, 2026

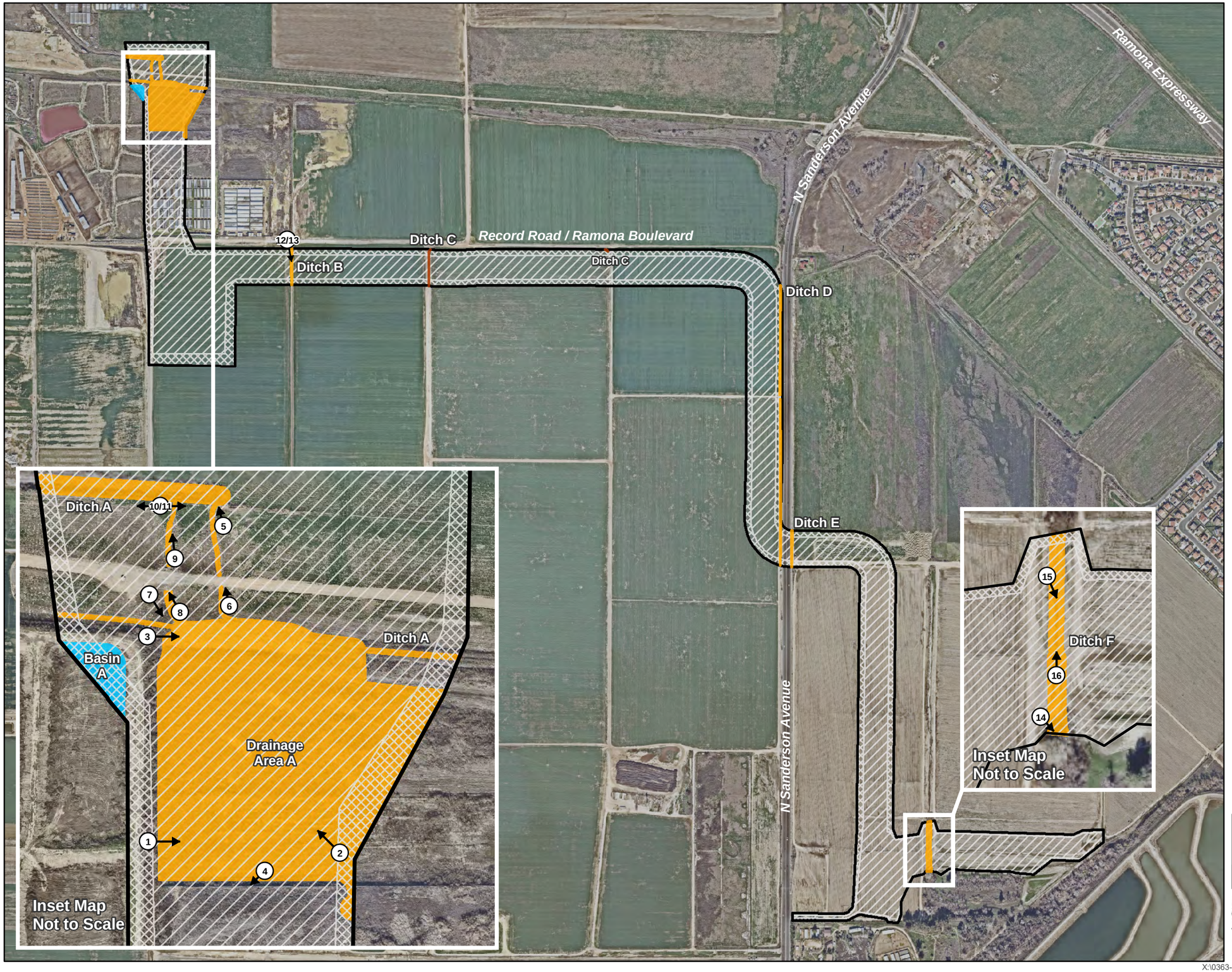
MDP LINE E PROJECT

RWQCB Jurisdictional Delineation Map

GLENN LUKOS ASSOCIATES

Exhibit 13A

X:\0363-THE REST\0640-86MDPE\GIS\DelineationGIS\REV1\0640-86+84_RWQCB_REV1.mxd



Project Site

Permanent Impact

Temporary Impact

CDFW Non-Riparian Stream

Agricultural Ditch (Non-Jurisdictional)

Basin (Non-Jurisdictional)

#→ Photo Location

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: February 3, 2026

MDP LINE E PROJECT

CDFW Jurisdictional Delineation Map

GLENN LUKOS ASSOCIATES

Exhibit 13B

X:\0363-THE REST\0640-86MDPE\GIS\DelineationGIS\REV1\0640-86+84_CDFW_REV1.mxd

Appendices A-J will be available upon request at the City of San Jacinto.

Determination of Biologically Equivalent or Superior Preservation (DBESP) Analysis

For Impacts to MSHCP Riparian/Riverine Areas

San Jacinto Valley Master Drainage Plan Line E

Permittee:

City of San Jacinto

Prepared For:

Shea Properties
50 California Street, Suite 1544
San Francisco, California 94111
Contact: Landon Browning
Phone: (415) 806-4705
Email: Landon.Browning@sheaproperties.com

Prepared By:

Glenn Lukos Associates, Inc.
1940 E Deere Avenue, Suite 250
Santa Ana, California 92705
Contact: David Moskovitz
Phone: (949) 340-2562
Email: dmoskovitz@wetlandpermitting.com

January 28, 2025
[Revised January 20, 2026]

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Exhibit 6 Soils Map
Exhibit 7 MSHCP Riverine Areas
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Exhibit 10 Site Photographs
Exhibit 11 Fairy Shrimp Survey Results Map
Exhibit 12 Least Bell's Vireo Survey Results

APPENDICES

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Appendix B Faunal Compendium
Appendix C Preliminary Design Report for Line E
Appendix D 2021/2022 Wet Season Fairy Shrimp Report
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1.0 EXECUTIVE SUMMARY

This document provides an analysis in support of a Determination of Biologically Equivalent or Superior Preservation (DBESP) for the San Jacinto Valley Master Drainage Plan Line E Project (the Project) located in the City of San Jacinto, Riverside County, California, in regard to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) requirements for *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (MSHCP Volume I, Section 6.1.2)*. The Project area evaluated is approximately 120 acres.

This document has been prepared following the MSHCP DBESP Report Template created by the Western Riverside County Regional Conservation Authority (RCA), to demonstrate that with the appropriate mitigation, the Project will represent a "biologically equivalent or superior" alternative to avoidance. This document summarizes the findings of general biological surveys, habitat assessments, and vegetation mapping, as they relate to riparian and vernal pool resources, and species with MSHCP survey requirements.

The proposed Project (Line E) is an implementing project of the San Jacinto Valley Master Drainage Plan (SJV MDP). The SJV MDP was prepared and approved in 2013 by the City of San Jacinto and Riverside County Flood Control and Water Conservation District. Facilities associated with the Line E Project include a channel, basin, training berms, and access roads. The Project is a planned regional drainage facility that would provide a service to an approximately 1,870-acre tributary area.

The proposed Project, through grading and reconfiguration, will impact 4.03 acres of existing riverine areas consisting of ditches within agricultural areas. These include five ditch segments, Ditch A (0.26 acre), Ditch B (0.03 acre), Ditch D (0.11 acre), Ditch E (0.04 acre), Ditch F (0.29 acre), and an area between Drainages A and B, referred to as Drainage Area A (3.30 acres) where, due to constructed berms, flood waters from cumulative rain events spread into a broad inundation area. None of these areas contain riparian vegetation; however, Ditches A and D and Drainage Area A support smooth tarplant (*Centromadia pungens* ssp. *laevis*), a MSHCP *Section 6.1.2* species. Functionally, these drainage features convey water that ultimately connects downstream (north) to the San Jacinto River, nearly three miles offsite from the terminus of the Project. The proposed channel will contain approximately 8.50 acres of earthen streambed that will provide the same functions of the drainage features to be impacted, but at a larger scale. As such, the proposed Project will be biologically equivalent or superior to the existing drainage conditions as it pertains to the hydrologic functions.

The Project site does not support least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), or western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). However, the Project site is adjacent to riparian habitat where focused surveys were conducted for least Bell's vireo and southwestern willow

flycatcher in order to evaluate indirect impacts. Vireos were detected in the adjacent riparian habitat, but the flycatcher was absent. The adjacent riparian habitat does not have the potential to support western yellow-billed cuckoo. This DBESP includes measures to avoid indirect noise effects to least Bell's vireo if construction of the southern end of the Project alignment would occur while vireos are present in the adjacent habitat.

The Project site does not contain vernal pools or listed fairy shrimp. Focused wet and dry season fairy shrimp surveys were conducted for several seasonally inundated features within the Project site, and no listed fairy shrimp were detected. Furthermore, the seasonally inundated areas did not exhibit the three parameters for a wetland, and therefore are not considered as MSHCP vernal pools pursuant to the MSHCP.

Volume I, Section 6.1.3 of the MSHCP requires that within identified Narrow Endemic Plant Species Survey Areas (NEPSSA), site-specific focused surveys for Narrow Endemic Plants Species are conducted for all public and private projects where appropriate soils and habitat are present. The majority of the Project site is within the NEPSSA. To satisfy MSHCP survey requirements, focused plant surveys were performed on the Project site, including for the following target Narrow Endemic Plant species:

- Munz's onion (*Allium munzii*)
- San Diego ambrosia (*Ambrosia pumila*)
- Slender-horned spineflower (*Dodecahema leptoceras*)
- Many-stemmed dudleya (*Dudleya multicaulis*)
- Spreading navarretia (*Navarretia fossalis*)
- California Orcutt grass (*Orcuttia californica*)
- Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*).

None of the NEPSSA plant species were detected during focused surveys and were determined absent from the site.

Volume I, Section 6.3.2 of the MSHCP requires that within identified Criteria Area Plant Species Survey Areas (CAPSSA), site-specific focused surveys for Criteria Area Plant Species are conducted for all public and private projects where appropriate soils and habitat are present. The Project site is not in the CAPSSA and therefore focused surveys are not required for CAPSSA plants. Smooth tarplant was detected during plant surveys; however, because the Project site is not in the CAPSSA, then impacts to smooth tarplant are covered without project-specific avoidance or mitigation requirements. A proportion of the smooth tarplant individuals are associated with the Riparian/Riverine Resources, and mitigation proposed to address impacts to Riparian/Riverine Areas pursuant to MSHCP *Section 6.1.2* will incorporate smooth tarplant.

The Project site is within the MSHCP burrowing owl survey area. To comply with MSHCP survey requirements pursuant to *Volume I, Section 6.3.2*, focused burrowing owl surveys were performed for the Project site. Burrowing owls were confirmed absent from the site. However, because of the potential suitability to support burrowing owls, consistent with the MSHCP burrowing owl survey guidelines and MSHCP objectives for the burrowing owls, pre-construction surveys will be conducted no more than 30 days prior to ground disturbance within all areas of suitable habitat.

2.0 INTRODUCTION

2.1 Project Area

The San Jacinto Valley Master Drainage Plan (SJV MDP) Line E Project (the Project) consists of an approximately 14,000-linear-foot drainage alignment covering approximately 120.33 acres. The Project site is in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map], depicted on the U.S. Geological Survey (USGS) Lakeview, California 7.5" topographic quadrangle map [Exhibit 2 – Vicinity Map]. The Project is within Sections 29, 20, 19, 18, Township 4 South, Range 1 West. The Project is comprised of Assessor Parcel Numbers (APNs) 430-100-013, 430-100-002, 430-100-009, 430-010-012, 430-100-018, 432-030-006, 432-030-012, 432-030-010, 436-010-003, 436-030-004 and 436-170-001. The entire Project site is outside the MSHCP Criteria Area.

The Project is approximately 120.33 acres. Approximately 87.11 acres of the Project footprint will consist of permanent impacts, with approximately 33.22 acres of temporary impacts [Exhibit 3A – Aerial Map]. The temporary impacts consist of approximately 50-foot-wide construction easements along either side of the proposed facilities where disturbance will be required to construct the Line E channel, however there will not be any permanent structures in these areas. The temporary impact areas utilized only for construction activities will be restored to pre-construction contours and can be hydroseeded with a native plant mix.

The overall 120.33-acre Project site was not all studied in a single year. The middle portion of the Project alignment (approximately 67.26 acres), from Sanderson Avenue on the east to the proposed Confluence Basin to the west, was surveyed in 2022 and 2023 as a part of studies for a separate development project, whose study area overlapped with the current Line E Project limits [Exhibit 3B – Survey Areas]. The 2022/2023 studies included focused surveys for Narrow Endemic Plants, burrowing owls and listed fairy shrimp, as well as evaluations for riparian/riverine areas and vernal pools. The southeastern portion of the Project alignment (between the San Jacinto Reservoir and Sanderson Avenue) and the northwestern portion of the Project

alignment were surveyed in 2024 (approximately 53.07 acres) for the same resources as referenced above for the 2022/2023 surveys.

2.2 Project Description

For this report, the term “Project site” is defined as the 120.33 acres of land that is proposed for direct impact by the Project [Exhibit 3A – Aerial Map]. The Project site consists of Assessor's Parcel Numbers (APNs): 430-100-002, 430-100-009, 430-100-012, 430-100-013, 430-100-018, 432-030-006, 432-030-010, 432-030-012, 436-010-003, 436-010-005, 436-030-004, and 436-170-001.

The proposed Project (Line E) is an implementing project of the San Jacinto Valley Master Drainage Plan (SJV MDP). The SJV MDP was prepared and approved in 2015 by the City of San Jacinto and Riverside County Flood Control and Water Conservation District. Facilities associated with the Line E Project include a channel, basin, training berms, and access roads. The Project is a planned regional drainage facility that would provide a service to an approximately 1,870-acre tributary area.

Starting north of the San Jacinto Reservoir, the Project includes two training berms, continuing north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue, turning west underneath Sanderson Avenue onto the northern portion of the proposed San Jacinto Commerce Center Specific Plan (SJCCSP) property and turning north, then west to the proposed MDP Line E-Y-Z Confluence Basin (Confluence Basin), which will be located on the site proposed to be the SJCCSP, continuing north from the Confluence Basin as a concrete channel and crossing over a buried pipeline known as Casa Loma Barrel No. 1, which is owned and operated by The Metropolitan Water District of Southern California (MWD). Access roads would be provided on both sides of the Line E Channel and the training berms. The Confluence Basin will not be lined with concrete and will include a pump station to drain the basin.

The Line E channel alignment will consist of an earthen channel with a 65-foot base width, heights up to 10 feet, side slopes inclined at 4:1 (Horizontal:Vertical), and several sloped rip-rap drops along the nearly three-mile alignment.

The Project design includes 20-foot-wide access roads (included within the permanent impacts) located on both sides of the channel along with reinforced concrete box (RCB) culverts, one of which will intersect Sanderson Avenue, while the remaining culverts will intersect future roadways. Storm water flow will generally occur from southeast to northwest. To maintain as much of the existing flow patterns at the southern end of the alignment, at the outlet of the San Jacinto Reservoir, training berms are proposed as opposed to channelization.

At the northern portion of the alignment the proposed earthen channel terminates at a proposed Confluence Basin and the remainder of the alignment converts to a concrete trapezoidal channel with a 155 -foot base width, height up to 5.5 feet, and side slopes

inclined at 1.5:1 (H:V). At the northern end of the proposed concrete channel portion, the proposed alignment crosses the existing MWD buried pipeline (Casa Loma Siphon No. 1) via a bridge-type structure to avoid adding loads to the existing pipeline.

Since the Project will be a regional flood control facility pursuant to the adopted SJV MDP, the Riverside County Flood Control and Water Conservation District (Flood Control) will need to be able to maintain the channel and access roads throughout the life of the facility. Maintenance activities include vegetation management, clean out of debris, slope and bottom repairs, access road maintenance and repair. All of the intended maintenance areas have been coordinated with and are included within the permanent impact acreages reported herein. Given the sensitivity of the biological resources in the area, the Flood Control District will not use rodenticides or pesticides for vegetation management; rather mechanical and hand removal of vegetation will be utilized.

2.3 Existing Conditions

The Project site is flat and supports active agricultural uses throughout the majority of the alignment. Elevation ranges from approximately 1,488 feet above mean sea level (AMSL) to 1,446 feet AMSL. A review of historical aerial photography confirmed that since the late 1960's, that the majority of the Project site and environs has been used for agricultural purposes. As a result, the agricultural lands cycle between periods of being vegetation with field crops and periods where the lands are generally unvegetated due to tilling. Other fields that are not consistently farmed are vegetated with a mixture of non-native ruderal plant species and remnant crop plants. The edge areas of the agricultural fields are dominated by non-native plant species. The Project site also contains disturbed/developed areas including unpaved roadways. The Project site contains agricultural ditches (Ditches A-F) that convey storm runoff and irrigation water through portions of the Project site, as well as an area where constructed berms and debris-clogged culverts result in a backup of storm flows and irrigation runoff (Drainage Area A). These drainage features are further discussed below in Section 3.0.

GLA mapped five distinct vegetation/land use types for the Project site, including *Bromus hordeaceus* Herbaceous Semi-Natural Alliance (Annual Brome Grasslands), Disturbed Agricultural Areas (Agricultural Fields), Disturbed/Developed Areas (Disturbed and Developed Areas), *Eucalyptus globulus* Woodland Semi-Natural Alliance (Eucalyptus Groves) and *Lepidium latifolium* - *Lactuca serriola* Herbaceous Semi-Natural Alliance (Perennial Pepper Weed - Prickly Lettuce Patches). Table 2-1 provides a summary of the vegetation types and their corresponding acreage. A Vegetation Map is attached as Exhibit 5. Photographs depicting the Project site are shown in Exhibit 10.

Table 2-1. Summary of Vegetation/Land Use Types for the Project Site

Vegetation/Land Use Type	Permanent (acres)	Temporary (acres)	Total (acres)
Annual Brome Grasslands	8.49	3.43	**11.92**
Agricultural Fields	69.35	25.07	**94.42**
Disturbed and Developed Areas	6.17	4.25	**10.42**
Eucalyptus Groves	0	0.03	**0.03**
Perennial Pepper Weed - Prickly Lettuce Patches	3.10	0.44	**3.54**
Total	**87.11**	**33.22**	**120.33**

3.0 RIPARIAN/RIVERINE MITIGATION (SECTION 6.1.2)

3.1 Methods

3.1.1 Riparian/Riverine Areas

The MSHCP defines riparian areas as “lands which contain habitat dominated by trees, shrubs, persistent emergent mosses and lichens, which occur close to, or which depend upon soils moisture from a nearby fresh water source. In the absence of riparian habitat, the MSHCP defines riverine areas as areas with fresh water flow during all or a portion of the year.”

The Project site was evaluated for riparian/riverine areas on May 23 and 24, June 27, and September 20, 2024.

3.1.2 Vernal Pools

The MSHCP defines vernal pools as “seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indictors of hydrology and/or vegetation during the drier portion of the growing season.”

GLA surveyed the Project site for vernal pools as part of the jurisdictional delineation to identify seasonal wetlands in conjunction with wet season fairy shrimp surveys (described below). GLA biologists evaluated the topography of the site, including whether the site contained depressional features/topography with the potential to become inundated; whether the site contained soils associated with vernal/seasonal pools; and whether the site supported plants that suggested areas of localized ponding. The Project site was evaluated for vernal pools during fairy shrimp survey visits in 2022, 2023 and 2024, as well as during plant survey visits and wetland delineation visits in 2023 and 2024.

3.1.3 Fairy Shrimp

The Project site contains a total of five features/inundation areas that were surveyed by GLA biologists to determine the presence/absence of listed fairy shrimp. Three of the features, identified as #4, 5 and 46, were surveyed in 2021/2022 (wet season) and 2023 (dry season) as part of fairy shrimp surveys for a separate project whose study area overlapped with that of the Line Project site (see Exhibit 11 – Sheets 2, 3 and 4). The other two features, identified as E-1 and E-2, were surveyed in 2023/2024 (wet and dry seasons) for the Project (see Exhibit 11 – Sheets 1 and 5).

Wet Season Surveys

The 2021/2022 wet season surveys (Features 4, 5 and 46) were conducted by GLA biologist Frank Wegscheider (TE-038716-4). The 2023/2024 wet season surveys (Features E-1 and E-2) were conducted by GLA biologists Stephanie Cashin (TE-20280D-0) and Chris Waterston (ESPER-2380694), assisted by GLA field staff David Smith and Velvet Park [Appendix D – 2021/2022 Wet Season Fairy Shrimp Report].

The wet season surveys were performed in accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines) dated November 13, 2017. Prior to the initiation of sampling, site visits were conducted following rainfall events to identify those features meeting the minimum hydrologic conditions for sampling. The Survey Guidelines generally consider that features containing a minimum of three centimeters (cm) of ponding at least 24 hours after rain events should be evaluated for surveys, but more specifically, sampling is required for any features ponded for at least seven days, and every seven days thereafter until the features are dry or have remained inundated continuously for 120 days. Surveys are to be re-initiated for any features that dry up and re-inundate.

Sampling for the presence of fairy shrimp was performed using a dip net within representative portions of the depression bottom, edges, and vertical water column when there was adequate ponding. Specimens were placed into vials, with labels containing identifying each depression with its unique identifying number. The vials contained a 95% ethanol solution to preserve the specimens. Specimens were identified in the field when feasible, otherwise identification was completed in a lab setting.

Dry Season Surveys

Dry season surveys for Features 4, 5 and 46 were initiated in October 2023 with the collection of soil samples by GLA biologist David Moskovitz (PER0010680-0), with assistance from Stephanie Cashin and Chris Waterston, and from GLA trainees David Smith and Velvet Park (under supervision). Soil processing and culturing was performed by Brent Helm (TE-795930-12) [Appendix E – 2023 Dry Season Fairy Shrimp Report]. The dry season surveys for Feature E-1 and E-2 were initiated in September

2024 with the collection of soil samples by Stephanie Cashin and Chris Waterston. Soil processing and culturing was performed by Frank Wegscheider (TE-038716-4) [Appendix G – 2024 Dry Season Fairy Shrimp Report]. No cysts of the genus *Branchinecta* or *Streptocephalus*, including listed species, were identified in samples from Feature E-1 and E-2. No cyst culturing was necessary as no cysts were detected during processing. Therefore, no listed species were detected.

Soil sample collection followed the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines).[1] Soil samples were collected when the pools were dry using a hand trowel to collect intact chunks of soil from the top 1–3 cm of pool sediment. The number of soil samples collected from each of features was based on feature size according to the Survey Guidelines. Starting at the edge of each depression, samples were taken from equidistant points along the longest transect and widest transect of each depression. Additional samples were taken at the deepest part of each feature. Soil samples of approximately 100 milliliters (ml) each were removed at each sub-sample location using a hand trowel and were combined into a labeled bag for each feature with the collection date, location and feature ID, and name of collector for future processing.

3.1.4 Riparian Birds

The MSHCP requires habitat assessments and focused surveys (if suitable habitat is present) for least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). The Project site does not contain any riparian habitat with the potential to support the above-referenced species. However, riparian habitat is located adjacent to the Project footprint (to the south) that was acknowledged as having the potential to support least Bell's vireo and southwestern flycatcher. As such, to address the potential for indirect effects from the Project, focused surveys were performed for the adjacent habitat in 2024.

Least Bell's Vireo

GLA biologists Joseph Vu, Chris Waterston, Hannah Craddock and Stephanie Cashin conducted focused surveys for the least Bell's vireo (LBV) for riparian habitat adjacent to (south of) the Project footprint. Surveys were conducted in accordance with the 2001 USFWS survey guidelines, which stipulate that eight surveys should be conducted between April 10 and July 31, with a minimum of ten days separating each survey visit.

Focused surveys were conducted on April 11 and 23, May 7, June 12 and 27, and July 9, 19 and 29, 2024. Pursuant to the survey guidelines, the surveys were conducted

[1] USFWS. *Survey Guidelines for the Listed Large Branchiopods*, Revised: November 13, 2017.

between sunrise and 11:00 a.m. Weather conditions during the surveys were conducive to a high level of bird activity. Table 3-1 summarizes the vireo survey visits. The results of the vireo surveys are summarized below.

Table 3-1. Summary of LBV Survey Dates and Weather Conditions

Survey Date	Biologist	Start/End Time	Start/End Temperature (degree F)	Wind Speed Range (mph)	Cloud Cover (%)
4/11/24	JV	0645/1100	52/80	2-6	100
4/23/24	JV	0630/1100	50/58	1-4	100
5/7/24	JV	0645/1100	56/72	4-9	0
6/12/24	CW	0650/1100	61/73	1-4	100
6/27/24	CW	0600/1030	63/78	2-5	0
7/9/24	HC	0730/1030	77/95	2-6	0
7/19/24	HC	0630/0900	74/82	1-5	0
7/29/24	SC	0645/1045	75/87	1-4	0

JV = Joseph Vu; CW = Chris Waterston; HC = Hannah Craddock; SC = Stephanie Cashin

Southwestern Willow Flycatcher

Surveys for the southwestern willow flycatcher (SWFL) were conducted for riparian habitat adjacent to (south of) the Project footprint [Appendix H – Southwestern Willow Flycatcher Survey Report]. Surveys were conducted in accordance with the 2010 U.S. Fish and Wildlife Service (USFWS) guidelines, which stipulate that five surveys (divided into three survey periods) shall be conducted in all areas of suitable habitat. One survey was conducted during the first survey period (May 15 to May 31). Two surveys were conducted during the second survey period (June 1 to June 24), and two surveys were conducted during the third survey period (June 25 to July 17). GLA biologist Jeff Ahrens (TE 052159-6) conducted SWFL surveys on May 20, June 11, June 21, June 27, and July 3, 2024. Mr. Ahrens was accompanied by GLA biologist Chris Waterston (non-permitted) on June 27, 2024.

All surveys were conducted during the morning hours and were completed before 10:45 A.M. No surveys were conducted during extreme weather conditions (i.e., winds exceeding 15 miles per hour, rain, or temperatures in excess of 95ºF). All areas of suitable habitat were surveyed on foot by walking slowly and methodically. Taped vocalizations primarily using the WIFL's main contact call "fitz-bew" were used to elicit responses from WIFLs that might be present on site. The detection of WIFLs on site was based on both sight and call.
Weather conditions during the SWFL surveys was conducive to a high level of bird activity. Temperatures ranged from approximately 52 degrees Fahrenheit to 90 degrees

Fahrenheit. Wind speeds ranged from 1-5 miles per hour during the surveys. Table 3-2 summarizes the survey dates and weather information for each survey date. The results of the flycatcher surveys are summarized below in Section 3.2.4.

Table 3-2. Summary of SWFL Survey Dates and Weather Conditions

Date	Survey	Start/End Time	Surveyor	Temp ºF, (start/end)	Wind Speed (MPH) (start/end)	% Cloud Cover (start/end)
5/20/24	SWFL	0555/1030	JA	52/62	2-4/3-5	100/100
6/11/24	SWFL	0600/1030	JA	80/90	3-5/2-4	20/20
6/21/24	SWFL	0550/1045	JA	61/84	1-3/2-3	0/0
6/27/24	SWFL	0600/1030	JA/CW	63/78	2-3/2-5	0/0
7/03/24	SWFL	0605/1030	JA	68/88	2-4/2-5	10/10

JA = Jeff Ahrens, CW (non-permitted)

3.2 Results

3.2.1 Riparian/Riverine Areas

The Project site contains 4.03 acres of MSHCP non-riparian riverine areas, associated with four features (Ditches A, B, D, E, and F and Drainage Area A). These features exhibited defined stream flow indictors (i.e., change in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, and/or incised channel banks). Table 3-3 below summarizes the riverine areas associated with the Project site. The boundaries of riverine areas are depicted on the enclosed map [Exhibit 7].

Table 3-3. Summary of MSHCP Riverine Areas

Feature Name	Riverine (acres)	Riparian (acres)	Total (acres)
Drainage Area A*	3.30	0.00	3.30
Ditch A*	0.26	0.00	0.26
Ditch B	0.03	0.00	0.03
Ditch D*	0.11	0.00	0.11
Ditch E	0.04	0.00	0.04
Ditch F	0.29	0.00	0.29
Total	**4.03**	**0.00**	**4.03**

*Indicates MSHCP Riverine Areas that support smooth tarplant.

Drainage Area A

Approximately 3.30 acres of unvegetated riverine areas area associated with Drainage Area A. Drainage Area A is in the northwestern portion of the Project site. Drainage Area A consists of relatively flat undeveloped land that appears to have been disced as recently as December 2020, according to historic aerial imagery. Since then, it does not appear that this area has been planted or otherwise maintained. Instead, Drainage Area A conveys flows in a generally northwestern direction towards Drainage A during periods following heavy precipitation when adjacent agricultural ditches have flooded. Furthermore, corrugated metal culverts that convey flows within Drainage A under a dirt access road appear to have been clogged by debris, which likely contributes to backup of flood waters in Drainage Area A.

Vegetation associated with Drainage Area A consists of five horn bassia (*Bassia hyssopifolia*), London rocket (*Sisymbrium irio*), perennial pepperweed (*Lepidium latifolium*), Canada horseweed (*Erigeron canadensis*), black mustard, Bermuda grass (*Cynodon dactylon*), ripgut brome, red brome, salt heliotrope (*Heliotropium curassavicum*) and alkali mallow (*Malvella leprosa*).

Ditch A

Approximately 0.26 acre of unvegetated riverine areas are associated with Ditch A. Ditch A is in the northwestern portion of the Project site. Ditch A consists of several man-made earthen ditches that together convey agricultural runoff in a northwestward direction for approximately 980 linear feet before continuing offsite and eventually terminating in a basin adjacent to Ramona Expressway. Ditch A exhibits a stream course that ranges from 1 to 25 feet in width.

Vegetation associated with Ditch A consists of non-native upland grasses and forbs including ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), black mustard (*Brassica nigra*), fiddleneck (*Amsinckia menziesii*), cheeseweed (*Malva parviflora*), Russian thistle (*Salsola tragus*), stinknet (*Oncosiphon piluliferum*).

Ditch B

Approximately 0.03 acre of unvegetated riverine areas are associated with Ditch B. Ditch B is located in the center of the Project site. Ditch B is a man-made earthen ditch that crosses the alignment and conveys agricultural runoff in a northward direction for approximately 302 linear feet before leaving the Project site. Ditch B exhibits a stream course that averages four feet in width. The offsite portion of Ditch B, to the north of the alignment, appears to convey flows to Drainage Area A during periods of heavy precipitation. Ditch B is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle, Canada horseweed, and black mustard were observed immediately adjacent to the drainage along the top of the bank.

Ditch D

Approximately 0.11 acre of unvegetated riverine areas are associated with Ditch D. Ditch D is located in the center of the Project site. Ditch D is a man-made earthen ditch that crosses the alignment along the western side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 2,337 linear feet before leaving the Project site. Ditch D exhibits a stream course that averages two feet in width. Ditch D is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, Russian thistle and non-native grasses such as Bermuda grass and red brome were observed immediately adjacent to this ditch along the top of the bank.

Ditch E

Approximately 0.04 acre of unvegetated riverine areas are associated with Ditch E. Ditch E is located in the center of the Project site. Ditch E is a man-made earthen ditch that crosses the alignment along the eastern side of Sanderson Avenue and conveys agricultural runoff and rainfall in a northward direction for approximately 279 linear feet before leaving the Project site. Ditch E exhibits a stream course that averages six feet in width. Ditch E is ephemeral and at the time of the surveys did not contain any surface water and was generally unvegetated. However, five horn bassia, Russian thistle, stinknet (*Oncosiphon piluliferum*), and non-native grasses such as red brome were observed immediately adjacent to the drainage along the top of the bank.

Ditch F

Approximately 0.29 acre of unvegetated riverine areas are associated with Ditch F. Ditch F is in the southeastern portion of the Project site. Ditch F is a man-made earthen ditch that conveys flows northward away from the San Jacinto Reservoir Overflow for approximately 419 linear feet before continuing offsite and terminating as sheet flow in an adjacent agricultural field. Ditch F exhibits a stream course that averages approximately 10 feet in width. A rip-rap headwall and culvert previously existed separating the offsite riparian area to the south from the remainder of Ditch F to the north. Currently, the rip-rap headwall and culvert appear to have been destroyed and flows now bypass the culvert and continue around the riprap through a highly eroded area to the east of the culvert. According to historic aerial imagery, Ditch F is typically characterized by an ephemeral flow regime. However, at the time of the initial site visit, Ditch F contained surface water in the southernmost reach, immediately adjacent to the San Jacinto Reservoir Overflow area. Ditch F was completely dry during the most recent site visit.

Vegetation associated with Ditch F includes a mix of native and non-native species such as Bermuda grass, stinknet, annual yellow sweetclover (*Melilotus indicus*), Canada horseweed, alkali mallow, and various other non-native grasses.

Approximately 1,670 smooth tarplant individuals were documented as occurring within portions of the Project site that support MSHCP Riparian/Riverine resources [Exhibit 7 – MSHCP Riverine Areas]. Smooth tarplant is a species identified by MSHCP Section 6.1.2 as being associated with MSHCP Riparian/Riverine resources. Therefore, these approximately 1,670 smooth tarplant individuals are considered as an MSHCP Riparian/Riverine resource in the context of the Project, occupying a total of approximately 0.50 acre occurring throughout Ditches A and D and Drainage Area A [Exhibit 7 – MSHCP Riverine Areas; Table 3-3. Summary of MSHCP Riverine Areas]. Additional smooth tarplant individuals were documented in upland areas and not associated with any of the features outlined on Table 3-3, and were therefore not considered as an MSHCP Riparian/Riverine resource, and are discussed in Section 5.1 of this document.

Table 3-4 summarizes one additional agricultural ditch (Ditch C) and an agricultural basin (Basin A) that are not riparian/riverine areas [Exhibit 7 – MSHCP Riverine Areas]. These features are frequently modified (i.e. filled in, recreated) as a part of ongoing agricultural operations and are isolated and do not drain to a downstream MSHCP Conservation Area (San Jacinto River). Therefore, these facilities are not considered as MSHCP Riparian/Riverine Areas, as they are artificially created and do not provide biological functions supporting Section 6.1.2 species.

Table 3-4. Summary of Non-Riparian/Riverine Features

Feature	Acreage
Basin A	0.13
Ditch C	0.02
Total	**0.15**

Table 3-4 summarizes Project impacts to MSHCP Riparian/Riverine Areas, which include 3.49 acres of permanent impacts associated with the permanent Line E facility and 0.54 acres of temporary impacts associated with construction access. For the purpose of this analysis, both permanent and temporary impacts are proposed, as described in Section 3.3, to be mitigated entirely as permanent impacts at a 2:1 ratio.

Table 3-5. Summary of MSHCP Riverine Area Impacts

Feature Name	Riverine Permanent Impacts (acres)	Riparian Temporary Impacts (acres)
Drainage Area A	2.92	0.38
Ditch A	0.23	0.03
Ditch B	0.02	0.01
Ditch D	0.01	0.10
Ditch E	0.03	0.01
Ditch F	0.28	0.01
Total	**3.49**	**0.54**

3.2.2 Vernal Pools

The Project site does not contain any MSHCP vernal pools. Five areas were noted as inundated within the Project site, corresponding to the five features (4, 5, 46, E-1 and E2) that are described below as having been evaluated through focused surveys for listed fairy shrimp. Features 4, 5, 46 and E-2 are all unvegetated vehicle ruts in dirt roads. Feature E-1 consists of a large, inundated area that is described above as Drainage Area A. Drainage Area A was determined not to exhibit all three parameters of a wetland, specifically the inundated area did not exhibit a predominance of hydrophytic vegetation, and therefore the feature is not considered as a vernal pool.

3.2.3 Fairy Shrimp

A total of five features (4, 5, 46, E1 and E2) were surveyed for fairy shrimp. The non-listed versatile fairy shrimp (*Branchinecta lindahli*) was detected in just one of the five features during the wet season surveys (Feature 5), which consists of vehicle ruts within a dirt road. The dry season survey of Feature 5 detected *Branchinecta* cysts, which were successfully hatched and reared to identify individuals as the versatile fairy shrimp, thus corroborating the results of the wet season survey.

No fairy shrimp were detected in the other four features during the wet season surveys. Features 4, 46 and E-2 also consist of vehicle ruts in dirt roads. Feature E-1 corresponds with the large inundation area associated with Drainage Area A. No *Branchinecta* cysts were detected within Feature 4 and 46 during the 2023 dry season surveys. No cysts of the genus *Branchinecta* or *Streptocephalus*, including listed species, were identified in samples from Feature E-1 and E-2 during 2024 dry season

surveys. No cyst culturing was necessary as no cysts were detected during processing. Therefore, no listed fairy shrimp species were detected.

Fairy shrimp survey reports are provided as Appendices D, E F, and G.

3.2.4 Riparian Birds

The southwestern willow flycatcher was not detected within the adjacent (offsite) riparian habitat during the focused surveys. GLA biologists detected three least Bell's vireo territories within the adjacent riparian habitat, as depicted on Exhibit 12.

3.3 Impacts, Mitigation and Equivalency

3.3.1 Direct Effects

The Project will impact all 4.03 acres of riverine features associated with the Project site. In each instance, the riverine areas will be replaced by the Line E drainage facilities, with the proposed channel re-routing the hydrology that will ultimately end up at the same location at the northwestern end of the Project alignment. As described above in Section 2.2, the proposed Line E channel would begin downstream of (north of) the San Jacinto Reservoir Spillway where it would extend north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue, turning west underneath Sanderson Avenue, entering the SJCCSP property. The proposed channel would then turn north and then west just before Record Road, extending west to the proposed Confluence Basin. The outflows from the proposed Confluence Basin would be conveyed north in a concrete-lined channel across Casa Loma Barrel No. 1 and outflow to an existing low-flow drainage channel, representing the terminus of the proposed Line E facilities.

Where the proposed Line E facility begins at the San Jacinto Reservoir, an existing earthen drainage ditch (Ditch F) conveys flows to the north. Figure 11 of the Line E Preliminary Design Report (Appendix C of this DBESP Analysis) depicts the existing flow patterns coming away from the San Jacinto Reservoir. In the existing condition, Ditch F conveys flows northwards until the drainage ditch terminates and flows are conveyed to the northwest via sheet flow until crossing under Sanderson Avenue and extending west (south of the MWD Casa Loma facility) to where the terminus of the Line E channel is proposed. The proposed Project would directly impact 0.29 acre of Ditch F and flows from the San Jacinto Reservoir would enter the Line E channel, where as described above the channel would extend in a generally northwesterly direction and flows that currently extend farther north and then west would be re-routed through the northern portion of the SJCCSP property to the proposed Confluence Basin and then northwards to the proposed terminus where flows would leave Line E into the existing drainage channel (part of Drainage A described above). As such, the flows will still reach the same area to the northwest, just following a different route. Section 3 of Appendix C details the existing and proposed MDP hydrology. As depicted in Table 1

and Figure 7 of Appendix C, the total existing Q_{100} flows is 24,279 cfs from the San Jacinto Reservoir to northerly side of the MWD right-of-way. In the proposed Line E condition, the total Q_{100} flows increases to only 25,315 cfs (Table 2 and Figure 9 of Appendix C) at this same location. Figure 15 from Appendix C depicts the pre-project and post-project floodplain.

Prior to reaching the proposed Confluence Basin, the Line E channel would cross another three MSHCP Riverine ditches (identified above as Ditches B, D, and E). Flows from these ditches currently extend through the SJCCSP property past the northern boundary and into an area identified in this DBESP Analysis as Drainage Area A. As described above, flows from these ditches extend north and west through Drainage Area A before crossing through culverts into Drainage A to the north. The culverts appeared to be clogged by debris, contributing to the back up of water within Drainage Area A during peak storm flows, resulting in a large inundation area. The proposed Line E will directly impact 0.03 acre of Ditch B, 0.11 acre of Ditch D, 0.04 acre of Ditch E, and then 3.30 acres of the inundation area associated with Drainage Area A. However, the flows/runoff that otherwise enter Drainage Area A via these ditches will under the proposed development be collected into the Confluence Basin and then outlet north through a proposed concrete portion of Line E where it will then terminate at Drainage A. Line E will intersect the existing agricultural ditch along the east side of Sanderson Avenue (Ditch E) and pick up the flows in that ditch coming from the south [Exhibit 7 – MSHCP Riverine Areas]. The existing flows in the ditch along the west side of Sanderson (Ditch D; Exhibit 7 – MSHCP Riverine Areas) south of the Line E intersect will be incorporated into the onsite storm drain system of the SJCCSP, which is analyzed separately for that project. Again, the hydrology data summarized above addresses the proposed re-routing of flows.

The functions of the various ditches impacted by the construction of Line E are all hydrologic and particularly of hydrologic conveyance as that is what the constructed ditches are designed to accomplish. The proposed Line E channel will accomplish the same functions as these agricultural ditches but with a larger drainage area. As noted above, the Line E design will maintain roughly the same flows provided by the existing flow condition. The modification to the floodplain was contemplated in the SJV MDP, which was designed to confine the 100-year floodplain into the MDP facilities. Localized flows during rainfall events on areas outside the Line E channel will still sheet flow and be conveyed through the agricultural ditches as they do in the current condition. The conveyance of flows through the Project area are still being conveyed to the same location, ending up on the northern side of Ramona Expressway. Overall, because of these essentially unchanged conditions and for being consistent with the SJV MDP, the Project will maintain hydrologic connections into downstream MSHCP Conservation areas north of Ramona Expressway. However, because these riverine features will still be altered, the additionally proposed enhancement/restoration of the existing alkali habitat will increase the biological functions associated with the alkali habitat.

The proposed Line E channel will be subject to flood control maintenance (vegetation management and structural repairs, as needed); however, the channel will have at least 10.02 acres with a soft (unpaved) bottom and will function in the same or similar manner as the existing, human-altered drainage features. Nonetheless, the impacts to the existing drainage features, with the exception of the temporary construction access areas [Exhibit 7 – MSHCP Riverine Areas], will be considered permanent since the segments of the exact features will not be restored in the same configuration.

The proposed Line E channel will partially offset the loss of the existing riverine areas by maintaining the riverine functions, through the continued conveyance of water to the MSHCP Conservation Area downstream of the Project, providing attenuation of pollutants such as nutrients, as well as provide a degree of groundwater recharge, etc. In addition, the Project proposes to replace impacts to 4.03 acres of MSHCP riparian/riverine areas through the restoration of 8.06 acres (2:1 ratio) of lands within the existing San Jacinto River 100-year floodplain, immediately north of the Line E alignment and west of Sanderson Avenue within the City of San Jacinto. The proposed mitigation site contains alkaline soils that support a remnant alkali flora and/or that has the potential to support additional plants (including sensitive species) associated with alkali playa, meadow grassland, or other similar habitat types. With the combination of the proposed Line E facility and the proposed mitigation, the proposed Project will be biologically equivalent or superior to the existing conditions.

The Project proponent will acquire the mitigation property and will place a Conservation Easement for a conservation entity to hold in perpetuity. Possible conservation entities include the Rivers and Lands Conservancy or the San Jacinto Valley Resource Conservation District. The Project proponent will provide a non-wasting endowment to fund the management of the mitigation site in perpetuity.

The proposed mitigation will include the removal of non-native vegetation and re-vegetation with native species. Smooth tarplant seeds will be incorporated into the plant palette for the restoration area.

The Project proponent will develop a Habitat Mitigation and Monitoring Plan (HMMP) that will be provided to the City of San Jacinto, RCA and Wildlife Agencies for review and approval prior to any initiation of ground disturbance associated with the Project. The HMMP will document all aspects of the proposed habitat restoration, including site preparation, installation, maintenance and monitoring. The restoration program will consist of a two-phase program. Phase 1, or “Site Preparation Phase”, includes initial invasive species removals and two years of follow-up weed abatement. Phase 2, or “Installation, Maintenance, and Monitoring Phase”, includes a planting plan (native seed and container stock) and five years of follow-up maintenance and monitoring. The HMMP will also further detail the incorporation of smooth tarplant in the plant palette and will identify success criteria for smooth tarplant as will be approved by the RCA and Wildlife Agencies. The proposed restoration program presented here is conceptual and may be modified through the HMMP.

Phase 1 – Site Preparation Phase (2 Years)

Site preparation shall consist of restoration area topsoil scraping, decompaction and contouring, and clearing and controlling all exotic plants, installation of irrigation components (above-ground), removing trash and debris, preparing planting holes, and doing any other work necessary to prepare the area for planting.

1. Restoration Area Topsoil Scraping and Contouring

Site preparation within the restoration area includes the removal of any debris associated with prior land uses including scraping and hauling offsite the top two inches of soil for purposes of clearing unnatural debris, decompaction, and contouring. Grading and soil removals would also function as an initial weed clearing and would remove existing non-native seed bank in the topsoil. Minor contouring throughout the site will provide hydrological surface conditions to support the alkaline plant species to be included in the restoration plant palette. Creation of micro-topography will support seasonal ponding and otherwise restore or enhance shallow inundation of the site.

2. Non-native Plant Control

Invasive species, as defined by the California Invasive Plant Council (Cal-IPC) as “high” or “moderate” invasiveness ranking will be targeted for removal from the restoration area. Eradication of ubiquitous annual grasses is not realistic in large parcels of open space, but these species will be controlled and suppressed significantly such that they don’t interfere with the establishment and/or functioning of the restored alkali plant communities.

The abundance of non-native grasses and forbs within and surrounding the proposed restoration area requires a persistent and prolonged site preparation regime to 1) clear the non-native biomass from the site, and 2) suppress the existing non-native seed bank in the soil prior to introduction of native plant material to the site. Quarterly treatment is recommended to suppress non-native species within the restoration area.

Work is recommended to commence following the initial scraping/contouring in the fall/winter months outside of avian breeding season, between September 1 and February 14 with follow-up treatments for at least two full years to treat seasonal weeds in their appropriate growth period and allow for re-treatment of the invasive species and thatch removal as much as possible prior to hydroseeding with native seeds.

A "grow and kill" cycle will be established during the two-year site preparation period. Grow and kill is a cycle of applying water, germinating the non-native, invasive species, and spraying with the appropriate chemical. This allows a large portion of the seed load currently present in the soil to be removed. Removing the competition early in the life cycle of native plants helps to ensure more rapid growth and cover of the native species.

Phase 2 – Installation, Maintenance, and Monitoring Phase (5 Years)

1. Installation

Following the two-year site preparation phase, the restoration area will be planted. Planting shall consist of installing container stock with plant protection devices (if necessary), and hydroseeding. No planting shall be done in any area until the area concerned has been prepared in accordance with the HMMP and presents an appearance satisfactory to the Project Biologist. The Project Biologist shall be on-site during plant installation. The restoration area will be planted and seeded with a proposed alkali playa/meadow/grassland plant palette identified in the HMMP. The plant palette will be diverse with a variety of halophytic grasses, forbs, and shrubs that occur in alkaline soil conditions present within the restoration site. As discussed further below, smooth tarplant will be a component of the restoration.

Sources of all propagules and seed used for the restoration area will be from wild sources within Western Riverside and San Bernardino Counties to preserve regional genetic integrity. Contract growing of all container plants shall be by a local experienced native plant nursery. Substitution of plant material at the time of planting depends upon the discretion of the Project Biologist in coordination with the RCA and Wildlife Agencies. Plants must be ordered at least six months in advance of the scheduled planting date(s) to make sure the required quantities are available or can be custom grown for the Project.

All plant materials will be inspected by the Project Biologist and approved as healthy, disease and pest free, and of proper size prior to planting. Overgrown, root-bound container stock will be rejected. Container stock will be laid out in such a manner that mimics natural plant distribution (i.e., in clusters and islands) to emulate regional reference sites. Prior to container stock installation, the Project Biologist will flag individual plant locations in the field with pin-flags that will be color coded as to plant species. A list of species with their appropriate color code will be provided to the Contractor prior to plant installation.

Container stock will be thoroughly watered the day before planting. One-gallon container stock will be planted in a hole measuring at least twice the diameter of the container and twice the depth. Backfill the hole with native soil to a proper planting depth for placement of the plant within the hole so the top of the root ball will be set one inch above finish grade. The container will be upended into the palm of the hand to avoid damage to the root structure and placed in the planting hole. The planting hole will be backfilled with native soil. Container stock will be watered immediately after installation.

Due to relatively easy accessibility of the proposed restoration areas, hydroseed application will occur following the site preparation period. Hydroseeding will proceed after the Project Biologist has certified that restoration areas are adequately prepared

by clearing of non-native species. Seeding will occur in September or October, prior the onset of the first rain event. Hydroseeding will be performed only during low wind conditions.

2. Irrigation Plan

Supplemental irrigation is to be used solely for establishing the plant palette and seasonal wetland hydrology in the restoration area and intended to be temporary in nature. The goal of the irrigation program during the initial site preparation phase is to implement a grow and kill program to exhaust as much as possible the existing non-native seed bank prior to installation of native container stock and hydroseed. Post-plant installation, the goal of irrigation will be to obtain germination and pooling hydrology mimicking that of seasonal wetlands.

The container stock will be irrigated as long as necessary to establish the alkali meadow, probably two or three summers. Irrigation will occur from November to April to ensure monthly rainfall is equal to or exceeds the 30-year average for each month. Within the shallow inundation areas created for supporting seasonal ponding within the restoration area, irrigation should be sufficient to create ponding in the months of November and December continuing through March, at a minimum. These areas would then be allowed to dry out naturally. No irrigation will be applied from June through October.

The restoration area will initially be supported by a short-term automatic overhead irrigation system. The irrigation system will be installed as early as possible during the two-year site preparation phase to aid in the grow and kill weed abatement regime to prepare planting sites. The main line will be installed below-grade. All lateral lines will be installed above-grade for ease of removal and inspection.

When the plantings are sufficiently established and no longer require supplemental irrigation, the Project Biologist shall request the Contractor to cut and cap the main line and remove all above-grade irrigation system components from the mitigation site.

3. Maintenance

Maintenance will occur for a five-year period within the restoration site post-installation. The Project Biologist will monitor all aspects of the restoration work to address any problems at an early state. Potential problems could arise from erosion, vandalism, competition from weeds and non-native species, disease, and predation. The HMMP identifies maintenance guidelines specifically tailored for native plant establishment. The maintenance personnel will be fully informed regarding the habitat establishment program, so they understand the goals of the effort and the maintenance requirements. A landscape contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

4. Monitoring

The purpose of the monitoring program is to assess the effectiveness of the prescribed restoration activities. Qualitative monitoring will occur during the two years of site preparation and weed abatement. The quantitative monitoring program will begin after the complete installation of native plant container stock and seed for a period of five years or until sign-off by the RCA and Wildlife Agencies.

Restoration success is defined as the establishment of alkali playa/meadow/grassland habitats. The means of determining successful restoration will be by a series of measurements for cover by native species composition and cover. Native species composition and cover should generally increase each year, while non-native species will be targeted such that their cover decreases each year and remain below 10-percent of relative cover at the end of the five-year monitoring period.

Invasive species, as defined by the California Invasive Plant Council (Cal-IPC) as “high” and “moderate” invasiveness ranking will be removed from all restoration areas as a part of this Plan. Eradication of ubiquitous species such as annual grasses is not realistic in large parcels of open space, but these species will be controlled and suppressed within the restoration areas to less than 10-percent of relative cover and such that they don’t interfere with habitat functions of alkali playa and alkali meadow plant communities.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring will be maintained insofar as possible to ensure comparable assessments. The HRMP provides details regarding performance standards, qualitative monitoring, and quantitative monitoring.

5. Reporting

Annual status reports will be submitted to the City of San Jacinto, RCA and the Wildlife Agencies during the two-year site preparation period. Post-installation, at the end of each year within the five-year monitoring period, an annual report will be prepared for submittal to the City, RCA and the Wildlife Agencies describing the condition of restoration areas subject to monitoring. Reports will be submitted by December 31 of each monitoring year. These reports will assess both attainment of yearly target success criteria and progress toward final success criteria. These reports shall include a characterization of percent cover of native and non-native vegetation, plant species diversity data, and wildlife utilization. Additional details related to reporting will be provided in the HMMP.

3.3.2 Indirect Effects

The proposed Project will result in indirect impacts to the northern/downstream portions of Ditches B, D, E, and F because Line E will intercept upstream flows and redirect into Line E. While the overall watershed size for each of these four features will be reduced, each of these features are still expected to convey localized rainfall and agricultural runoff from the surrounding reduced watershed. Importantly, as stated above, the flows currently conveyed by the upstream portions of these features will still reach the same area to the northwest, just following a different route. Therefore, this indirect effect will not result in a loss of hydrologic contribution to the downstream MSHCP Conservation Area.

As described above, the southern (upstream) end of the proposed Project is adjacent to habitat occupied by least Bell's vireo where flows from the San Jacinto Reservoir would enter the proposed channel facility [Exhibit 12]. Construction of the facility would not remove any riparian habitat; however, because of the adjacency there is a potential for temporary noise impacts during construction of the facility adjacent to the San Jacinto Reservoir, if work were to occur while vireos are present. The following measure is proposed to avoid or minimize temporary edge effects to the least Bell's vireo.

> To avoid indirect impacts to least Bell's vireo (LBV), project construction and site preparation activities including but not limited to vegetation clearing and grubbing within 300 feet of LBV habitat will be conducted outside of the LBV breeding season (March 15 to September 30), if feasible. This will require that a qualified biologist oversee the establishment of a highly visible and maintained 300-foot buffer. Maintenance of the buffer will be performed weekly, but more often if needed.
>
> If construction activities must occur during the breeding season and have not yet already begun within the 300-foot buffer by March 15 of any given year, pre-construction surveys will commence after March 15 and will occur once a week for three consecutive weeks to confirm the presence of LBV, with the last visit no more than 3 days prior to commencement of construction activities. The preconstruction survey visits will be conducted by a qualified biologist familiar with songs, whisper songs, calls, scolds, and plumage characteristics of adult and juvenile vireos. Surveys will be conducted between dawn and 11:00 am. Surveys will not be conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather that individually or collectively may reduce the likelihood of detection. Prior to performing the preconstruction surveys, a map will be created illustrating the LBV habitat and all detections of LBV will be mapped and tracked.
>
> If LBV are not detected during the initial three preconstruction surveys, then weekly clearance surveys will continue following the same methodology stated above for the preconstruction surveys. Again, all detections of LBV are to be

mapped with behavior tracked across detections/sightings. The qualified biologist must have experience with nesting ecology and behavior of LBV to determine pre-nesting/nesting behavior. The MSHCP does not provide “take” of LBV which includes negatively modifying foraging and nesting behavior. If at any time it is determined by the qualified biologist that construction activities are negatively affecting LBV, including modification of behavior, work will be halted and CDFW and USFWS will be contacted on next steps. However, if LBV are not detected after a minimum of eight survey visits (three preconstruction surveys and five additional clearance surveys), then the weekly visits will cease and work within the 300-foot buffer will be allowed to continue without additional restrictions. If construction activities within the 300-foot buffer have already begun before March 15, then the qualified biologist will simply initiate the weekly clearance surveys after March 15 while the construction activities continue, and if LBV are detected, then the additional measures will be implemented. However, if LBV are not detected after a minimum of nine clearance surveys, then as noted above, the weekly visits will cease and work within the 300-foot buffer will be allowed to continue without additional restrictions.

Daily noise monitoring will be required during the breeding season if LBV are detected at any point during preconstruction surveys or weekly clearance surveys. A qualified biological monitor must be present to measure noise levels at the edge of all suitable habitat and work shall cease if, at any time, noise levels exceed 60 dB due to construction activities, or the existing ambient level if that is over 60 dB. For areas where pre-construction ambient noise levels exceed 60 dB, pre-construction, ambient noise measurements can be taken by a qualified entity during the full daylight period (sunrise to sunset), and subsequently, the median average ambient noise level can be used as the baseline in lieu of 60 dB. For projects that need to perform nighttime construction activities the same would be done as above but with measurements taken during the full nighttime period (sunset to sunrise). Noise monitoring will continue throughout the breeding season or until construction activities have halted within 300 feet of occupied LBV habitat. CDFW and USFWS can be contacted on next steps if the project is not able to reduce the noise.

Although not proposed here, it may be prudent to construct a temporary noise wall between the construction area and the habitat to maximize avoidance of indirect effects to LBV and reduce potential for project halts. Preconstruction ambient noise levels will be taken into consideration by CDFW and USFWS when deciding whether noise attenuation measures are prudent. The preconstruction and clearance surveys will still be required to ensure full avoidance has been met by the project during the LBV breeding season unless USFWS and CDFW have confirmed in writing that such surveys are not necessary.

Furthermore, as described above, the Project is not expected to change the regional hydrology related to downstream resources and ultimate conveyance to the San Jacinto River. The Project will result in local hydrologic effects by re-routing flows as described above, but the hydrologic functions will be maintained within the proposed Line E channel and the flows to downstream resources will be maintained in the post-project condition.

4.0 NARROW ENDEMIC PLANT SPECIES MITIGATION (SECTION 6.1.3)

Volume I, Section 6.1.3 of the MSHCP requires that within identified Narrow Endemic Plant Species Survey Areas (NEPSSA), site-specific focused surveys for Narrow Endemic Plants Species will be required for all public and private projects where appropriate soils and habitat are present. Most of the Project site is located within NEPSSA [Exhibit 4B], except for approximately 3,000 linear feet of the Project alignment corresponding with the northeastern corner of the SJCCSP property. As shown on Exhibit 4B, the northwestern and southeastern portions of the Project alignment occur within the NEPSSA for the following target species:

- Munz's onion (*Allium munzii*)
- San Diego ambrosia (*Ambrosia pumila*)
- Slender-horned spineflower (*Dodecahema leptoceras*)
- Many-stemmed dudleya (*Dudleya multicaulis*)
- Spreading navarretia (*Navarretia fossalis*)
- California Orcutt grass (*Orcuttia californica*)
- Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*).

4.1 Methods

GLA biologists performed focused plant surveys for the Project site in 2022 (middle segment) and 2024 (northwestern and southeastern segments). In 2022, GLA biologist Jillian Stephens performed surveys on March 2, April 13, and May 30. In 2024, GLA biologist Ian Rhodes performed surveys on April 8 and June 25/26.

Surveys were conducted in accordance with accepted botanical survey guidelines (CDFW 2018, CNPS 2001, Nelson 1984, USFWS 2000). As applicable, surveys were conducted at appropriate times based on precipitation and flowering periods. An aerial photograph, a soil map, and/or a topographic map were used to determine the community types and other physical features that may support sensitive and uncommon taxa or communities within the Project site. Surveys were conducted by following meandering transects within target areas of suitable habitat. All plant species encountered during the field surveys were identified and recorded following the above-referenced guidelines. A complete list of the plant species observed is provided in

Appendix A. Scientific nomenclature and common names used in this report follow Baldwin et al. (2012), and Munz (1974).

4.2 Results/Impacts

The Project will not impact Narrow Endemic Plants. None of the Narrow Endemic Plant species were detected during the 2022 and 2024 focused plant surveys. For many of these species, potentially suitable habitat was limited and marginal. The relatively highest potential for occurrence for many of the species was in the areas mapped as containing Traver soils in the northwestern and southeastern portions of the Project site, although microhabitats were lacking altogether for several of the species, i.e., vernal pools, and were generally not expected to occur.

4.3 Mitigation and Equivalency

Mitigation is not required for Narrow Endemic Plants.

5.0 ADDITIONAL SURVEY NEEDS (SECTION 6.3.2)

Pursuant to MSHCP *Volume I, Section 6.3.2*, the MSHCP requires habitat assessments and focused surveys (within areas of suitable habitat) for certain species as determined by a project's occurrence in a designated survey area, including Criteria Area Plant Species Survey Area (CAPSSA), burrowing owl survey area, amphibian survey area, and mammal survey area.

5.1 Criteria Area Species Survey Area - Plants

The Project site is not located within the CAPSSA (Exhibit 4B). As such, focused surveys are not required for Criteria Area Plants. One Criteria Area Plant Species, smooth tarplant (*Centromadia pungens* ssp. *laevis*) was detected within the Project site [Exhibit 8]. However, because the Project site does not occur within the CAPSSA, the MSHCP requirements pertaining to CAPSSA species such as smooth tarplant do not apply to the Project.

Approximately 1,670 smooth tarplant individuals were documented as occurring within portions of the Project site that support MSHCP Riverine resources and are discussed under Section 3.3 Riparian/Riverine Mitigation (Section 6.1.2), above.

5.2 Burrowing Owl

5.2.1 Methods

The Project site is within the MSHCP Burrowing Owl (*Athene cunicularia*) Survey Area [Exhibit 4B] and therefore a habitat assessment is required (in accordance with the

2006 MSHCP Burrowing Owl Survey Instructions) to determine if focused burrowing owl surveys are warranted for the Project site. The Burrowing Owl Survey Instructions are divided into three components: Step I (habitat assessment), Step II-A (focused burrow survey), and Step II-B (focused burrowing owl survey). The Step I habitat assessment is used to determine if a Project site exhibits the base-habitat conditions for burrowing owls, i.e., whether a site contains open habitats with the potential to contain fossorial mammal burrows to support burrowing owls.

Burrowing owl surveys were performed in 2022 for the middle portion of the Project alignment and in 2024 for the northwestern and southeastern portions of the Project [Exhibit 9 – Burrowing Owl Survey Map]. Step I habitat assessments were conducted by Stephanie Cashin and Wanisa Jaikwang on March 7, 2022, and by Jeff Ahrens on March 20, 2024. The Step I habitat assessments were conducted by walking meandering transects throughout the Project site to identify small mammal burrows or man-made structures that may be used by owls, as well as assessing the vegetation for suitability (i.e., areas of low growing grassland vegetation and/or lacking dense scrub). Additionally, a 500 feet buffer zone around the project boundary was visually inspected with binoculars.

Focused burrow surveys (Step II-A) were conducted on March 7, 2022, and March 20, 2024, concurrent with the first focused survey visits (Step II-B). The remaining focused survey visits for the respective survey areas were conducted on March 14, April 6, April 18, May 4, May 9, June 6 and June 13, 2022 (Amy Black, Stephanie Cashin, Brinna Lee, David Smith, Wanisa Jaikwang, and Joseph Vu), and on April 18, May 9, and July 8, 2024 (David Smith and Brinna Lee). The burrowing owl survey visits are to be conducted during a period from one hour prior to sunrise to two hours after sunrise or two hours before sunset to one hour after sunset. All survey visits were conducted in the morning within the allotted timeframe. The surveys were conducted during weather that was conducive to observing owls outside their burrows and detecting burrowing owl sign, and not during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. Additionally, all work was performed more than 5 days after a rain event.

Focused burrowing owl surveys were conducted by walking meandering transects throughout areas of suitable habitat. Transects were spaced between 22 feet and 65 feet apart, adjusting for vegetation height and density, in order to provide adequate visual coverage of the survey areas. At the start of each transect, and at least every 320 feet along transects, binoculars were used to scan the survey area for burrowing owls. All suitable burrows were inspected for diagnostic owl sign (e.g., pellets, prey remains, whitewash, feathers, bones, and decoration) in order to identify potentially occupied burrows. Exhibit 9 identifies the burrowing owl survey areas, transect locations, and the 500-foot buffer area. Table 5-1 summarizes the 2022 burrowing owl survey visits and Table 5-2 summarizes the 2024 burrowing owl survey visits.

Table 5-1. Summary of 2022 Burrowing Owl Surveys

Survey Number	Survey Date	Biologist	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
1	3/7/2022	SC/WJ	51/53	0-2	0
1	3/14/22	SC/BL	45/54	0-1	0
2	4/6/2022	SC/JV	57/63	0-2	0
2	4/18/2022	JV/WJ	52/59	0-6	100
3	5/4/2022	AB/DS	48/56	0-1	0
3	5/9/2022	SC/WJ	47/52	0-6	100
4	6/6/2022	SC/WJ	57/70	0-1	0
4	6/13/2022	SC/WJ	61/65	0-5	100
SC = Stephanie Cashin, WJ = Wanisa Jaikwang, BL = Brinna Lee, JV = Joseph Vu, AB = Amy Black, DS = David Smith					

Table 5-2. Summary of 2024 Burrowing Owl Surveys

Survey Number	Survey Date	Biologist	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
1	3/11/2024	JA	48/62	2-4	50
2	4/18/2024	DS	68/70	0	100
3	5/9/2024	DS	64/70	0	100
4	7/8/2024	BL	66/72	0-4	0
JA = Jeff Ahrens, DS = David Smith, BL = Brinna Lee					

Surveys were conducted by walking meandering transects throughout areas of suitable habitat. Exhibit 11 identifies the areas surveyed at the Project site, including a 500-foot visual survey area around the Project site. Transects were spaced at a maximum of 30 meters (100 feet) apart from each other, adjusting for vegetation height and density, to provide adequate visual coverage of the survey areas. At the start of each transect, and at least every 100 meters along the transects, the survey area was scanned for burrowing owls using binoculars. All suitable burrows were inspected for diagnostic owl sign (e.g., pellets, prey remains, whitewash, feathers, bones, and/or decoration) to identify potentially occupied burrows. The 500-foot visual survey area was at least inspected with binoculars but was also accessed on foot where feasible.

5.2.2 Results/Impacts

No burrowing owls were detected within the Project site during focused surveys. Exhibit 9 provides the locations of areas surveyed, including approximate transect locations as well as the locations of suitable burrows that were mapped. No burrowing owl sign was observed at any of the burrows.

5.2.3 Mitigation and Equivalency

Although burrowing owls were not detected during focused surveys, because the site has the potential to support burrowing owls, pre-construction surveys will be required to prevent harm to burrowing owls, should individuals occupy the site in the future. The following burrowing owl measure will apply to the Project:

- Pre-construction burrowing owl surveys will be conducted in areas of suitable habitat not more than 30 days prior to the initiation of ground disturbance (e.g., vegetation clearing, clearing and grubbing, tree removal, site watering, equipment staging, grading, etc.) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the project proponent will immediately inform the Regional Conservation Authority (RCA) and the Wildlife Agencies and will need to coordinate further with RCA and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure burrowing owl has not colonized the site since it was last disturbed. If burrowing owl is found, the same coordination described above will be necessary.

5.3 Mammals

The Project site is not located within a mammal survey area. As such, focused surveys are not required for designated mammal species and there are no other requirements applicable to the Project for mammals.

5.4 Amphibians

The Project site is not located within an amphibian survey area. As such, focused surveys are not required for designated amphibian species and there are no other requirements applicable to the Project for amphibians.

6.0 DELHI SANDS FLOWER-LOVING FLY

The Project site is not located within Delhi soils mapped within the MSHCP baseline data, and therefore habitat assessments/focused surveys are not required for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*).

7.0 REFERENCES

Dudek & Associates. 2003. Western Riverside County Multiple Species Habitat Conservation Plan. Volumes 1 – 5. Prepared for the Transportation and Land Management Agency, County of Riverside, California as part of the Riverside County Integrated Project. https://www.rctlma.org/Portals/0/mshcp/index.html.

Sogge, M.K, Ahlers, D., and Sferra, S.J. 2010. A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher: U.S Geological Survey Techniques and Methods 2A-10, 39p. https://www.fws.gov/ventura/endangered/species/surveys-protocol.html

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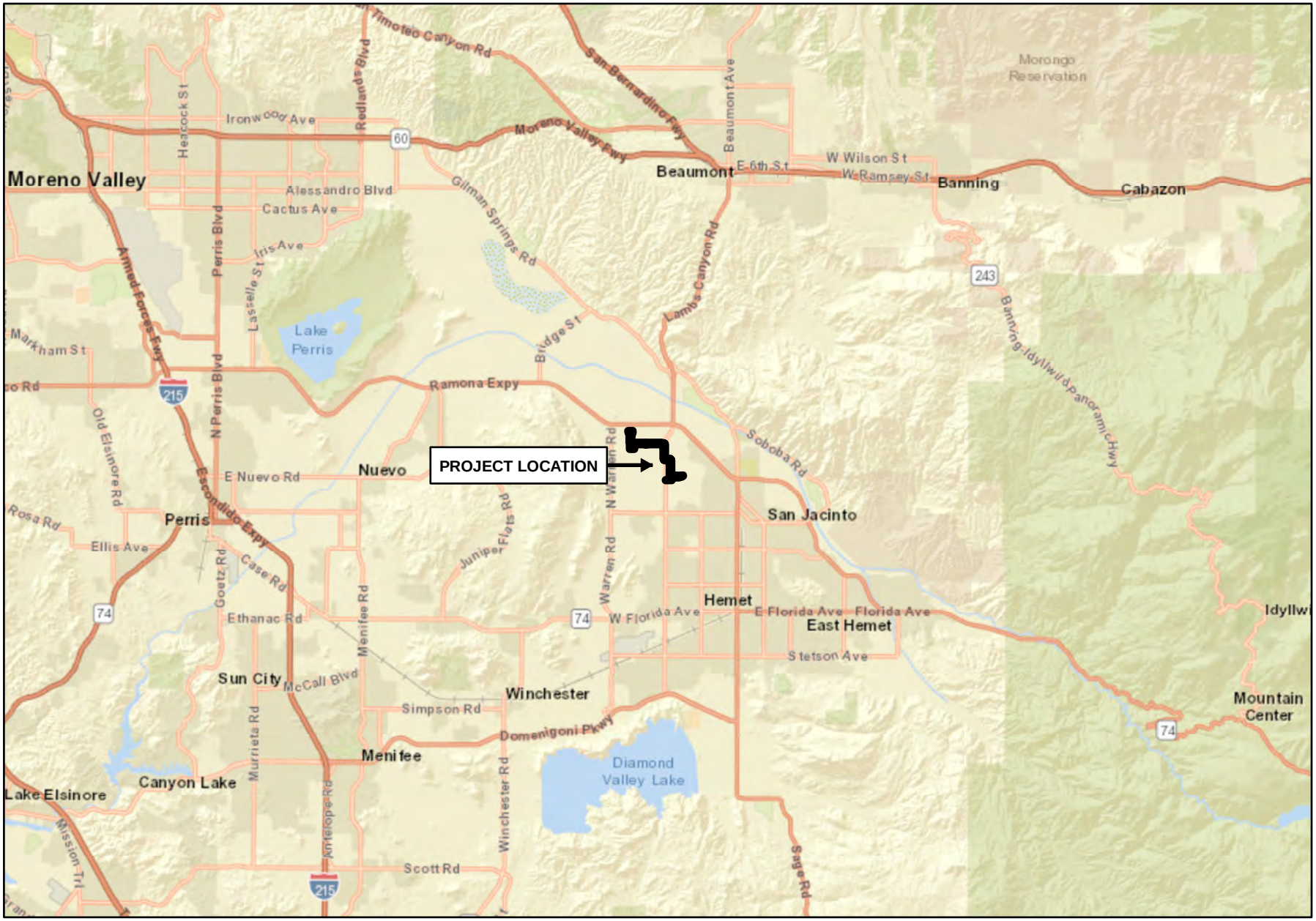
USFWS. 2016. A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-Billed Cuckoo. Prepared by M. Halterman, M.J. Johnson, J.A. Holmes, and S.A. Laymon. Sacramento, California: USFWS. May 2016. https://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/YellowBilledCuckoo/YBCU%20Survey%20Protocol_%20DRAFT_2016.pdf



Source: ESRI World Street Map

N

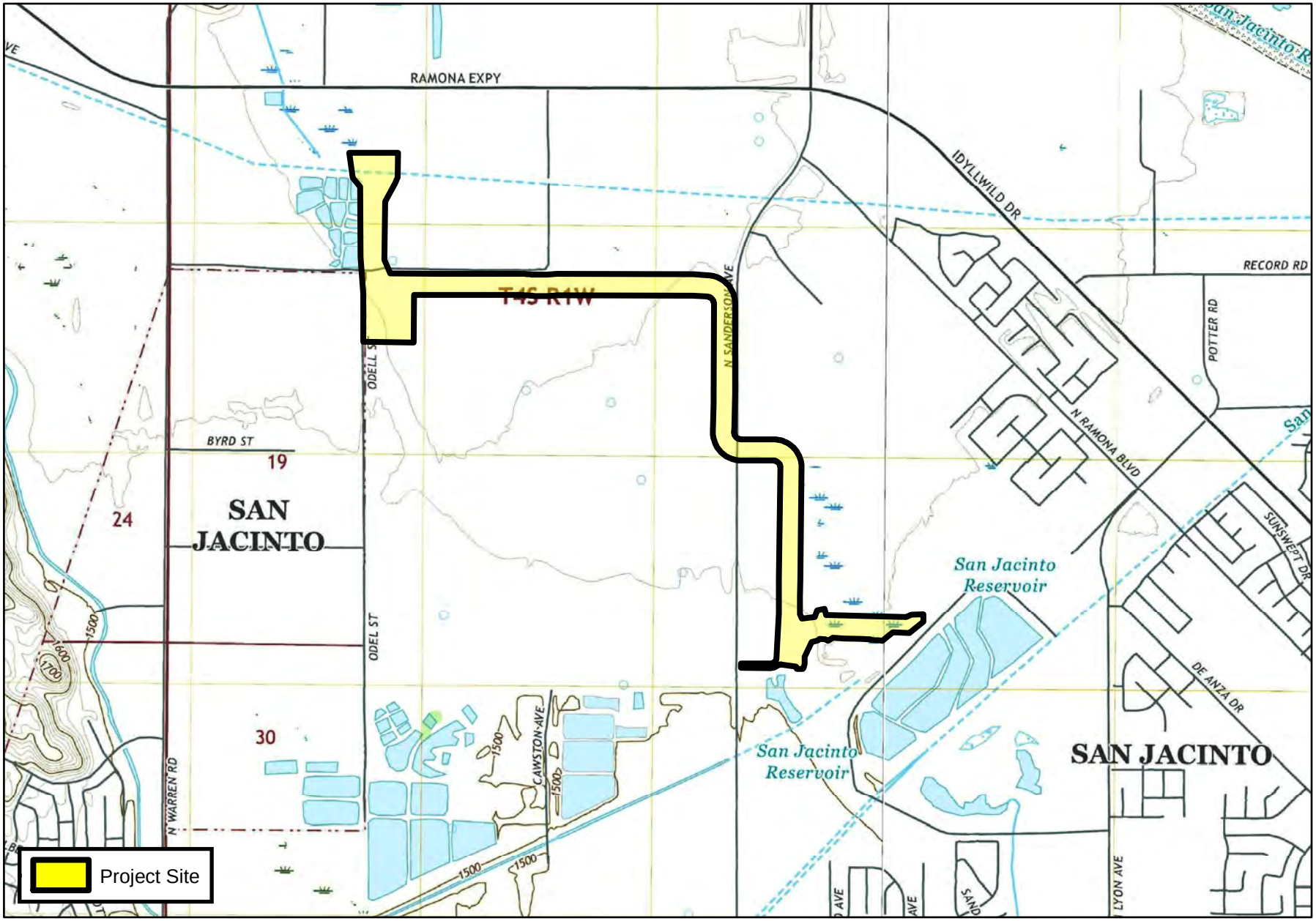
0 2 4 8 Miles

MDP LINE E PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Lakeview & San Jacinto, CA quadrangles

N

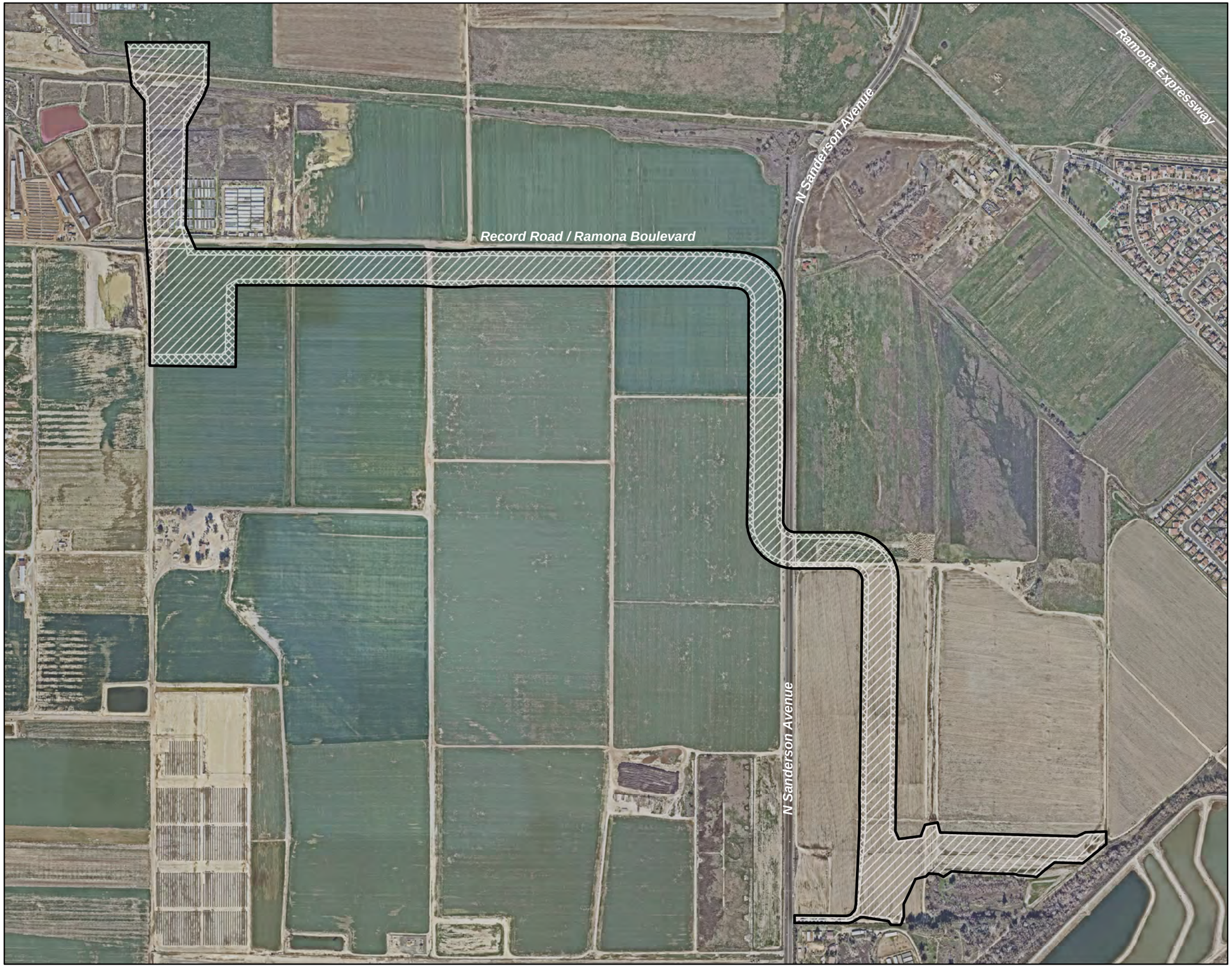
0 1,000 2,000 4,000 Feet

MDP LINE E PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project Site

Permanent Impact

Temporary Impact

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Aerial Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

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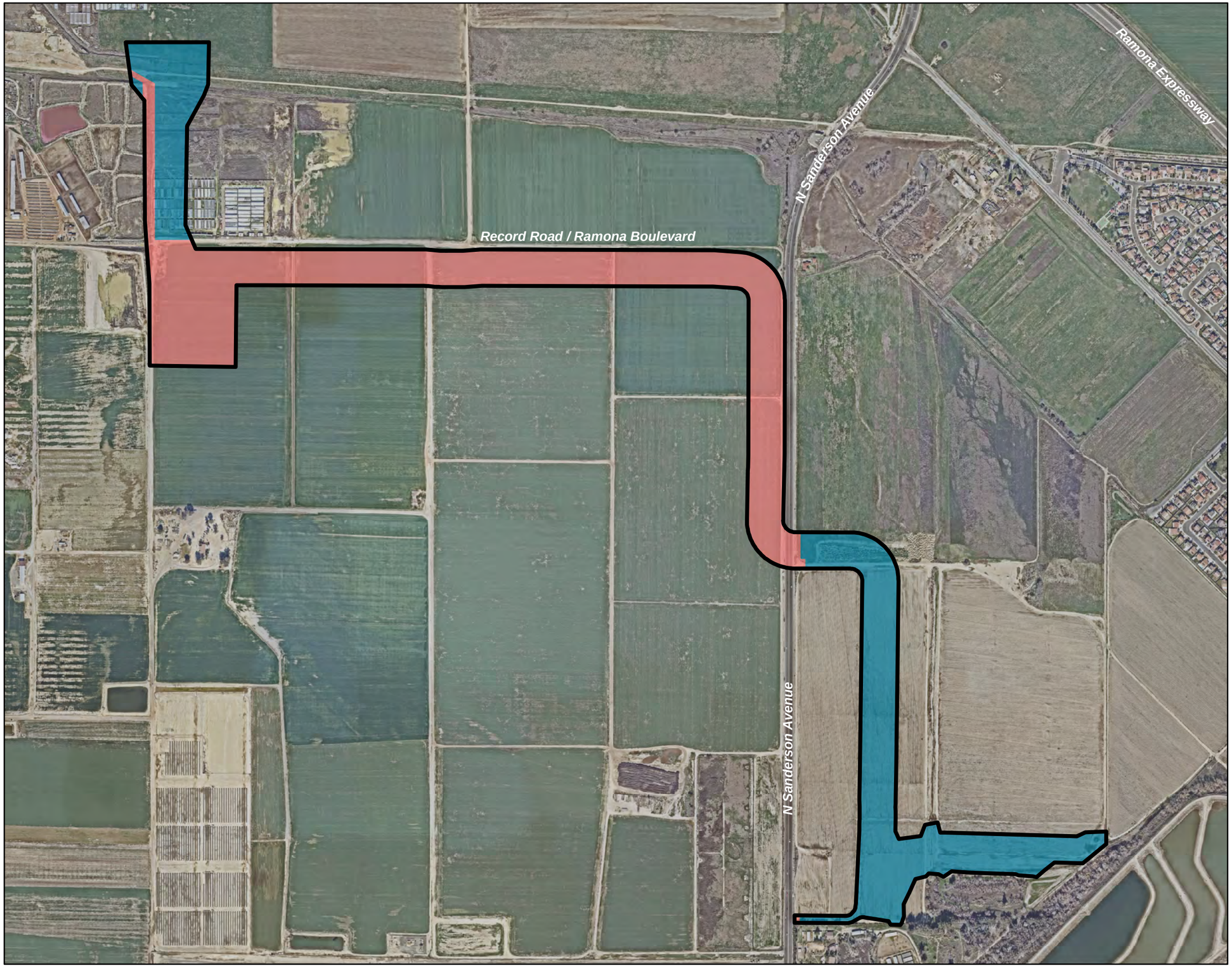

Project Site

2022 / 2023 Survey Area

2024 Survey Area

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Survey Areas

GLENN LUKOS ASSOCIATES

Exhibit 3B

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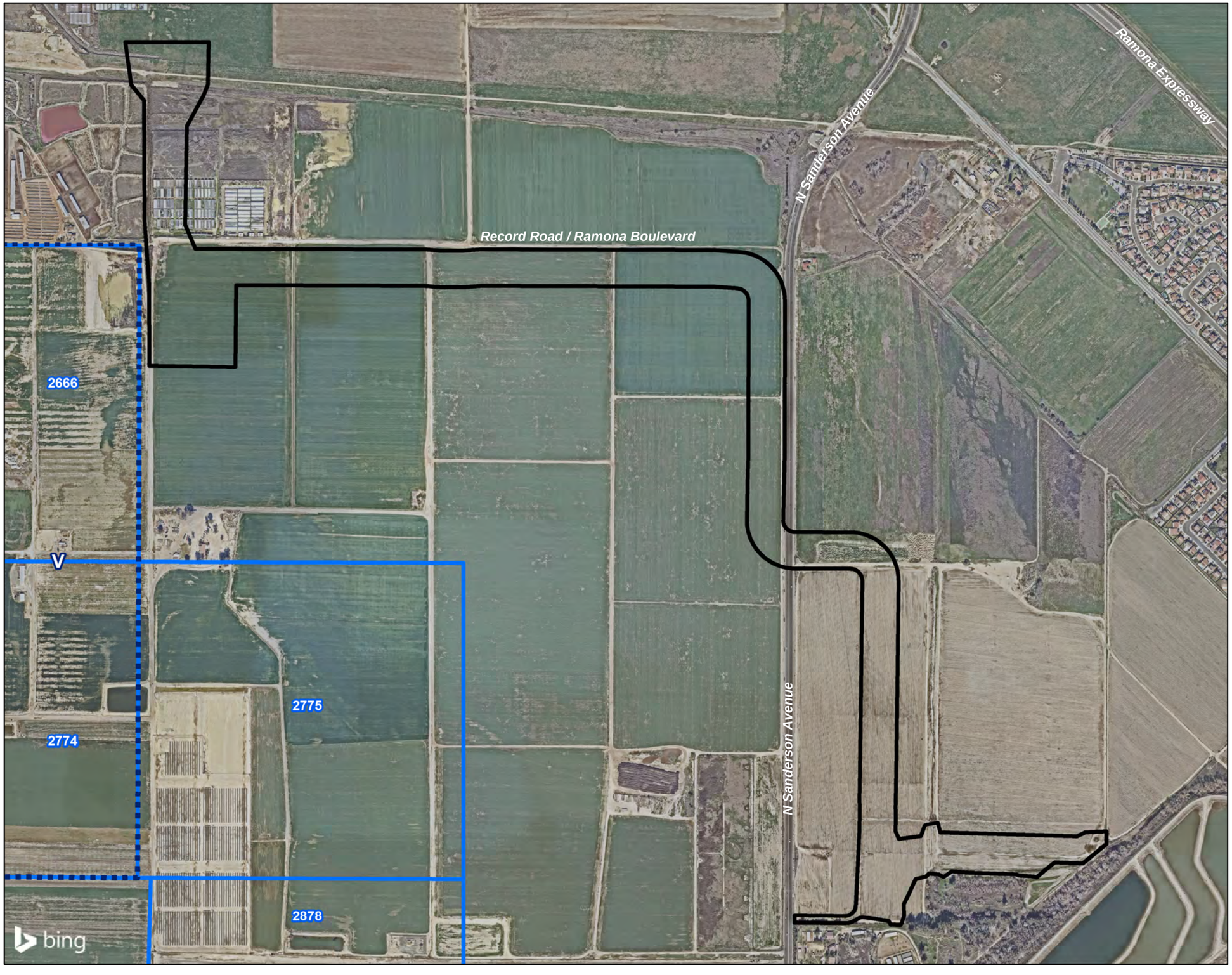

Project Site

Cell Group

Criteria Cell

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

MSHCP Overlay Map

GLENN LUKOS ASSOCIATES

Exhibit 4A

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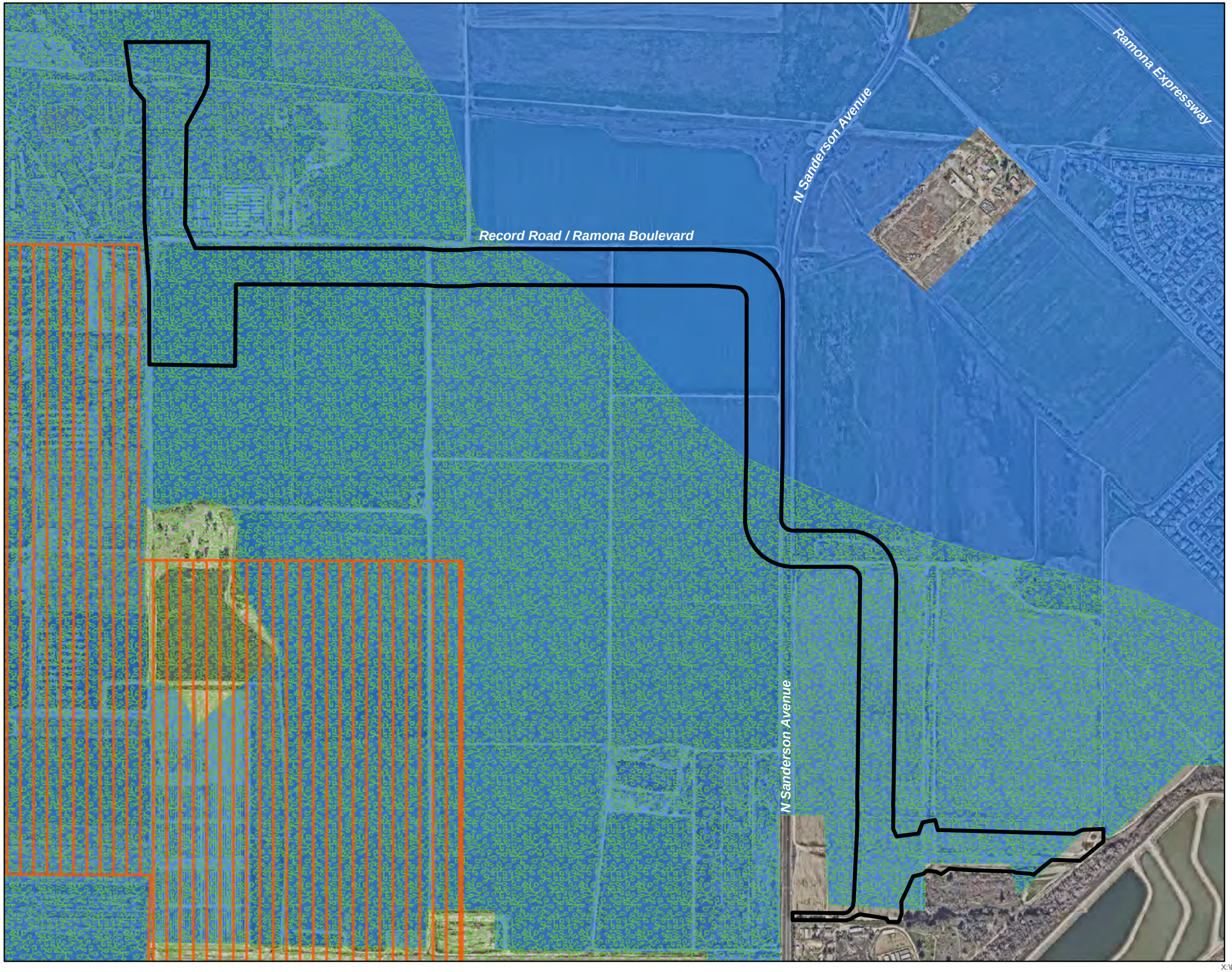

Project Site

Burrowing Owl Survey Area

Criteria Area Species Survey Area

Narrow Endemic Plant Species Survey Areas

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

MSHCP Survey Areas Map

GLENN LUKOS ASSOCIATES

Exhibit 4B

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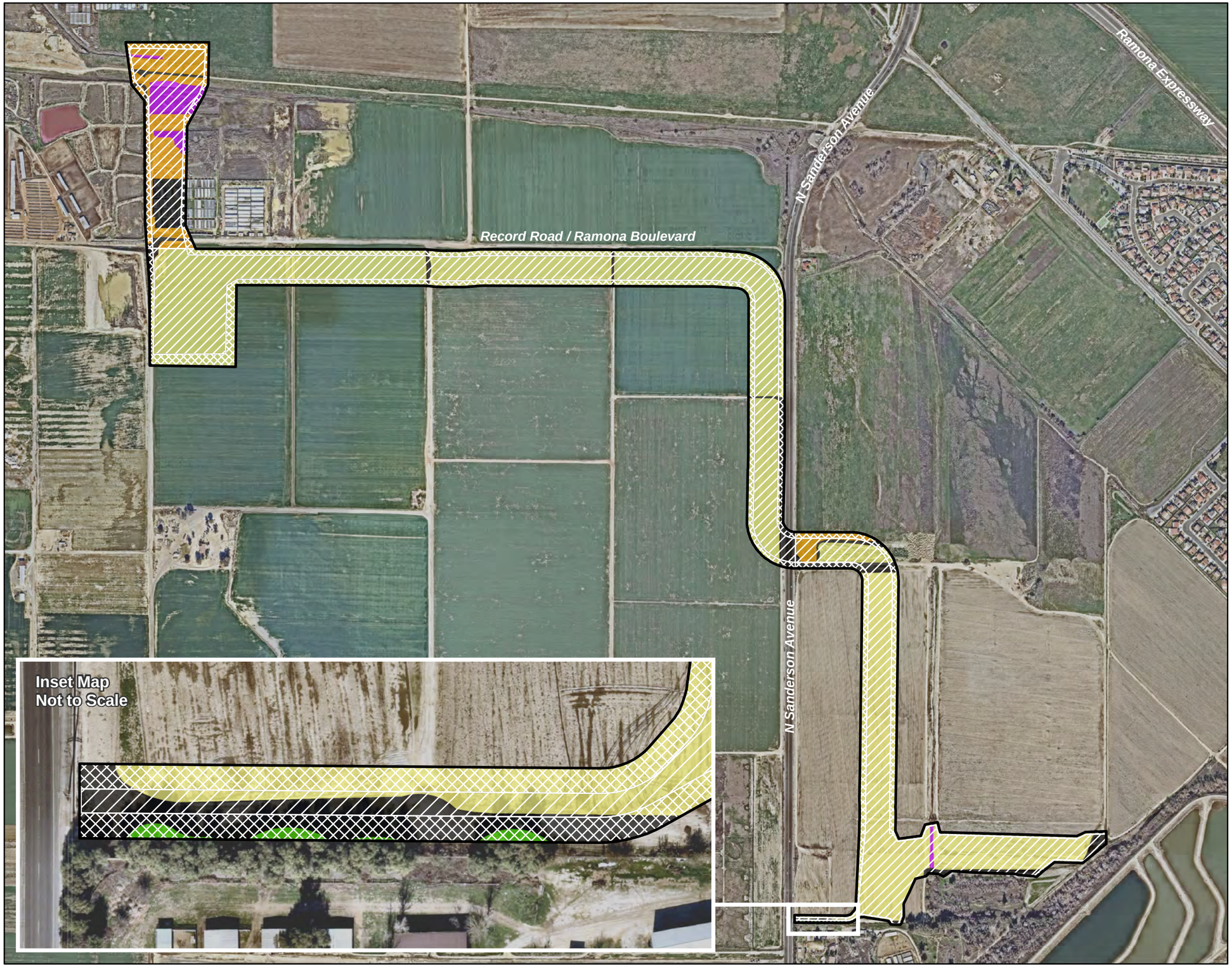

Project Site

Permanent Impact

Temporary Impact

Disturbed Agricultural Areas
(Agricultural Fields)

Bromus hordeaceus
Herbaceous Semi-Natural Alliance
(Annual Brome Grasslands)

Disturbed/Developed Areas
(Disturbed and Developed Areas)

Lepidium latifolium – Lactuca serriola
Herbaceous Semi-Natural Alliance
(Perennial Pepper Weed –
Prickly Lettuce Patches)

Eucalyptus globulus
Woodland Semi-Natural Alliance
(Eucalyptus Groves)

N

0 400 800 1,600

Feet

1 inch = 800 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Vegetation Map

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Exhibit 5

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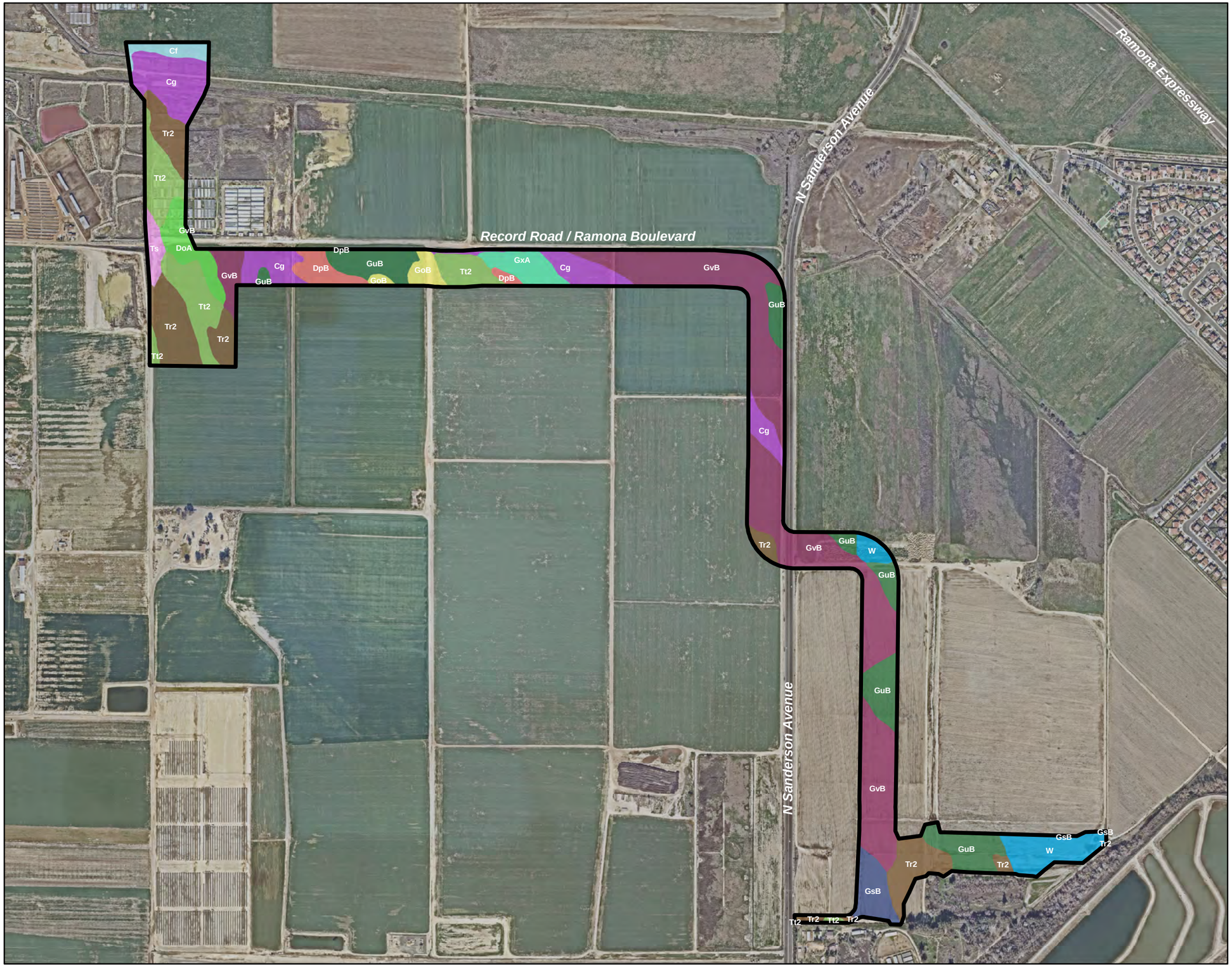

Project Site

Cf	Chino silt loam, drained, saline-alkali
Cg	Chino silt loam, drained, strongly saline-alkali
DoA	Dello loamy fine sand, 0 to 2 percent slopes
DpB	Dello loamy fine sand, saline-alkali, 0 to 5 percent slopes
GoB	Grangeville loamy fine sand, drained, 0 to 5 percent slopes
GsB	Grangeville sandy loam, sandy substratum, drained, saline-alkali, 0 to 5 percent slopes
GuB	Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
GvB	Grangeville fine sandy loam, saline-alkali, 0 to 5 percent slopes
GxA	Grangeville fine sandy loam, loamy substratum, drained, saline-alkali, 0 to 2 percent slopes
Tr2	Traver loamy fine sand, saline-alkali, eroded
Ts	Traver fine sandy loam, saline-alkali
Tt2	Traver fine sandy loam, strongly saline-alkali, eroded
W	Water

0 400 800 1,600

Feet

1 inch = 800 feet

N

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Soils Map

GLENN LUKOS ASSOCIATES

Exhibit 6

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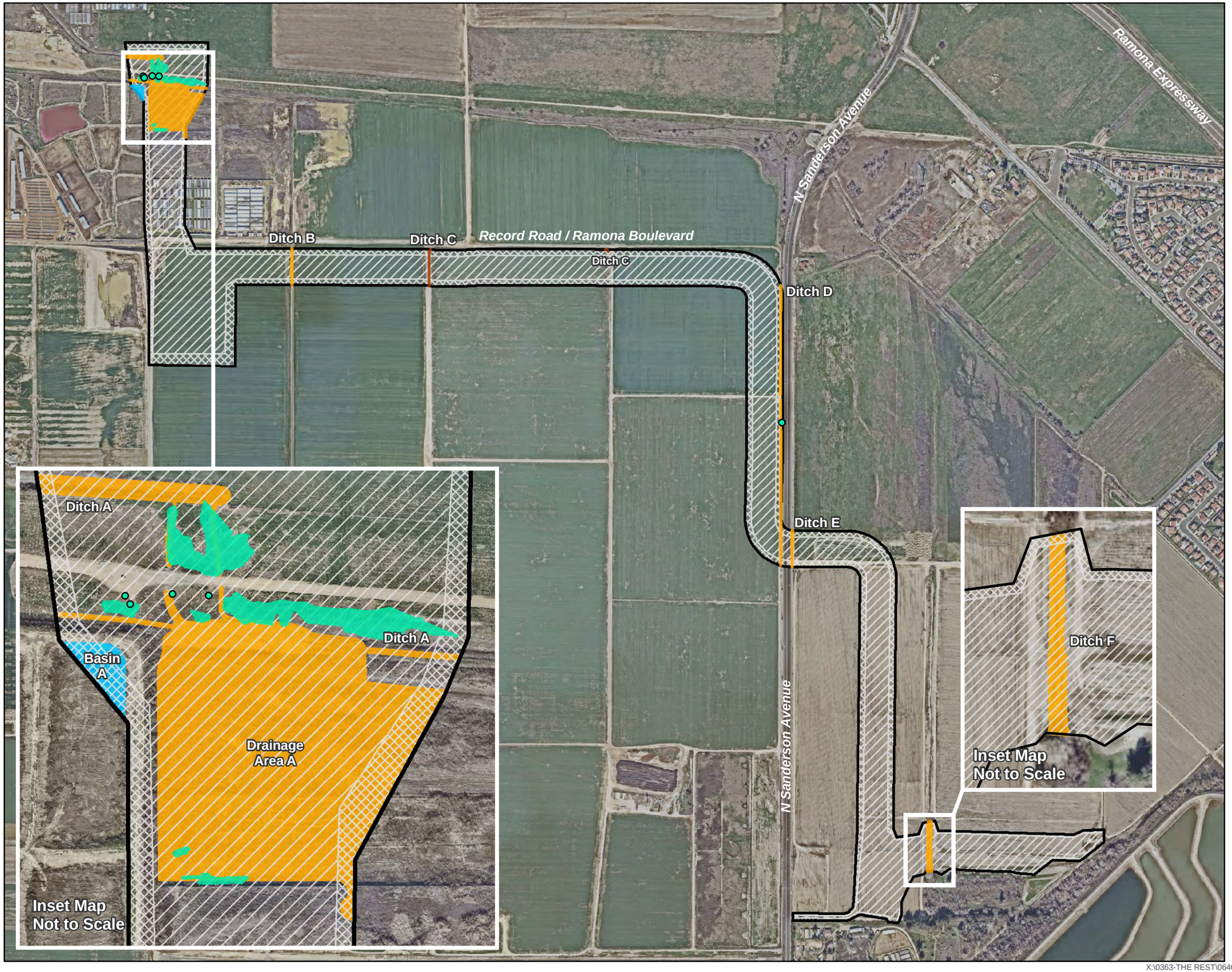

Project Site

Permanent Impact

Temporary Impact

MSHCP Riverine

Agricultural Ditch (Non-Riparian/Riverine)

Basin (Non-Riparian/Riverine)

Smooth Tarplant

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 17, 2025

MDP LINE E PROJECT

MSHCP Riverine Areas

GLENN LUKOS ASSOCIATES

Exhibit 7

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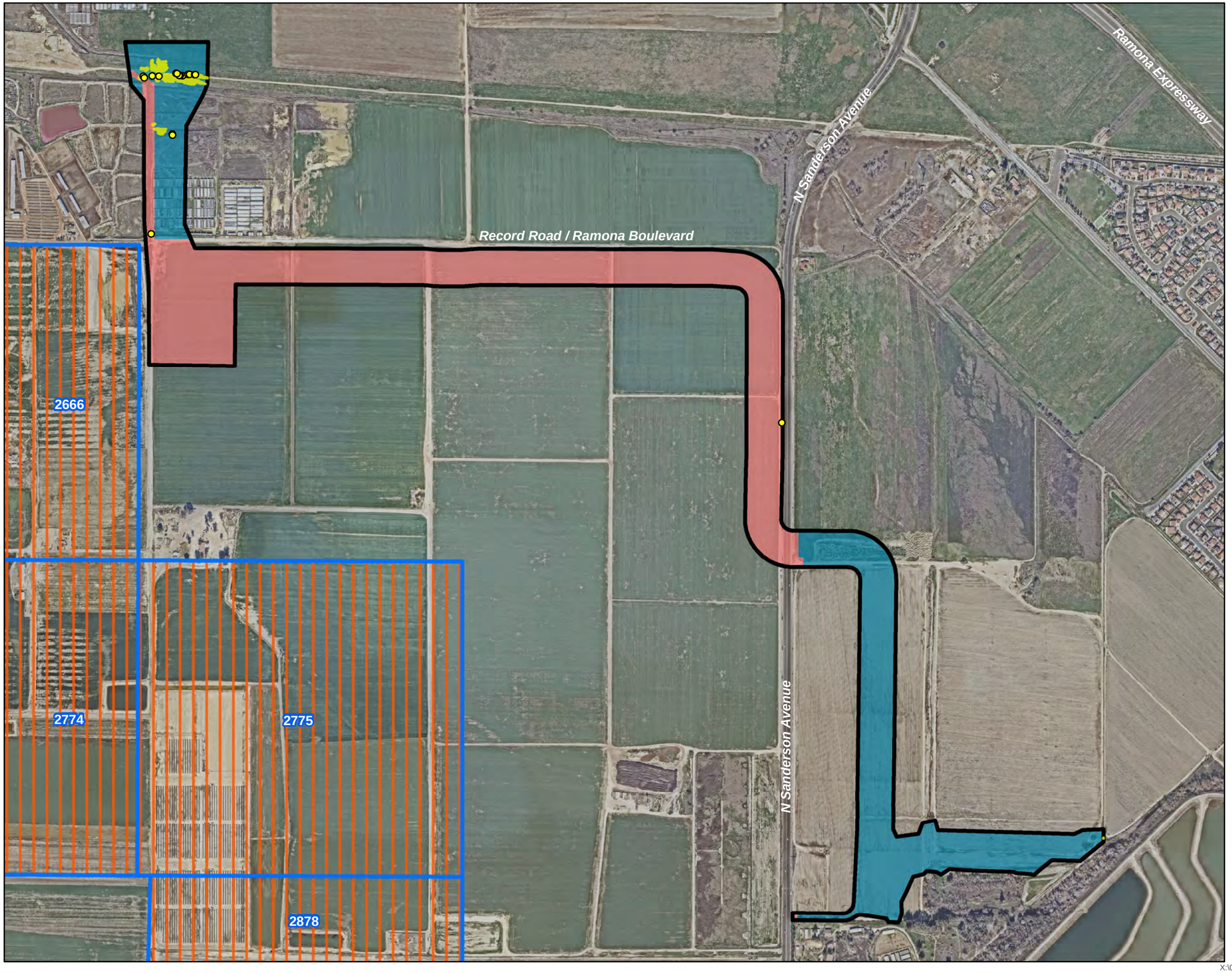

Project Site

2022 / 2023 Survey Area

2024 Survey Area

Smooth Tarplant

Criteria Cell

Criteria Area Species Survey Area

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Smooth Tarplant Location Map

GLENN LUKOS ASSOCIATES

Exhibit 8

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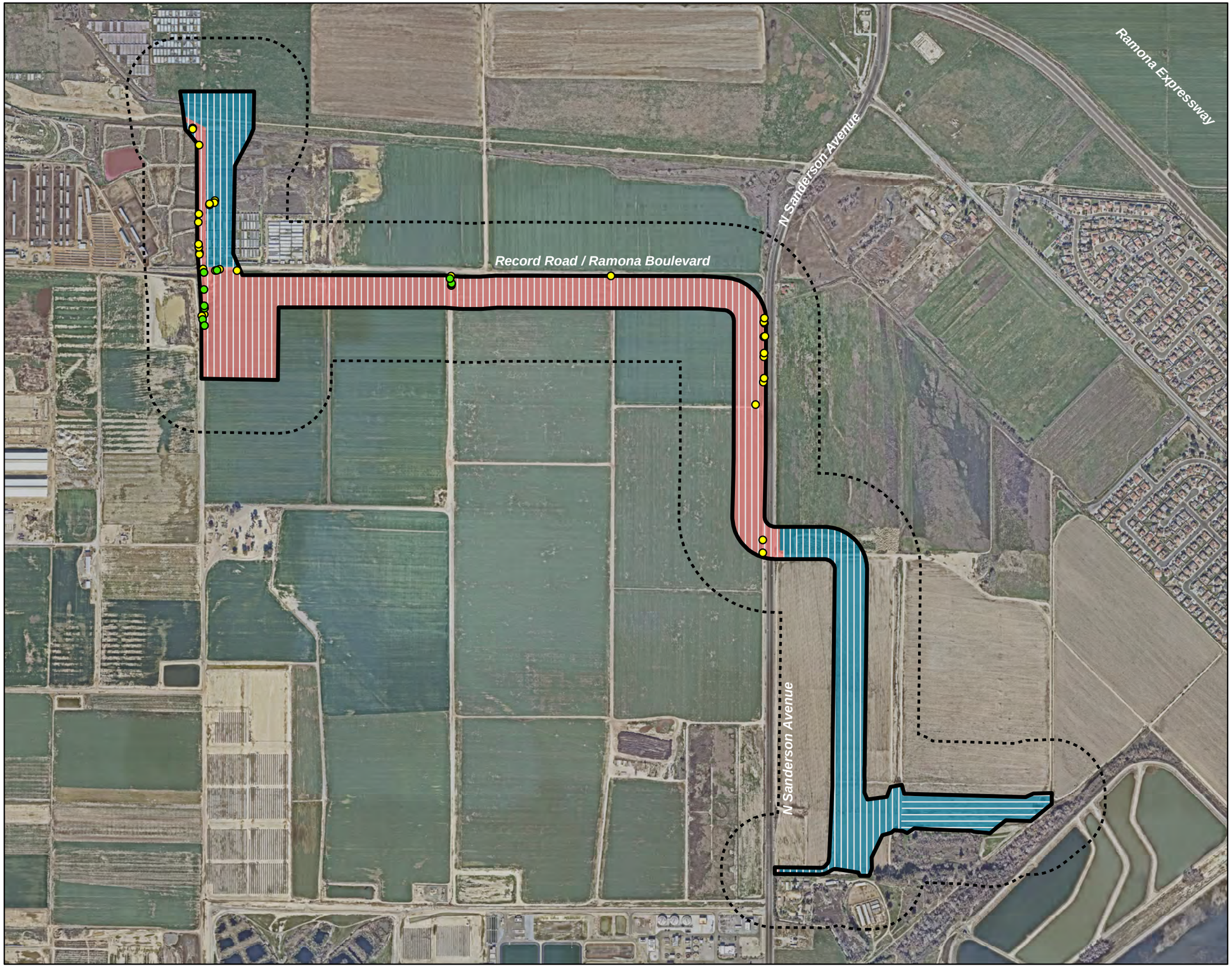

Project Site

2022 / 2023 Survey Area

2024 Survey Area

500' Visual Survey Buffer

Burrowing Owl Transect

Burrow

Burrow Complex

N

0 450 900 1,800

Feet

1 inch = 900 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Burrowing Owl Survey Map

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\0363-THE REST\0640-86MDPE\GIS\BUOW_GIS\0640-86+84_BUOW.mxd



Photograph 1: View of Drainage Area A facing east depicting ponding in low areas. Photograph taken May 23, 2024.



Photograph 2: View from within previously ponded area in Drainage Area A facing northwest. Photograph taken September 20, 2024.



Photograph 3: View of Drainage Area A and Drainage A facing east from adjacent berm. Photograph taken June 27, 2024.



Photograph 4: View from within Drainage Area A facing southwest towards fence that divides Drainage Area A from southern parcel. Note this area was ponded in May 2024. Photograph taken September 20, 2024.

GLENN LUKOS ASSOCIATES

Exhibit 10 – Page 1

MDP LINE E PROJECT

Site Photographs



Photograph 5: View of Drainage A facing north. Photograph taken May 23, 2024.



Photograph 6: View of Drainage A culvert facing north from Drainage Area A. Note heavy debris and sediment blocking culvert. Photograph taken May 23, 2024.



Photograph 7: View of area where Drainage A and Drainage Area A converge near dirt access road. Photo taken facing southwest towards Drainage Area A. Photograph taken June 27, 2024.



Photograph 8: View of culverts under dirt access road where Drainage A is conveyed north. Photo taken facing north from edge of Drainage Area A. Photograph taken September 20, 2024.

MDP LINE E PROJECT
Site Photographs



Photograph 9: View of Drainage A facing north from dirt access road. Photograph taken June 27, 2024.



Photograph 10: View of Drainage A facing east. Photograph taken September 20, 2024.



Photograph 11: View of Drainage A facing west. Photograph taken September 20, 2024.



Photograph 12: View of Drainage B facing south from northern Project boundary at dirt access road. Photograph taken September 20, 2024.

MDP LINE E PROJECT
Site Photographs



Photograph 13: View of Drainage B facing south from northern Project boundary at dirt access road. Photograph taken May 23, 2024.



Photograph 14: View of Drainage C looking southeast from the western bank depicting concrete culvert and rip rap at edge of Project site boundary. Photograph taken May 23, 2024.



Photograph 15: View of Drainage C facing southeast from western bank. Photograph taken May 24, 2024.



Photograph 16: View of Drainage C looking north from within the channel. Note the tree in background is located offsite. Photograph taken September 20, 2024.

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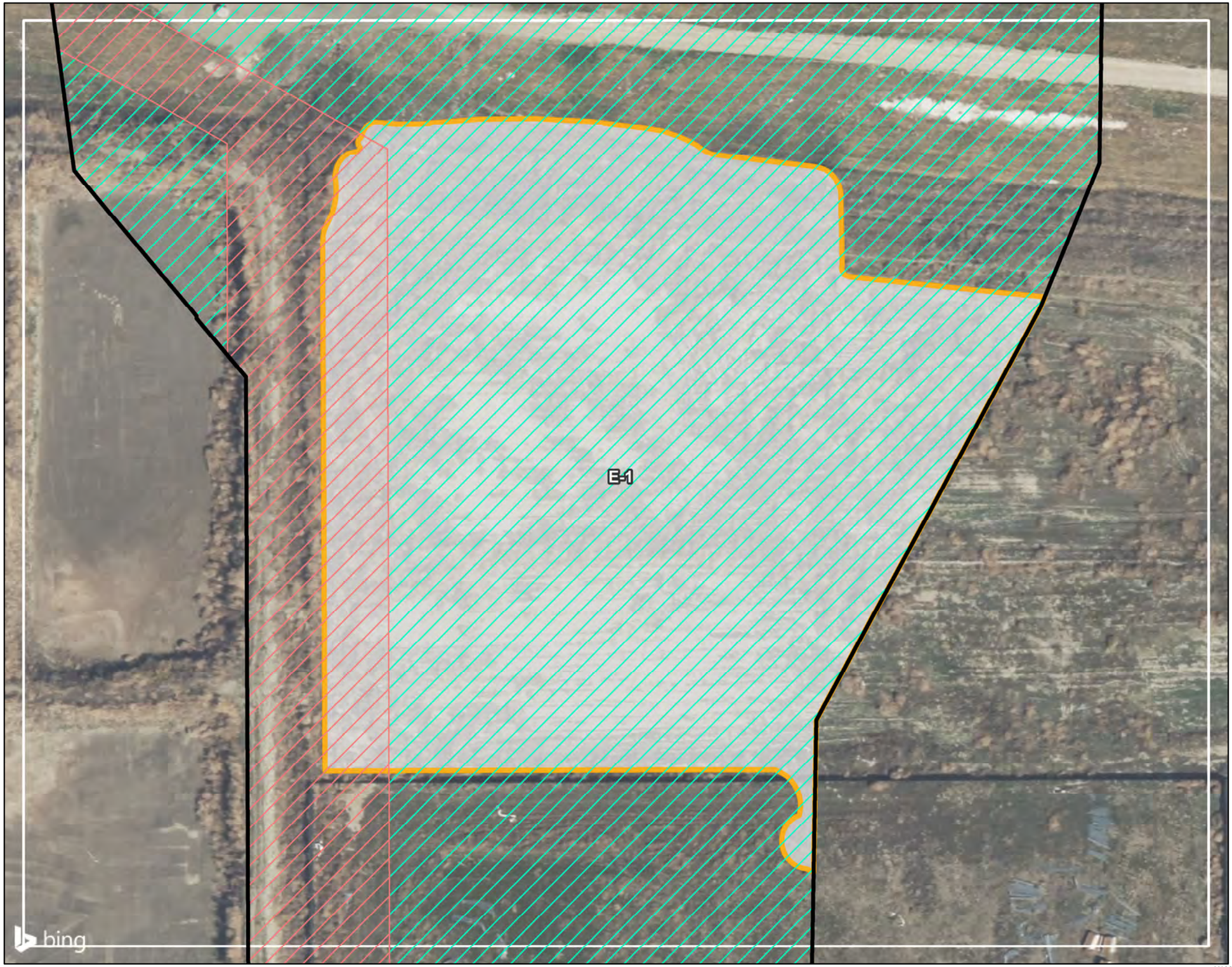
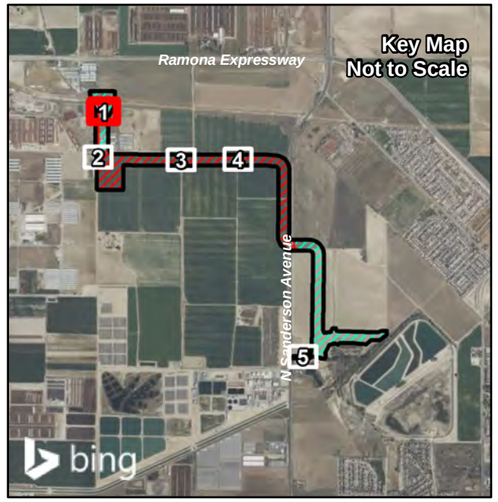
MDP LINE E PROJECT

Site Photographs





Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 30 60 120
Feet

1 inch = 60 feet

N

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 11 - Sheet 1

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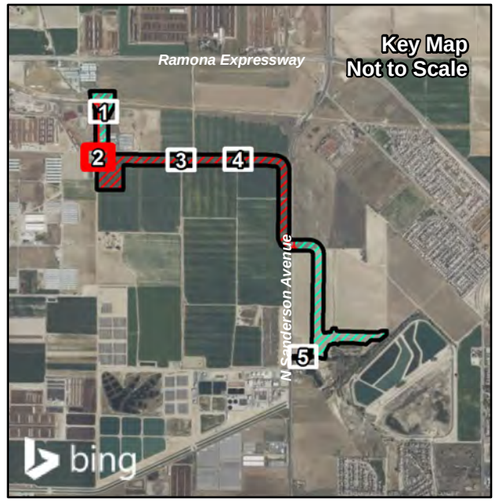

Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 30 60 120
Feet

1 inch = 60 feet

N

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 11 - Sheet 2

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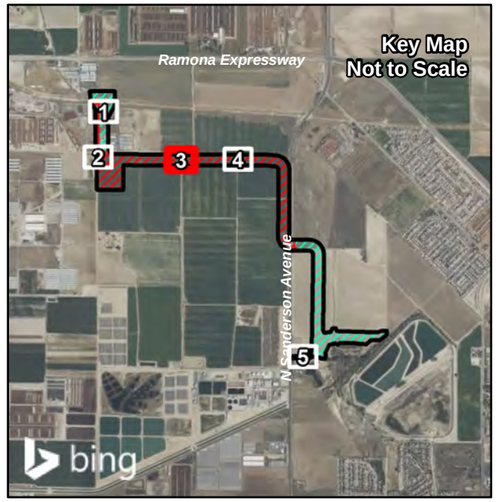

Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 30 60 120
Feet

1 inch = 60 feet

N

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 11 - Sheet 3

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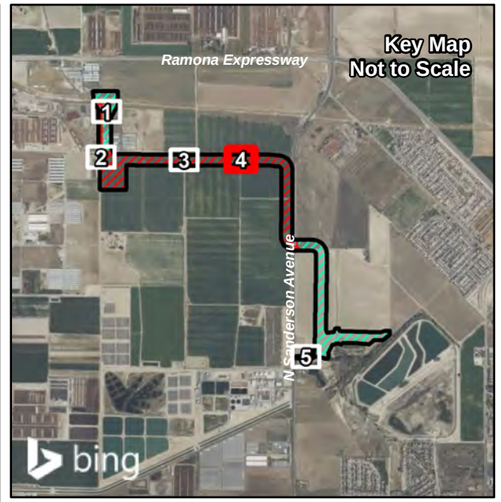

Key Map
Not to Scale

Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 30 60 120
Feet

1 inch = 60 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 11 - Sheet 4

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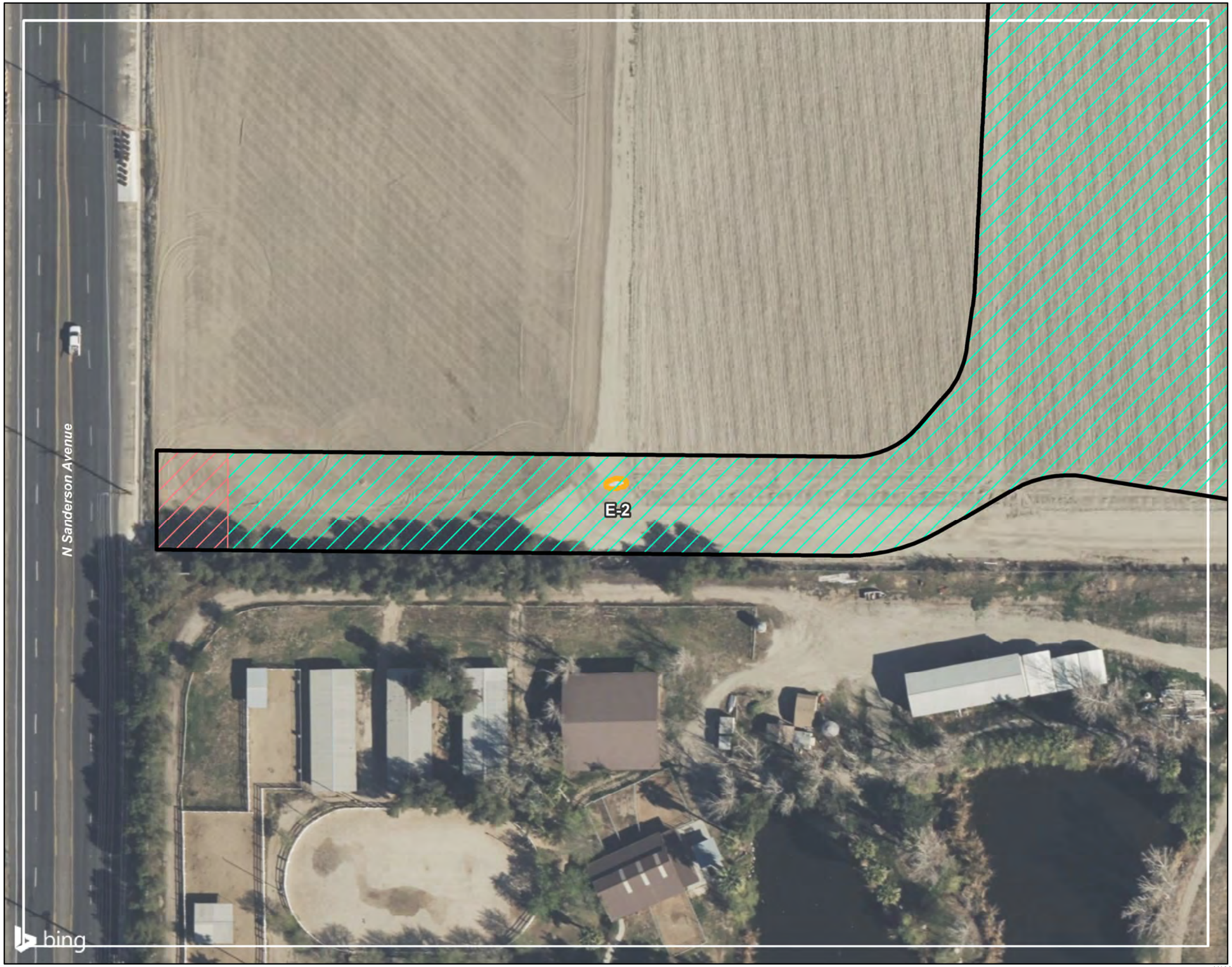

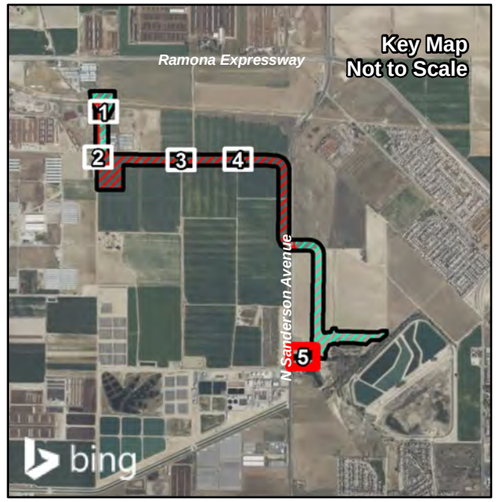

Project Site /
Fairy Shrimp Survey Area

2022 / 2023 Survey Area

2024 Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

Survey in Progress – Results Pending

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 30 60 120
Feet

1 inch = 60 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 11 - Sheet 5

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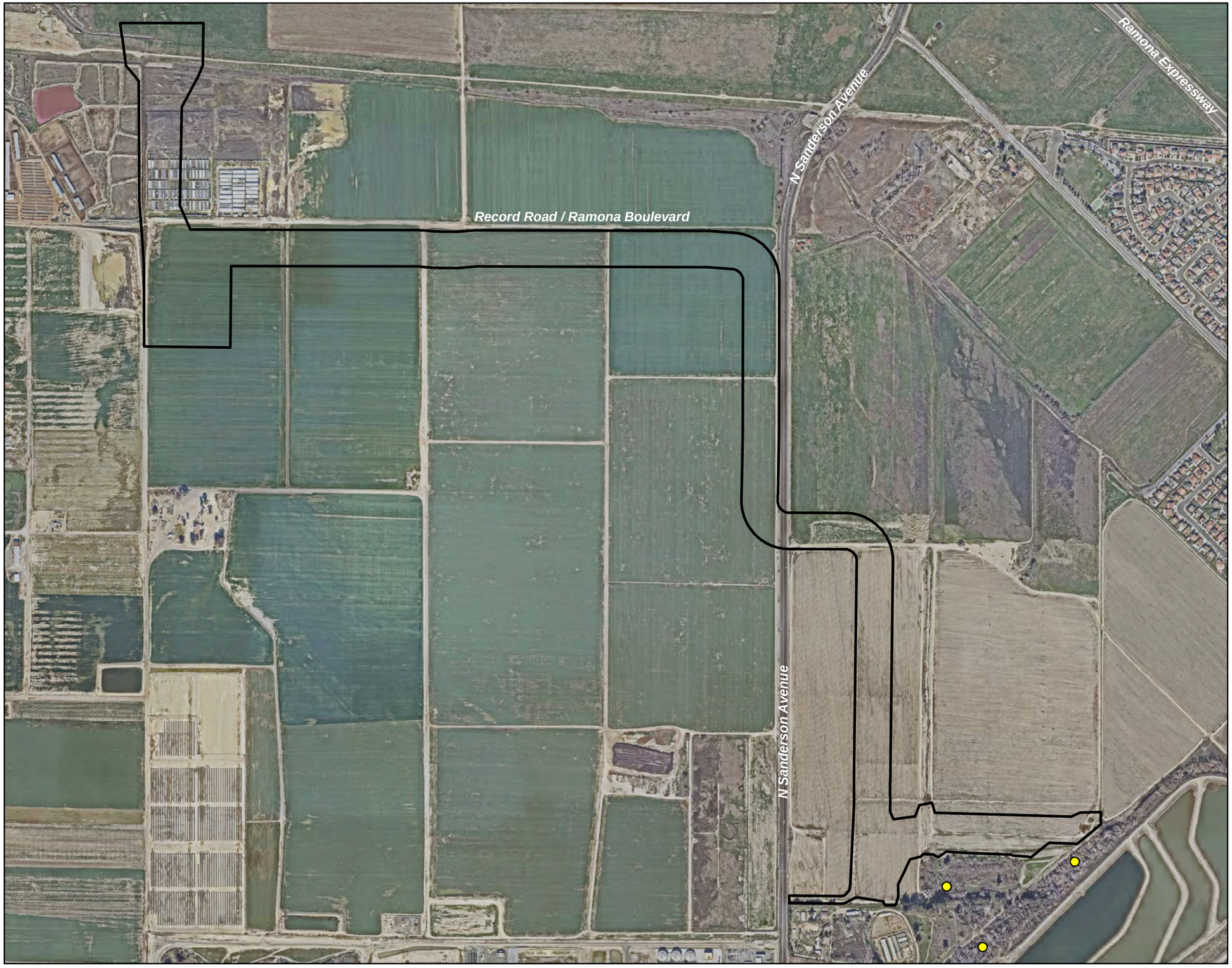

Project Site

LBV Territory

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: December 13, 2024

MDP LINE E PROJECT

Least Bell's Vireo Survey Results

GLENN LUKOS ASSOCIATES

Exhibit 12

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Appendix A

Floral Compendium

Appendix A

Floral Compendium

Taxonomy sourced from The Jepson Manual (Baldwin et al. 2012) and Jepson eFlora (2023) and, for sensitive species, the California Native Plant Society's Rare Plant Inventory, Online Edition v-9.5 (CNPS 2024). Common plant names are taken from Hickman (1993), Munz (1974), Roberts et al. (2004), and Roberts (2008).

* Non-native/introduced species; + Detected offsite, but within the overall Study Area.

SCIENTIFIC NAME	COMMON NAME	SPECIAL STATUS
MONOCOTS		
Arecaceae – Palm Family		
+ *Phoenix canariensis	Canary island date palm	
+ *Washingtonia robusta	Mexican fan palm	
Poaceae – Grass Family		
Avena barbata	slim oat	
Bromus diandrus	ripgut brome	
Bromus hordeaceus	soft chess	
Bromus rubens	red brome	
Ehrharta erecta	upright veldt grass	
Hordeum marinum	Seaside barley	
Hordeum vulgare	common barley	
Schismus barbatus	Old han schismus	
Triticum aestivum	common wheat	
Typhaceae – Cattail Family		
+ Typha domingensis	cattail	
EUDICOTS		
Amaranthaceae – Amaranth Family		
Amaranthus blitoides	prostrate pigweed	
Anacardiaceae – Sumac Family		
Schinus molle	Peruvian pepper tree	
Asteraceae – Sunflower Family		
+ Baccharis salicifolia	mule fat	
Centromadia pungens ssp. laevis	Smooth tarplant	CRPR 1B.1

***Cirsium vulgare**	bullthistle	
***Erigeron canadensis**	Canada horseweed	
***Helianthus annuus**	hairy leaved sunflower	
***Lactuca serriola**	prickly lettuce	
***Matricaria discoidea**	Pineapple weed	
***Oncosiphon pilulifer**	stinknet	
***Pseudognaphalium californicum**	Ladies' tobacco	
***Senecio vulgaris**	common groundsel	
Boraginaceae – Borage		
***Amsinckia menziesii**	fiddleneck	
***Cryptantha intermedia**	common cryptanth	
***Plagiobothrys leptocladus**	Alkali plagiobothrys	
Brassicaceae – Mustard Family		
***Capsella bursa-pastoris**	Shepherd's purse	
***Hirschfeldia incana**	mustard	
***Lepidium latifolium**	perennial pepperweed	
***Sisymbrium irio**	London rocket	
Chenopodiaceae – Goosefoot Family		
***Atriplex semibaccata**	Australian saltbush	
***Bassia hyssopifolia**	five horn bassia	
***Chenopodium album**	Lambs quarters	
***Chenopodium murale**	nettle leaf goosefoot	
Convolvulaceae – Morning Glory Family		
***Convolvulus arvensis**	field bindweed	
Crassulaceae – Stonecrop Family		
***Crassula connata**	sand pygmy weed	
Fabaceae – Legume Family		
***Melilotus indicus**	annual yellow sweetclover	
***Parkinsonia aculeata**	Jerusalem thorn	
Geraniaceae – Geranium Family		
***Erodium cicutarium**	coastal heron's bill	
Hydrophyllaceae – Waterleaf Family		
***+Phacelia ramosissima**	branching phacelia	

Malvaceae – Mallow Family		
***Malva parviflora**	cheeseweed	
Myrtaceae – Myrtle Family		
***Eucalyptus globulus**	blue gum	
Polygonaceae – Buckwheat Family		
***Rumex crispus**	curly dock	
Salicaceae – Willow Family		
+*Populus fremontii	Fremont cottonwood	
+*Salix exigua	narrowleaf willow	
+*Salix exigua var. exigua	narrowleaf willow	
***Salix gooddingii**	Gooding's willow	
+*Salix laevigata	polished willow	
+*Salix lasiolepis	Arroyo willow	
Solanaceae – Nightshade Family		
***Nicotiana glauca**	tree tobacco	
Tamaricaceae – Tamarisk Family		
***+*Tamarix ramosissima**	tamarisk	
Urticaceae – Nettle Family		
***Urtica urens**	annual stinging nettle	

Special Status Designations

Federal
FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate

State
SE – State Endangered
ST – State Threatened
SR – State Rare

CNPS
Rank 1A – Plants presumed extirpated in California and either rare or extinct elsewhere.
Rank 1B – Plants rare, threatened, or endangered in California and elsewhere.
Rank 2A – Plants presumed extirpated in California, but common elsewhere.
Rank 2B – Plants rare, threatened, or endangered in California, but more common elsewhere.
Rank 3 – Plants about which more information is needed (a review list).
Rank 4 – Plants of limited distribution (a watch list).

Threat Code extension

.1 – Seriously endangered in California (over 80% occurrences threatened)

.2 – Fairly endangered in California (20-80% occurrences threatened)

.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

Appendix B

Faunal Compendium

Appendix B

Faunal Compendium

Taxonomy and common names sourced from the California Wildlife Habitat Relationships System (CDFW 2016), the CNDDB for special status species, and the following taxa-specific sources: American Ornithological Society (2024) for birds; Collins and Taggart (2009) and Crother (2017) for reptiles and amphibians; and Wilson and Reeder (2005) for mammals.

* Non-native/introduced species; + Detected offsite, but within the overall Study Area.

SCIENTIFIC NAME	COMMON NAME	SPECIAL STATUS
INVERTEBRATES		
+Bombus crotchii	Crotch's bumble bee	SCE
AMPHIBIANS		
Bufonidae – True Toads		
+Anaxyrus boreas halophilus	California toad	
Hylidae – Treefrogs and Allies		
+Pseudacris hypochondriaca	Baja California treefrog	
REPTILES		
Phrynosomatidae – Phrynosomatid Lizards		
Sceloporus occidentalis longipes	Great Basin fence lizard	
BIRDS		
Accipitridae – Hawks, Eagles, Kites		
+ Accipiter cooperii	Cooper's hawk	
Buteo jamaicensis	red-tailed hawk	
+Buteo lineatus	red-shouldered hawk	
+ Circus hudsonius	northern harrier	SSC
Aegithalidae – Bushtits		
Psaltriparus minimus	bushtit	
Alaudidae – Larks		
Eremophila alpestris	horned lark	

Anatidae – Swans, Geese, Ducks		
+Anas platyrhynchos	mallard	
Apodidae – Swifts		
Aeronautes saxatalis	white-throated swift	
Ardeidae – Herons and Bitterns		
+Ardea alba	great egret	
+Bubulcus ibis	cattle egret	
+Butorides virescens	green heron	
+Egretta thula	snowy egret	
+Nycticorax nycticorax	black-crowned night heron	
Cardinalidae – Cardinals		
+Passerina amoena	lazuli bunting	
+Passerina caerulea	blue grosbeak	
+Pheucticus melanocephalus	black-headed grosbeak	
Cathartidae – American Vultures		
Cathartes aura	turkey vulture	
Charadriidae – Plovers and Relatives		
Charadrius vociferus	killdeer	
Columbidae – Pigeons, Doves		
****+Columbia livia***	rock pigeon	
****+Streptopelia decaocto***	Eurasian collared-dove	
Zenaida macroura	mourning dove	
Corvidae – Crows, Jays		
+Aphelocoma californica	California scrub-jay	
Corvus brachyrhynchos	American crow	
Corvus corax	common raven	
Emberizidae – Old World Buntings		
+Melospiza lincolnii	Lincoln’s sparrow	
Melospiza melodia	song sparrow	
+Melozone crissalis	California towhee	
Passerculus sandwichensis	savannah sparrow	
+Pipilo maculatus	spotted towhee	
Fringillidae – Finches		
Spinus psaltria	lesser goldfinch	
Haemorhous mexicanus	house finch	

+Spinus lawrencei	Lawrence's goldfinch	
+Spinus tristis	American goldfinch	
Hirundinidae – Swallows, Martins		
Hirundo rustica	barn swallow	
Petrochelidon pyrrhonota	cliff swallow	
Tachycineta bicolor	tree swallow	
Tachycineta thalassina	violet-green swallow	
Icteridae – Blackbirds		
+Agelaius phoeniceus	red-winged blackbird	
Euphagus cyanocephalus	Brewer's blackbird	
Icterus bullockii	Bullock's oriole	
Icterus cucullatus	hooded oriole	
+Molothrus ater	brown-headed cowbird	
Sturnella neglecta	western meadowlark	
Mimidae – Mockingbirds, Thrashers		
Mimus polyglottos	northern mockingbird	
Parulidae – Wood Warblers		
Geothlypis trichas	common yellowthroat	
+Icteria virens	yellow-breasted chat	SSC
+Setophaga petechial	yellow warbler	SSC
+Leiothlypis celata	orange-crowned warber	
Picidae – Woodpeckers		
+Colaptes auratus	northern flicker	
+Melanerpes formicivorus	acorn woodpecker	
+Picoides nuttallii	Nuttall's woodpecker	
Rallidae – Rails, Gallinules and Coots		
+Fulica americana	American coot	
+Porzana carolina	sora	
+Rallus limicola	Virginia rail	
Recurvirostridae – Avocets and Stilts		
+Himantopus mexicanus	black-necked stilt	
Regulidae – Kinglets		
+Corthylio calendula	ruby-crowned kinglet	
Strigidae – Typical Owls		
+Bubo virginianus	great-horned owl	

Sturnidae – Starlings and Mynahs		
***Sturnus vulgaris**	European starling	
Trochilidae – Hummingbirds		
Archilochus alexandri	black-chinned hummingbird	
Calypte anna	Anna's hummingbird	
Selasphorus sasin	Allen's hummingbird	
Troglodytidae –Wrens		
Thryomanes bewickii	Bewick's wren	
Troglodytes aedon	house wren	
Turdidae – Thrushes		
Sialia mexicana	western bluebird	
Tyrannidae – Tyrant Flycatchers		
+Empidonax difficilis	western flycatcher	
Sayornis nigricans	black phoebe	
Sayornis saya	Say's phoebe	
Tyrannus verticalis	western kingbird	
Tyrannus vociferans	Cassin's kingbird	
Tytonidae – Barn Owls		
Tyto alba	barn owl	
Vireonidae – Vireos		
+Vireo bellii pusillus	least Bell's vireo	
+Vireo huttoni	Hutton's vireo	
MAMMALS		
Canidae – Dogs, Wolves, and Foxes		
Canis domesticus	domestic dog	
Canis latrans	coyote	
Leporidae – Rabbits and Hares		
Sylvilagus adubonii	desert cottontail	
Mephitidae – Skunks		
+Mephitis mephitis	striped skunk	
Molossidae – Free-Tailed Bats		
+Eumops perotis	western mastiff bat	SSC
+Tadarida brasilensis	Mexican free-tailed bat	

Sciuridae – Squirrels, Chipmunks, Marmots		
Otospermophilus beecheyi	California ground squirrel	
Vespertilionidae – Evening Bats		
+Eptesicus fuscus	big brown bat	
+Lasiurus cinereus	hoary bat	
+Lasiurus xanthinus	western yellow bat	SSC
+Myotis californicus	California myotis	
+Myotis ciliolabrus	western small-footed myotis	
+Myotis yumanensis	Yuma myotis	
+Parastrellus hesperus	canyon bat	

Special Status Designations

Federal
FE – Federally Endangered
FT – Federally Threatened
FPE – Federally Proposed Endangered
FPT – Federally Proposed Threatened
FC – Federal Candidate

State
SE – State Endangered
ST – State Threatened
SCE – State Candidate Endangered
FP – California Fully Protected Species
SSC – Species of Special Concern

Appendix C

Preliminary Design Report for Line E

ALBERT A. WEBB ASSOCIATES



Preliminary Design Report for Line E

San Jacinto Valley Master Drainage Plan

Riverside County Flood Control & Water Conservation District

May 15, 2025

Preliminary Design Report for Line E of the San Jacinto Valley Master Drainage Plan

Prepared For

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Developer:

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Prepared By

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(951) 686-1070
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W.O. 2023-0008

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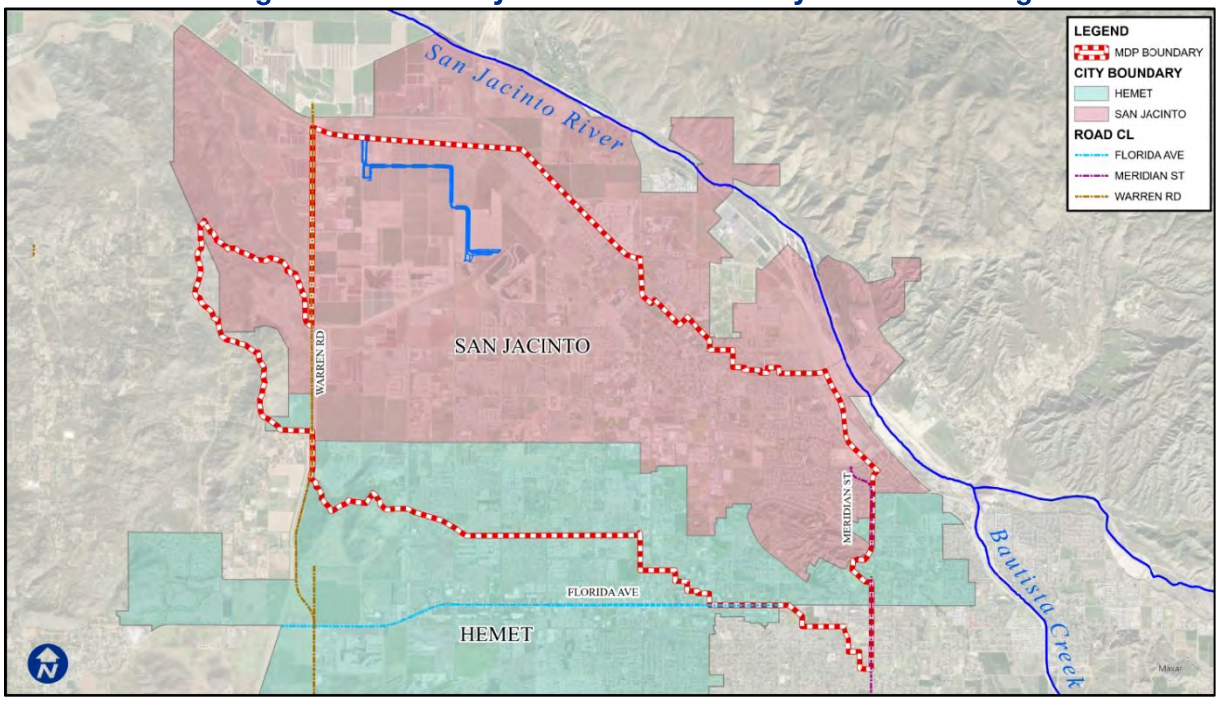
Section 1 Background

The Master Drainage Plan (MDP) for the San Jacinto Valley was adopted in October 2015 by the Board of Supervisors for the Riverside County Flood Control & Water Conservation District (RCFC&WCD). The MDP encompasses portions of the cities of San Jacinto and Hemet as well as parts of unincorporated Riverside County. The MDP is bounded by the San Jacinto River to the north, Florida Avenue to the south, Meridian Street to the east, and Warren Road to the west as shown in ***Figure 1***.

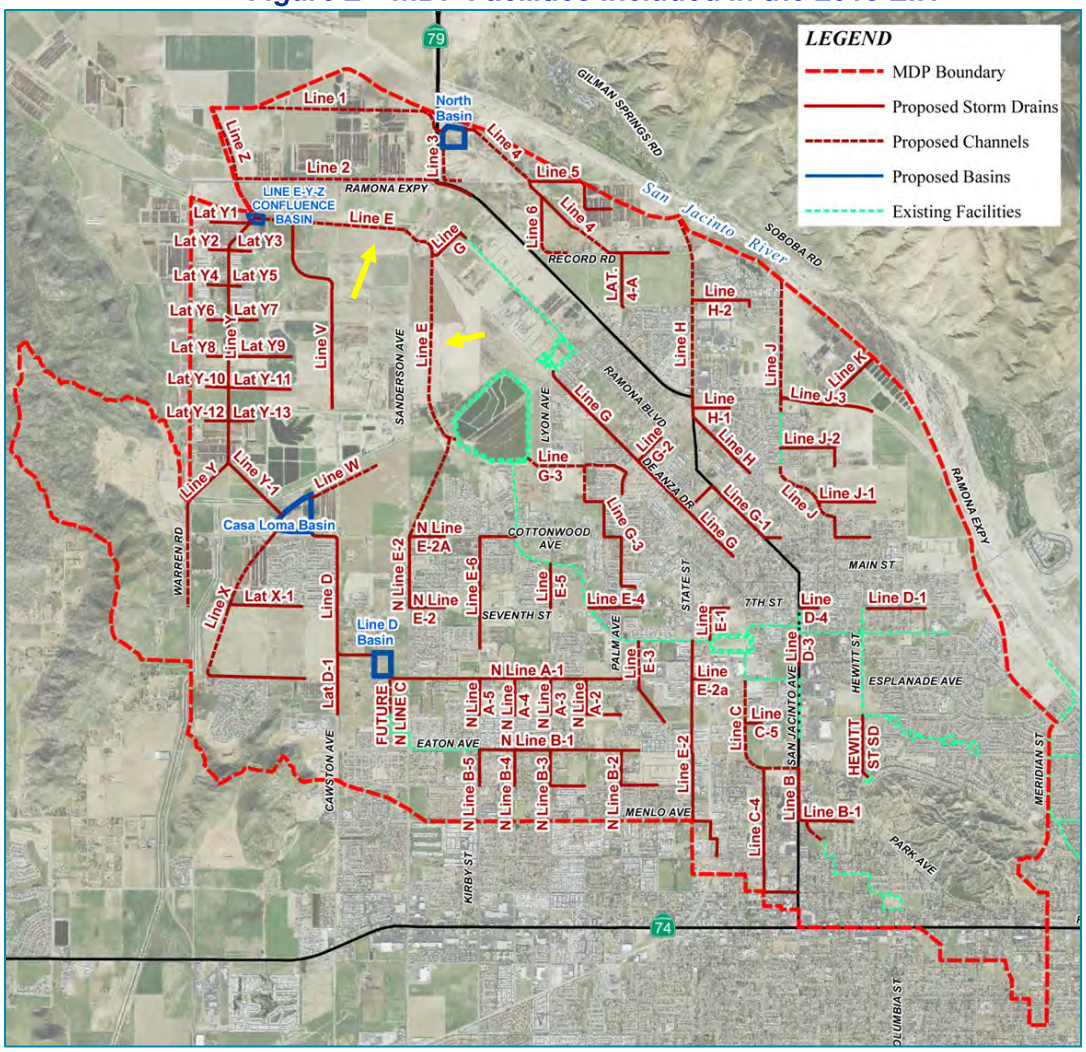
Figure 1 – Boundary of San Jacinto Valley Master Drainage Plan



Master Drainage Plans, by their very nature, are living documents. They provide a baseline strategy that can be modified as areas build out. Such is the case with the San Jacinto Valley MDP.

An Environmental Impact Report (EIR) for the San Jacinto Valley MDP and the San Jacinto Regional Area Drainage Plan (ADP) Amendment was certified by the San Jacinto City Council on January 14, 2013 (WEBB(a)). The certified EIR analyzed the MDP facilities shown in ***Figure 2*** (State Clearinghouse No. 2009041077). Note the yellow arrows in ***Figure 2*** pointing out Line E.

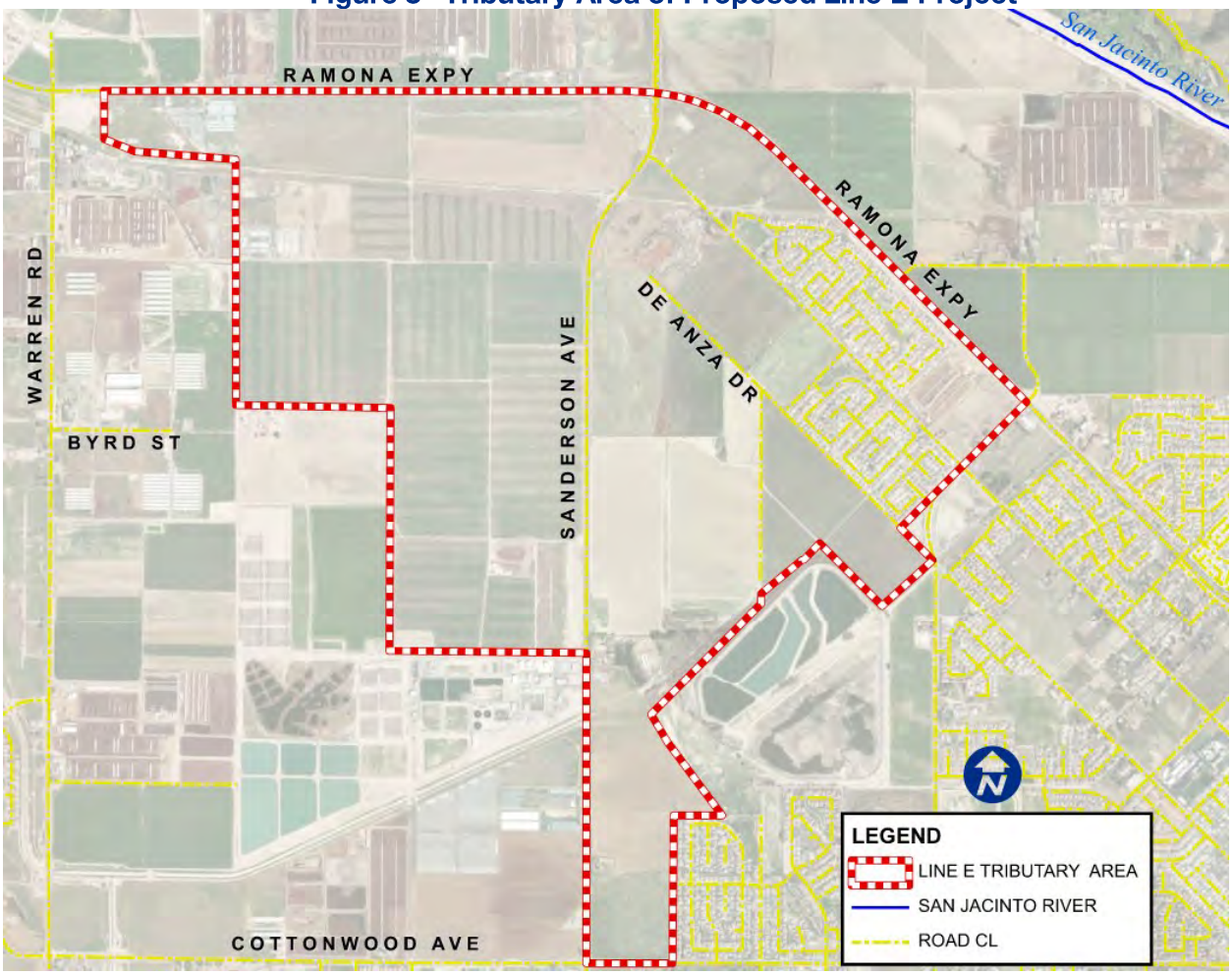
Figure 2 – MDP Facilities Included in the 2013 EIR



San Jacinto Master Developer, LLC (SJMD, LLC) submitted a development application to the City of San Jacinto for the proposed "San Jacinto Commerce Center Specific Plan" (SJCCSP or Specific Plan), which is located within the San Jacinto Valley MDP and a portion of the tributary area of Line E (***Figure 3***). Line E is a planned regional drainage facility that would provide a service to an approximately 1,870-acre tributary area that includes the 510-acre SJCCSP parcels in addition to many other property owners. As a major stakeholder relying on proper drainage of the area, SJMD, LLC will lead the planning, design, and construction of Line E on behalf of the City of San Jacinto.

SJMD, LLC retained the services of Albert A. Webb Associates (WEBB) to prepare the long-axis plan and this Preliminary Design Report (PDR) for the construction of Line E. The long-axis plan is located in **Appendix A.** RCFC&WCD will review this PDR and long-axis plan in order for SJMD, LLC to construct said facilities. This PDR is based on a 30% long-axis plan. Upon completion of CEQA and approval of this PDR for Line E, final engineering will commence.

Figure 3– Tributary Area of Proposed Line E Project



1.1 Scope of Work

To design the backbone MDP components to flood-protect the proposed SJCCSP, WEBB undertook the following scope of work:

1. Review existing MDP Line E flows and alignment;
2. Determine project design constraints with additional potholing, and topographic data;
3. Develop the proposed alignment considering design constraints and stakeholder input;
4. Obtain geotechnical and structural engineering design support;
5. Update MDP hydrology based on proposed layout;
6. Build hydraulic model of proposed alignment and updated flow rates;
7. Develop long-axis plan and kickoff environmental studies; and
8. Document results in PDR report.

1.2 Stakeholder Involvement

As part of the design of the proposed Project, WEBB held multiple meetings with the City of San Jacinto, RCFC&WCD, MWD, EMWD, SJMD LLC, and Riverside County Transportation Commission (RCTC) to solicit input on the proposed design. In addition, the alignment, hydraulics, and hydrology for the Project underwent two rounds of review with RCFC&WCD prior to submittal of this PDR; the first comment letter dated October 20, 2023, *MS 212 San Jacinto MDP Line E Plan Check No. 1* (LAN, Inc.), and the second comment letter dated December 18, 2023, *MS 212 MDP Line E Plan Check No. 2* (LAN, Inc.).

RCFC&WCD reviewed the full PDR via a comment letter dated February 9, 2024, MS 212 MDP Line E Plan Check No. 3 (LAN, Inc.). An additional review was completed in April 16. 2024. A maintenance, revised alignment, and hydraulics review was completed by RCFC&WCCD via Check No. 4 dated October 3, 2024.

There have been 2 reviews conducted by MWD. The first submittal to MWD was on November 8, 2024, where MWD reviewed the PDR, Geotechnical Report, and Structural Report. MWD gave technical comments on the Geotechnical and Structural Report. The second submittal to MWD was on February 14, 2025, with MWD approval on March 3, 2025. See **Appendix B** for approval email from MWD substructures group.

Section 2 Proposed Project

Line E is an implementing project of the MDP and has been analyzed at a programmatic level in a 2013 EIR and will be analyzed at a project level in a forthcoming EIR addendum. Construction of Line E does not remove properties from the 100-Year floodplain of the San Jacinto River. This will be accomplished by elevating them from the San Jacinto River Floodplain.

2.1 Location

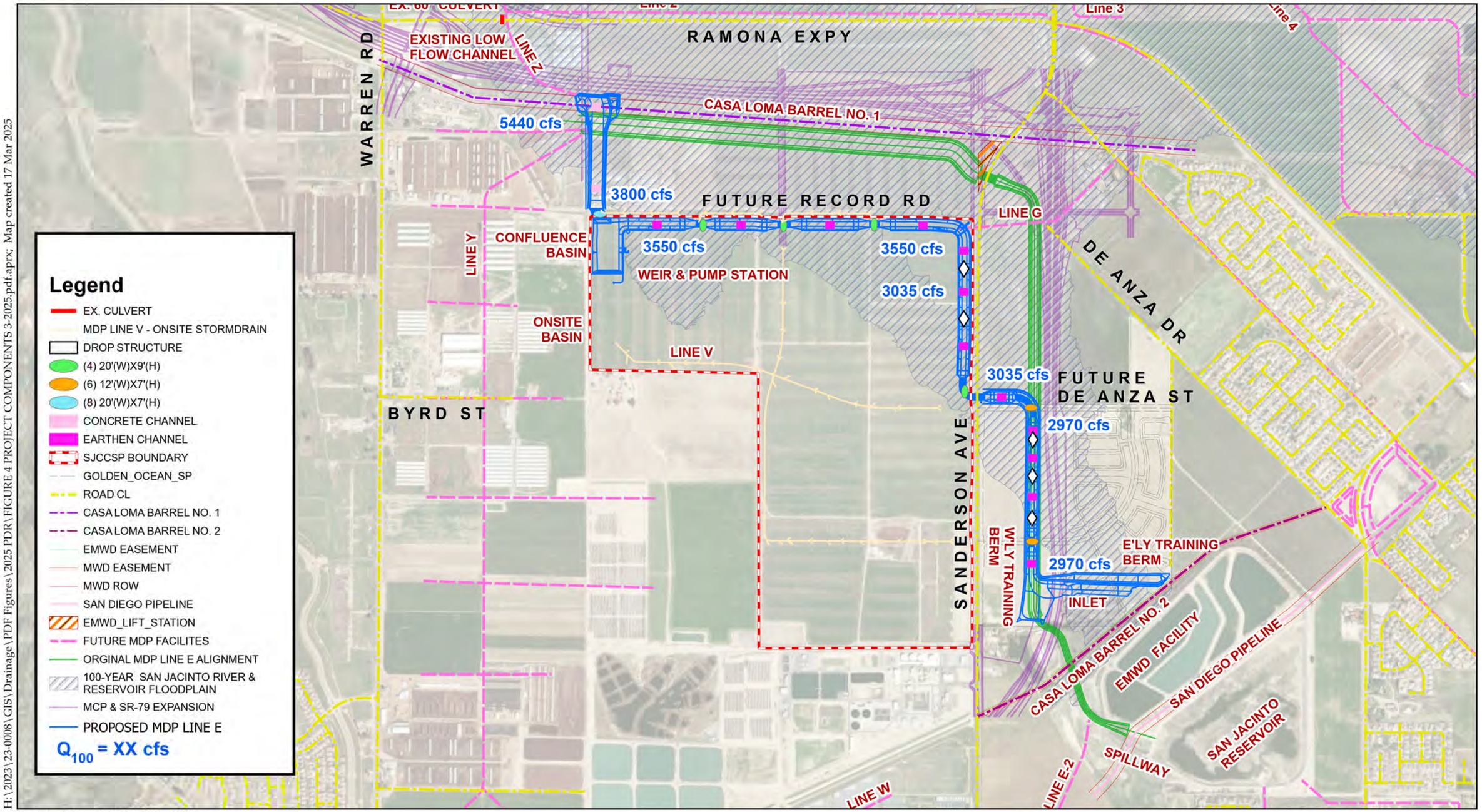
The study components of this PDR are shown in ***Figure 4*** ("Project"). Line E begins downstream of the San Jacinto Reservoir Spillway and north of the Casa Loma Barrel No. 2 easement,[1] continuing north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue through an agricultural property owned by Golden Ocean Realty (APN 436-030-001), turning west underneath Sanderson Avenue and turning north, then west before Record Road on the SJCCSP property to the proposed Confluence Basin (a proposed MDP facility). The outflows from the proposed Confluence Basin are conveyed northerly across Casa Loma Barrel No. 1 and outflow to an existing low-flow drainage channel that will, at some point in the future, be constructed as an ultimate MDP facility (Line Z) but is currently in interim condition.

The Project components are summarized as follows and shown on ***Figure 4***:

- 200 linear feet of concrete trapezoidal channel outside of the SJCCSP property crossing the MWD Casa Loma Barrel No. 1 right-of-way with 20-foot-wide access roads on both sides of the channel, a channel base width of 155 feet, channel height of up to 5.5-feet, and channel side slopes that vary from 10:1 to 23:1 ratio, and 560-feet MWD easement width. This segment of the channel will provide access to easterly and westerly MWD access roads from Record Road;
- 1,122 linear feet of concrete trapezoidal channel outside of the SJCCSP property with 20-foot-wide access roads on both sides of the channel, a channel base width of 155-feet, channel height of up to 5.5-feet, and channel side slopes with 1.5:1 ratio, and total right-of-way width of 270-feet for segment Record Road to MWD RW;
    - Includes a set of eight-cell 20-feet wide by 7-feet high RCB crossing Record Rd.;
- One (1) MDP Confluence Basin with 57.5 acre-feet capacity over an area of 6.25 acres, with 72-hour drawdown;
    - Includes a City maintained pump station located on the Confluence Basin parcel to drain the Confluence Basin as well as the SJCCSP Onsite Basin;

[1] Casa Loma Barrel (or "Siphon") Nos. 1 and 2 are buried water pipelines owned and operated by The Metropolitan Water District of Southern California (MWD).

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 4 PROJECT COMPONENTS 3-2025.pdf.aprx; Map created 17 Mar 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 4 - PROJECT COMPONENTS

MDP LINE E

ALBERT A. WEBB ASSOCIATES

- 4,468 linear feet of earthen trapezoidal channel within the SJCCSP property with 15-foot-wide access roads on both sides of channel, a channel base width of 65-feet, channel height of up to 10-feet, and channel side slopes with 4:1 ratio, and total right-of-way width of 200-feet wide;
    - Includes three sets of four-cell 20-feet wide by 9-feet high RCB and concrete transition structures;
    - Dead storage within the channel is 7.1 acre-ft for approximately 5,180-ft of channel length;
- 1,398 linear feet of earthen trapezoidal channel outside of the SJCCSP property with 20-foot-wide access roads on both sides of channel, a channel base width of 65-feet, channel height of up to 10-feet, and channel side slopes with 4:1 ratio, and total right-of-way width of 200-feet wide east of Sanderson Avenue;
    - Includes three sets of six-cell 12-feet wide by 7-feet high RCB and concrete transition structures, each for future road crossings;
- Two (2) earthen training berms with 20-foot-wide access roads on top of each and each with 2:1 slope on the wet side of the training berms and 20:1 slope on the dry side of the berms: approximately 900 linear feet of Westerly Training Berm and approximately 1,514 linear feet of Easterly Training Berm;
- Five (5) sloped rip-rap drop structures;
- One (1) 14-feet wide by 7-feet high stub-out RCB connection for future MDP Line G and includes channel paving and scour protection; and
- The geotechnical and structural engineering details for the Line E crossing over Casa Loma Barrel No. 1 will be provided in **Appendix B**. WEBB is currently processing an easement application with MWD on behalf of RCFC&WCD for review and approval of the crossing of MWD's right-of-way. More details will be provided in the final design (Kleinfelder).

The proposed on-site drainage system for SJCCSP is identified as the "Line V onsite system" and includes an "Onsite Basin" for onsite runoff (see ***Figure 4***). Outflows from the SJCCSP Onsite Basin will outlet to the proposed Confluence Basin and downstream Line E, as described herein.

2.2 Design Rationale

The proposed Project presents a slightly different alignment than what was originally included in the MDP. This is the result of a process to engineer around constraints that were identified during stakeholder meetings (see *Section 1.1*) in order to improve the design from what was originally proposed. Specifically, the proposed alignment intentionally avoids the EMWD and MWD easements for pipelines located near the Project inlet, and, at the same time avoids the riparian habitat around the north side of the San Jacinto Reservoir. This has resulted in no hard connection between Line E and the San Jacinto Reservoir Spillway, as well as no hard connection between Line E and Line E-2. Maintenance access within private property has been considered and provided for in the Project, as discussed herein. There is preliminary evidence of biological resources on the Chen Fei property (APN 436-010-003) located north of the proposed Golden Ocean Realty properties (APNs 436-030-001 and 436-170-001), as well as

potentially environmentally sensitive areas along the south side of the Casa Loma Barrel No. 1 MWD right-of-way west of Sanderson Avenue, both of which the Project will avoid with the proposed design. Evaluations of sensitive biological resources have been conducted as part of the Project CEQA analysis and are not included herein. Because WEBB is preparing the CEQA documentation on behalf of the City, this information is provided quickly to WEBB engineers working on this design. The proposed Project also took into consideration several future projects planned by public agencies in the same area, such as RCTC and EMWD and was realigned to avoid conflicts with major sewer infrastructure located at where the MDP planned a crossing of Sanderson Avenue near the De Anza Lift Station. Furthermore, through the willingness of SJMD, LLC to allow part of the Project on its SJCCSP property, right-of-way acquisition is simplified and better controlled. The City will maintain Line E Channel within the SJCCSP property, the proposed Confluence Basin and pump station. The proposed Project has different flow rates than the MDP, which are presented and justified herein. The result of the proposed Project meets the objective to remove flooding risk to the area from the upstream tributary area and Line E conveys up to and including the modeled 100-Year flow rates within the design parameters required by RCFC&WCD.

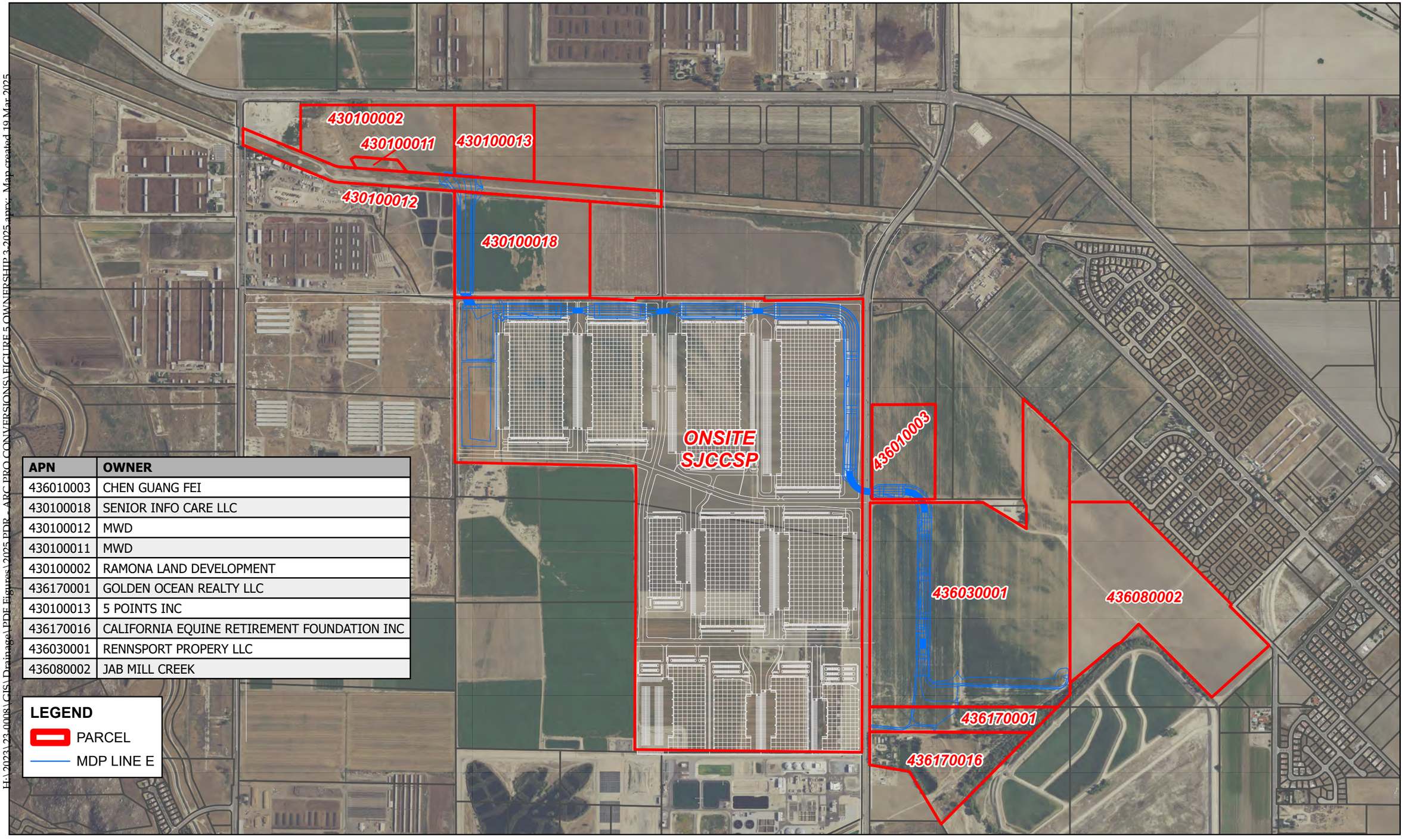
WEBB researched the location of existing utilities in the Project area and they are shown on the Long-Axis Plan in **Appendix A**. The existing utilities in conflict with the proposed RCB's crossing Sanderson Avenue will be relocated and relocation plans will be prepared during the final design phase. Proposed utility crossings will be coordinated with adjacent developers and projects during final design, to the extent that information is available when the design is being prepared.

2.3 Access and Easements

The Project includes 20-foot-wide access roads for vehicle access to these MDP components located outside of the SJCCSP: the training berms, channel and RCBs. Additionally (2) 20-foot-wide access roads will be provided to access the easterly and westerly maintenance roads within MWD's fee right-of-way. Proposed MDP facilities within the SJCCSP will have 15-foot-wide access roads. RCFC&WCD does not own the land where the MDP facilities are proposed, as shown on ***Figure 5***. Therefore, dedication of rights-of-way by each property will be required and will be completed in final design.

SJMD, LLC and Golden Ocean Realty have indicated their intentions to dedicate a fee parcel on their respective properties to RCFC&WCD. Other private parcels are being evaluated. The selected alignment substantially reduces the number of private parcels and potential for eminent domain. The proposed Line G stub out will require an easement if located outside of RCFC&WCD right-of-way.

An easement will also be required across the MWD property at Casa Loma Barrel No. 1, estimated at 200 feet long by 600 feet wide. Procuring the easement from MWD will be completed in the final design phase.



APN	OWNER
436010003	CHEN GUANG FEI
430100018	SENIOR INFO CARE LLC
430100012	MWD
430100011	MWD
430100002	RAMONA LAND DEVELOPMENT
436170001	GOLDEN OCEAN REALTY LLC
430100013	5 POINTS INC
436170016	CALIFORNIA EQUINE RETIREMENT FOUNDATION INC
436030001	RENNSPORT PROPERY LLC
436080002	JAB MILL CREEK

LEGEND

PARCEL

MDP LINE E

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 5 OWNERSHIP 3-2025.aprx: Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 5 - PARCEL OWNERSHIP MAP

MDP LINE E

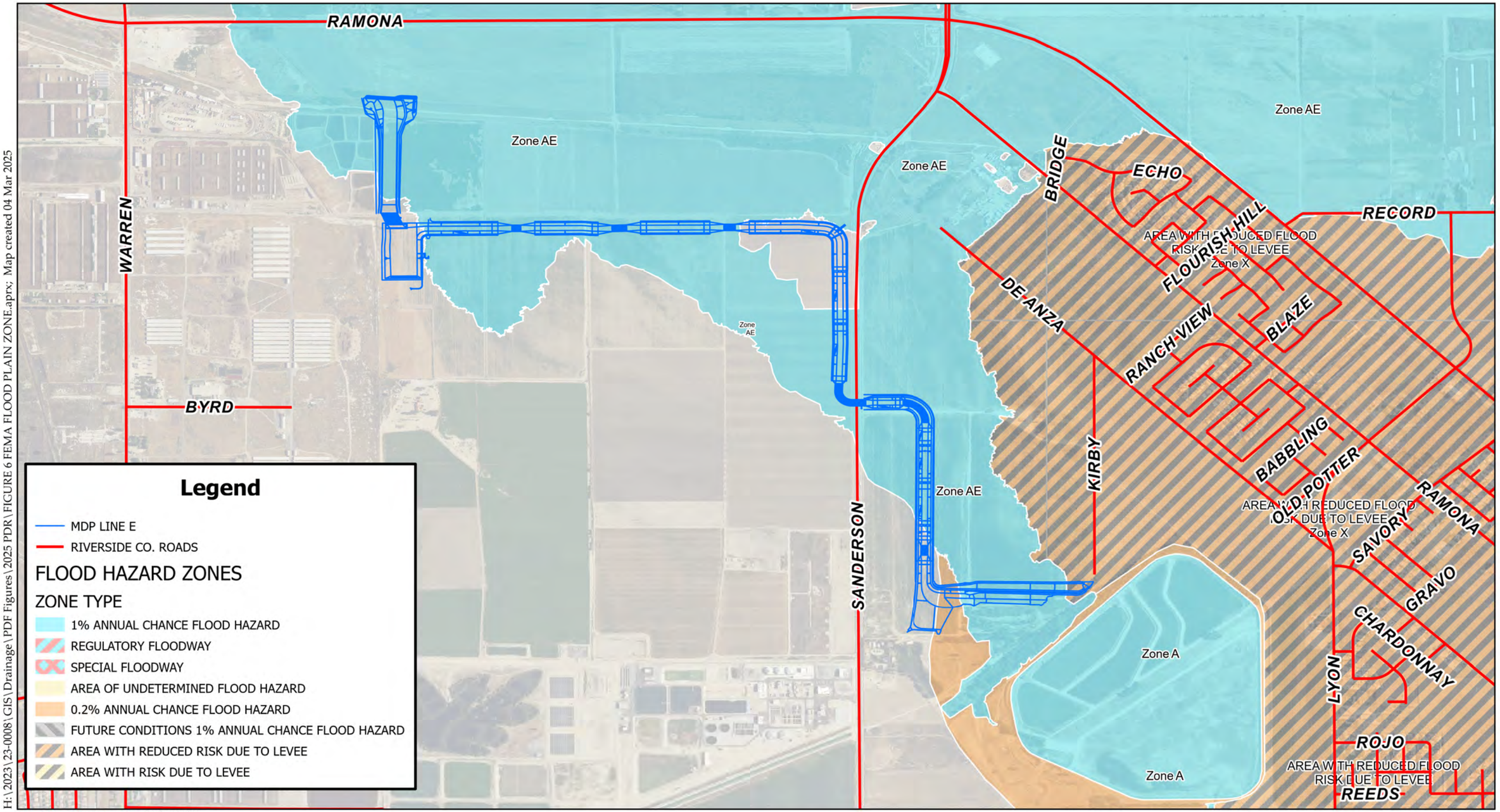
ALBERT A. WEBB ASSOCIATES

2.4 FEMA Flood Plain Zone

A portion of the study area is located within FEMA flood plain zone AE corresponding to the San Jacinto River flood zone, as shown in ***Figure 6***. Zone AE represents areas in the 100-Year event flood plain with a Base Flood Elevation (BFE) or depth. This flood plain zone is designated consistent with the Letter of Map Revision (LOMR) no. 21-09-1682P, effective November 9, 2022.

The San Jacinto Reservoir is identified as FEMA flood plain zone A, which represents a 100-Year flood plain without BFE.

As part of the development of the SJCCSP and after approval of this PDR, a Conditional Letter of Map Revision (CLOMR) will be submitted to the Federal Emergency Management Agency (FEMA) requesting a Letter of Map Revision (LOMR) to revise the current National Flood Insurance Plan (NFIP) map to change the flood plain boundaries such that the SJCCSP site is no longer within a flood hazard zone. A portion of the SJCCSP will have to be elevated in order to remove it from the San Jacinto River 100-Year floodplain; however, that is not a part of this PDR.



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 6 FEMA FLOOD PLAIN ZONE.aprx; Map created 04 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

Figure 6 - FEMA FLOOD PLAIN ZONE
MDP LINE E

ALBERT A. WEBB ASSOCIATES

2.5 Methodology

Pursuant to the RCFC&WCD Design Manual (March 2024) and L.A. County Hydraulic Design Manual (March 1982), the Project design is based on the required design manuals and design standards for a steady, stable, and open earthen, non-leveed channel that conveys 100-Year flow rate considering capacity and scour potential (i.e., with and without vegetation scenarios). The San Jacinto River 100-Year floodplain was used as the starting water surface elevation (WSE). The proposed SJCCSP drainage system and design methodology are analyzed under separate cover as part of entitlement with the City of San Jacinto.

2.5.1 Hydrology

Hydrologic calculations were performed consistent with the RCFC&WCD Hydrology Manual, dated April 1978. The rational method and synthetic unit hydrograph methods were used to determine peak flow rates. Rational method and synthetic unit hydrograph calculations were performed using CivilDesign® software, which incorporates the hydrological parameters outlined in the RCFC&WCD Hydrology Manual. Hydrological parameters (i.e., rainfall values and soil types) were determined from the RCFC&WCD Hydrology Manual.

2.5.2 Hydraulics

Water Surface Pressure Gradient (WSPG) is a hydraulic model from CivilDesign® used to preliminarily size the proposed channel. The various Project constraints were then evaluated against the results of the WSPG model. Stakeholder input on the proposed design led to the development of additional hydraulic modeling to verify the results. Hydrologic Engineering Centers River Analysis System (HEC-RAS) Version 6.3 developed by the U.S. Army Corps of Engineers was used to model the hydraulics of water flow through the channels. Two different HEC-RAS models were used in this study: one-dimensional (1D) HEC-RAS for the proposed channel and two-dimensional (2D) for the proposed channel inlet and proposed low flow channel located at the channel outlet.

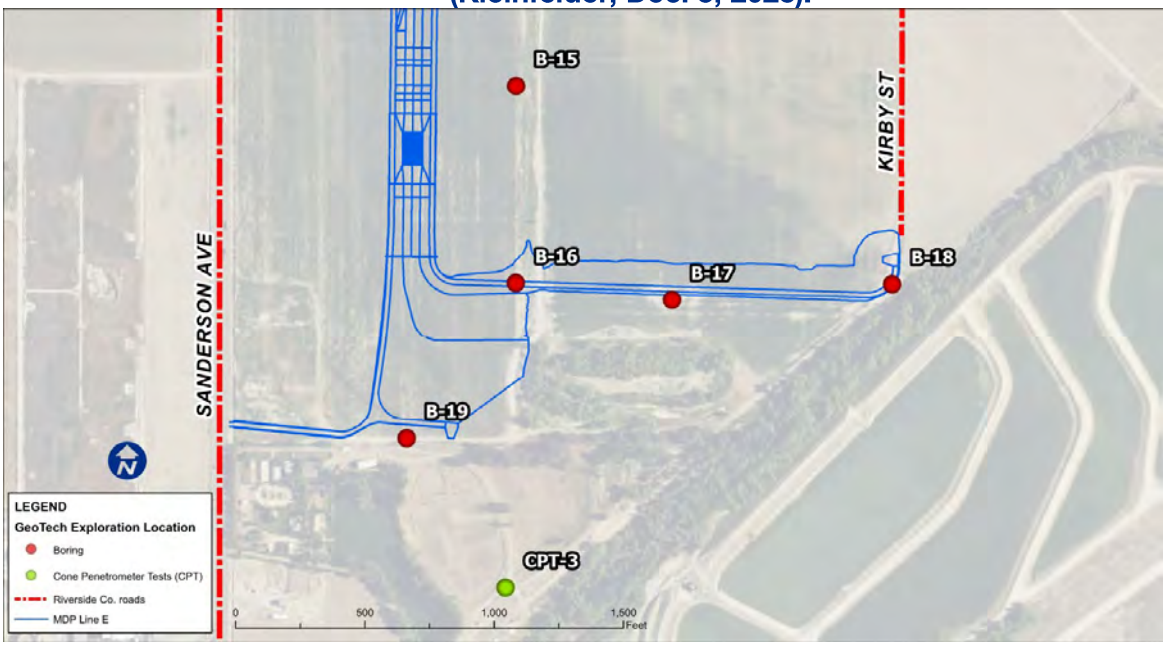
The RCFC&WCD Hydraulic Design Manual, the L.A. County Hydraulic Design Manual dated March 1982, and the U.S. Department of Transportation HEC 14-Hydraulic Design of Energy Dissipators for Culverts and Channels dated July 2006 were used for this study.

2.5.3 Geotechnical Considerations

A Geotechnical Investigation Report for the San Jacinto Line E Storm Drain project was prepared by Kleinfelder, Inc. (a copy of the report is included in **Appendix B**). The purpose of the investigation was to evaluate surface and subsurface conditions in the area of planned improvements and to provide geotechnical recommendations for earthwork, design, and construction considerations (Kleinfelder, p. 1). The study found depth to groundwater varies in the project area but was found to be below the invert of the proposed Line E channel for the majority of its length. The exception is at the southern end where the groundwater is 8-9 feet deep below existing ground at Boring B-16, which is located several hundred feet to the east of the proposed channel alignment. However, Boring B-19 at the Line E inlet shows a

depth of 17 feet. Additional investigation will be conducted during final design to confirm the depth of groundwater at the channel, and what mitigation methods, if any, are needed. Also, the depth of groundwater at the easterly training berm (Borings B-17 and B-18) is shallow, which will need to be accounted for during the construction of any cutoff walls and resolved in final design. The groundwater based on these borings is plotted on the Long Plot in **Appendix A**.

Excerpt showing locations of borings from "Figure 2 - Exploration Location Map" (Kleinfelder, Dec. 5, 2023).



The Geotechnical Study also provided data on soil classifications, which is used to determine the appropriate Manning's "n" values with the RCFC Design Manual. The borings drilled adjacent to the northerly MWD right-of-way (Casa Loma Barrel No. 1) will inform preliminary designs of a crossing structure, the MWD-approved geotechnical report (and structural) can be found in **Appendix B**.

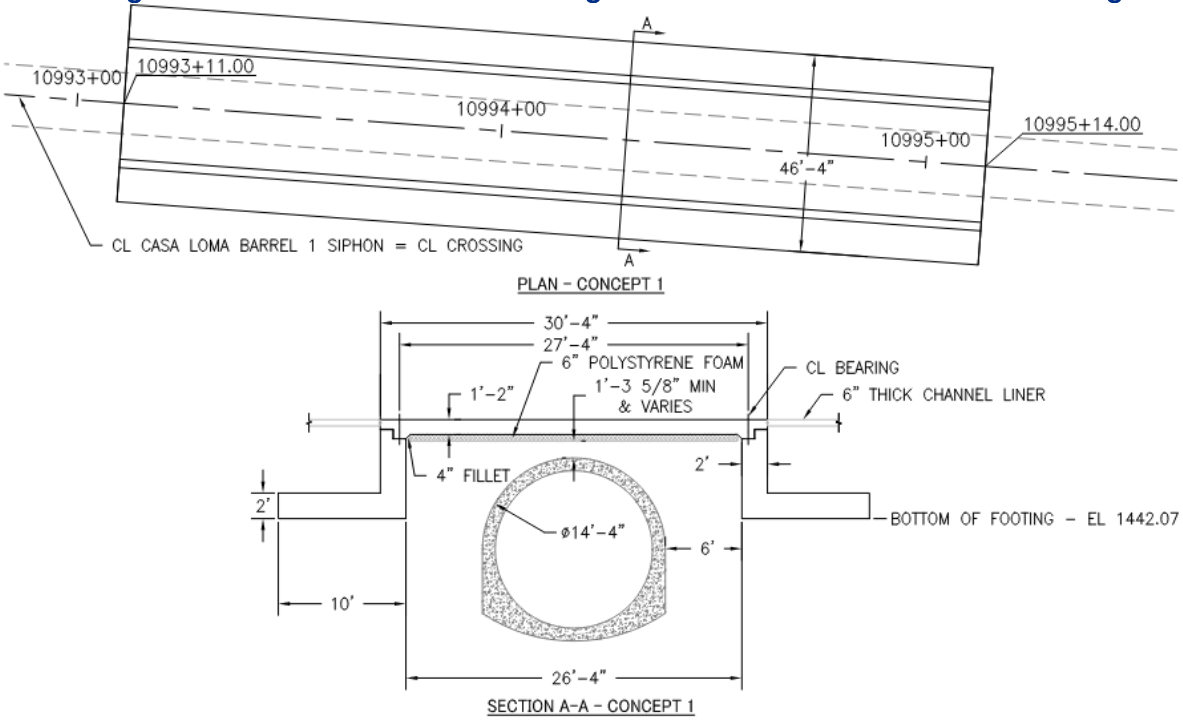
Based on the results of the field explorations, laboratory testing, and engineering analyses conducted during the geotechnical study, it is the professional opinion of Kleinfelder, Inc. that the proposed project is geotechnically feasible provided the recommendations presented in the report are incorporated into the project design and construction (Kleinfelder, p. 14).

2.5.4 MWD Casa Loma Barrel No. 1 Crossing

At the outlet of this project, we cross MWD fee property and MWD facility Casa Loma Barrel No. 1 which was constructed in the 1920s and provides half of the potable water from the Colorado River. Casa Loma Barrel No. 1 is a critical facility that MWD requires near zero settlement and rebound. Kleinfelder completed a preliminary geotechnical investigation and a preliminary structural design report. The result of the geotechnical and structural design report was that the crossing is feasible and constructible. The preferred structural crossing of Casa Loma Barrel No. 1 is shown in ***Figure 7*** below. The concept is a spread footing with a slab

(similar to a bridge deck) spanning Casa Loma Barrel 1. This design will allow future work on Casa Loma Barrel No. 1 without reconstructing the entire crossing. MWD approved the geotechnical and structural reports in March 2025, the approval email and reports are included in **Appendix B**. It should be noted that there is scour protection in the form of the sloped cutoff wall at the downstream edge of the MWD right of way. Paralleling the MWD right of way there is a concrete channel that will convey all low flows northerly.

Figure 7 - Preferred structural design of Casa Loma Barrel No. 1 crossing.



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Section 3 Hydrology

3.1 Existing MDP Hydrology

The existing MDP hydrology is based on the *Master Drainage Plan Update for San Jacinto Valley West Area* prepared by WEBB and dated May 2007 (updated October 2008). The hydrology analysis for Line E segment related to the SJCCSP began with the existing MDP model flow rates and facilities to represent the "existing condition." Contributing flows to Line E include overflows from the San Jacinto Reservoir, tributary flows from MDP N Line E-2 located south of Line E, future MDP Line G, future MDP Line V, and future MDP Line Y. The existing conditions for Line E flow rates have accounted for the following contributing flows (refer to ***Figure 8*** and **Appendix C**):

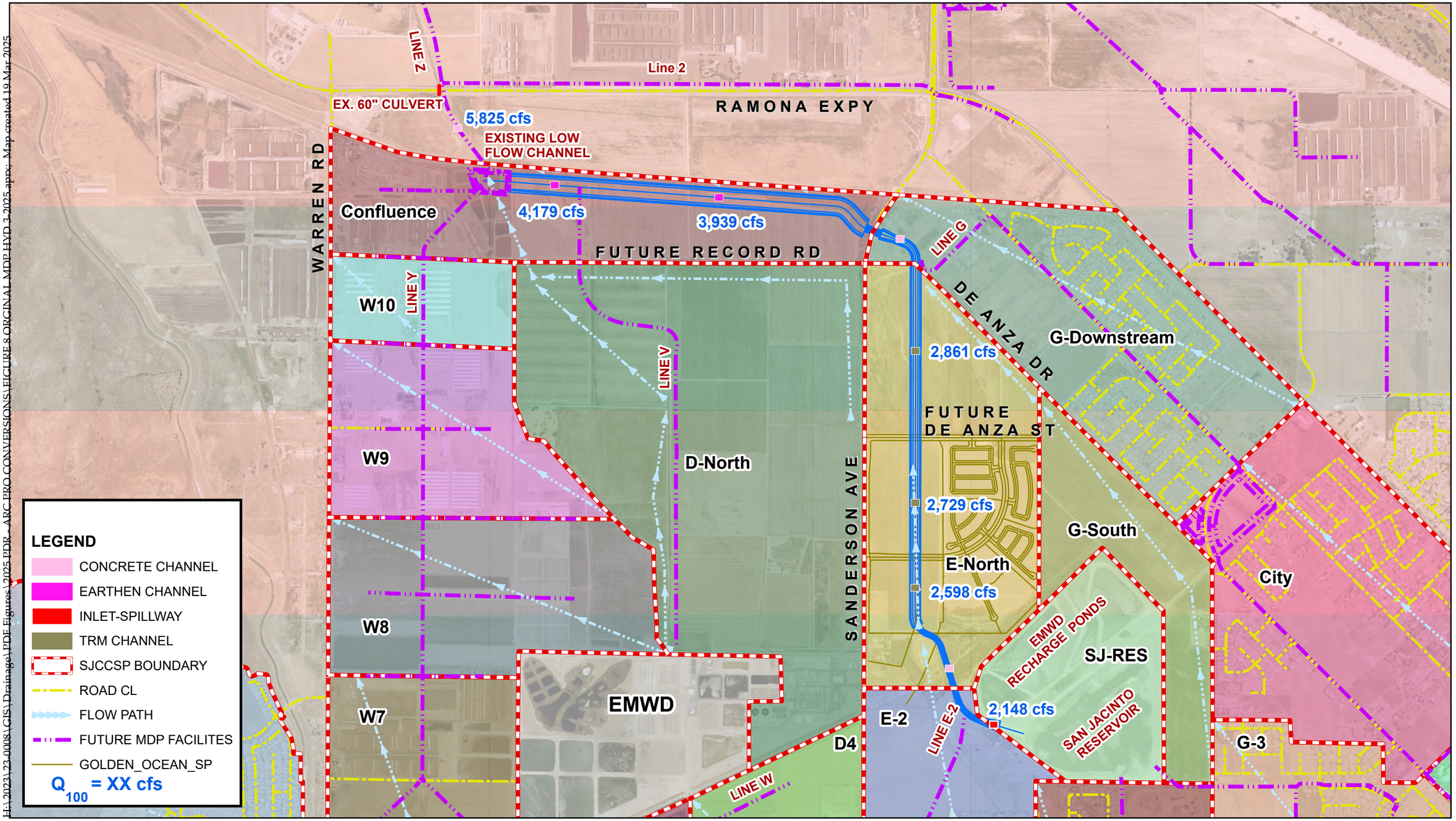
Table 1 – Existing MDP Hydrology

MDP Components	Existing MDP Flow Rates
Overflow from San Jacinto Reservoir	Q_{100} = 2,148 cfs
MDP N Line E-2	Q_{100} = 686 cfs; Trap B=6', D=6', Z=1.5
Golden Ocean Property contribution	Q_{100} = 521 cfs, RCP 14' (W) x 7' (H), assuming slope = 0.1%
MDP Line G	Q_{100} = 518 cfs; RCB 8' (W) x 4' (H)
MDP Line V On-Site System	Q_{100} = 962 cfs; Trap B=60', D=5', Z=4
MDP Line Y	Q_{100} = 1,646 cfs
Channel Segments	
Spillway to Line E-2	Q_{100} = 2,148 cfs
Line E-2 to Golden Ocean Property	Q_{100} = 2,598 cfs
Golden Ocean Property to Future De Anza St	Q_{100} = 2,729 cfs
Future De Anza St to Line G	Q_{100} = 2,861 cfs
Line G to Line V	Q_{100} = 3,939 cfs
Line V to Confluence Basin	Q_{100} = 4,179 cfs
Flow over Northerly MWD ROW	Q_{100} = 5,825 cfs

Note: cfs = cubic feet per second; MDP = Master Drainage Plan; RCP = reinforced concrete pipe; RCB = reinforced concrete box; W = width; H = height; Trap = trapezoidal.

(a) "Q_{100}" means the flow rate in a 100-Year storm event.

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 8 ORGINAL MDP HYD 3-2025.aprx; Map created 19 Mar 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,0001,500 Feet

FIGURE 8 - EXISTING MDP HYDROLOGY

MDP LINE E

ALBERT A. WEBB ASSOCIATES

3.2 Proposed MDP Hydrology

The unit hydrograph analyses in this report were prepared in accordance with the methodology outlined in the RCFC&WCD Hydrology Manual dated April 1978. Because the Hydrology Manual includes precipitation data that has been superseded, the rainfall values used in the 2007 MDP Update as well as this study come from the NOAA Atlas 14 Version 4.0. All hydrology is based on a 100-Year 24-hour flood event.

The same watershed subareas that were delineated in the 2007 MDP Update are also used for this study, as shown on ***Figure 9*** and Appendix C; however, with some updates, as follows:

- Subarea E-2 land use updated to reflect actual site conditions of horse property;
- The land use was updated from residential to commercial for the SJCCSP property; and
- Subarea D-North of the wastewater treatment plant property was removed because runoff from this area will be collected and treated by the wastewater facility.

The result of these updates is a decreased flow rate reaching Line E compared to the 2007 MDP Update. The proposed Line E design rearranged how tributary flows will be collected, as follows:

- With the proposed design, tributary flows from the south are directed to Subarea D-North-A and then into a proposed Onsite Basin or Confluence Basin to be pumped out to Line E north of Record Road (***Figure 9***);
- Proposed MDP Line Y will no longer join the Confluence Basin and will instead join Line E upstream of Casa Loma Barrel No. 1;
- Flows from the Confluence Subarea are being added to Line E in the area of Casa Loma Barrel No. 1, which was previously coming into Line E at Sanderson Avenue under the prior MDP;
- Line G is proposed on the opposite side of Sanderson Avenue as compared to the MDP;

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 9 PROP HYD 3-2025.aprx; Map created 19 Mar 2025

LINE Z
Line 2
EXISTING LOW FLOW CHANNEL
RAMONA EXPY
WARREN RD
Confluence
5,440 cfs
3,800 cfs
FUTURE RECORD RD
LINE G
W10
LINE Y
3,550 cfs
3,550 cfs
D-North-A
DE ANZA DR
G-Downstream
3,035 cfs
FUTURE DE ANZA ST
D-North-B
W9
SANDERSON AVE
2,970 cfs
E-North
G-South
2,970 cfs
W8
EMWD FACILITY
SJ-RES
SAN JACINTO RESERVOIR
E-2
EMWD
W7
LINE E-2
LINE W
D4

LEGEND

- CONCRETE CHANNEL
- EARTHEN CHANNEL
- FLOW PATH
- SJCCSP BOUNDARY
- ROAD CL
- FUTURE MDP FACILITES
- GOLDEN_OCEAN_SP

Q_{100} = XX cfs

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,0001,500 Feet

FIGURE 9 - PROPOSED HYDROLOGY
MDP LINE E

ALBERT A. WEBB ASSOCIATES

3.2.1 Design Flow Rates

The Project design flow rates for MDP components and Line E channel segments are shown in ***Table 2***. Refer to ***Figure 9*** and **Appendix C** for backup.

Table 2 – Proposed MDP Flow Rates

MDP Components	Revised Flow Rates
Overflow from San Jacinto Reservoir	Q_{100} = 2,148 cfs
MDP N Line E-2	Q_{100} = 527 cfs; Trap B=6', D=6', Z=1.5
Golden Ocean property contribution	Q_{100} = 295 cfs, RCP 14' (W) x 7' (H), assuming slope = 0.1%
MDP Line G	Q_{100} = 580 cfs; RCB 14' (W) x 6' (H)
MDP Line V On-Site System	Q_{100} = 1440 cfs; Onsite drainage system & detention basin
MDP Line Y	Q_{100} = 1,646 cfs
Proposed Channel Segments	
Inlet to Future De Anza St	Q_{100} = 2,970 cfs
Future De Anza St to Future Record Rd	Q_{100} = 3,035 cfs
Future Record Rd to Confluence Basin	Q_{100} = 3,550 cfs
Line Y Confluence	Q_{100} = 3,800 cfs
Confluence Basin to Northerly MWD ROW	Q_{100} = 5,440 cfs

Note: cfs = cubic feet per second; MDP = Master Drainage Plan

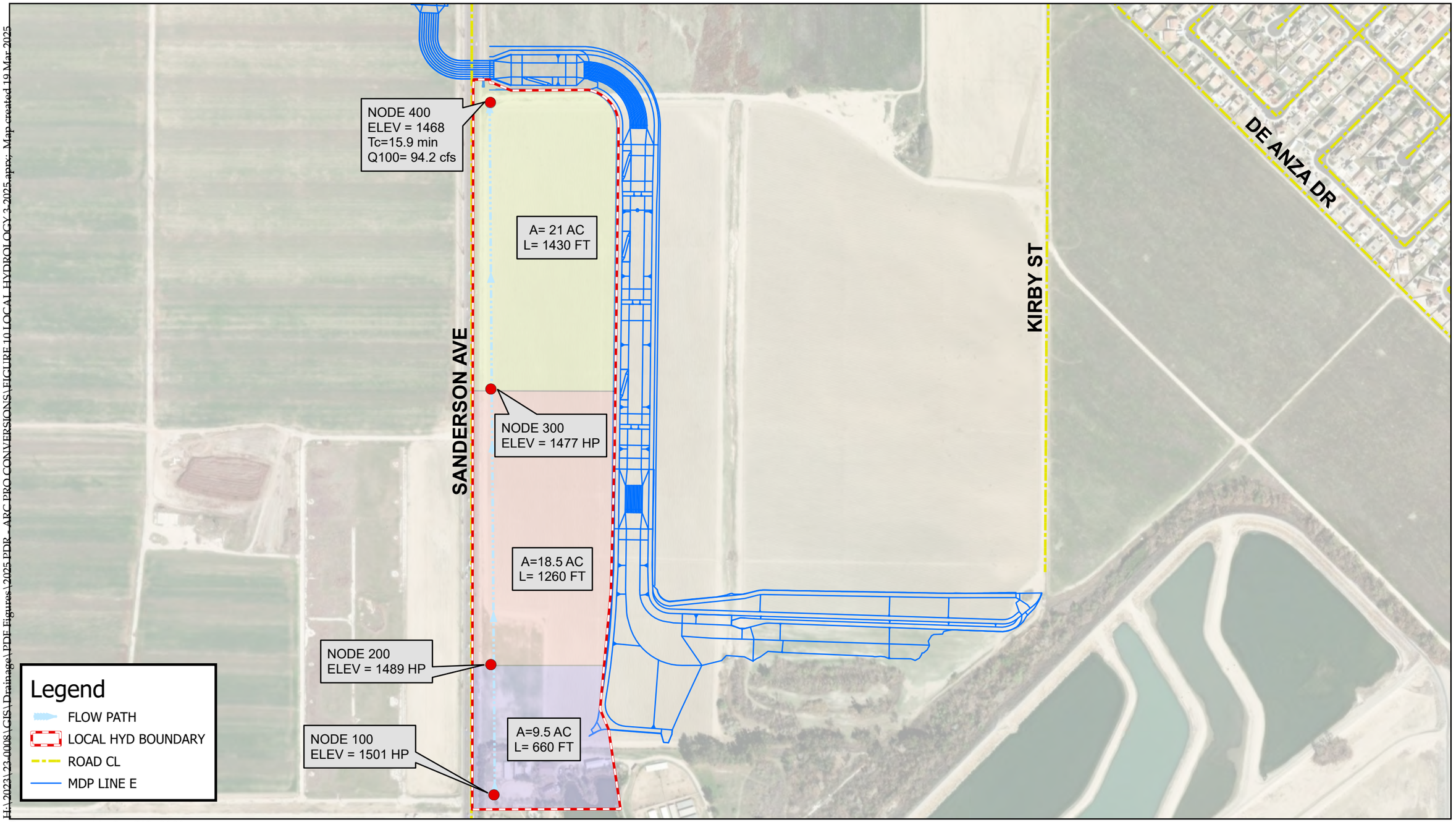
(a) "Q_{100}" means the flow rate in a 100-year storm event.

3.2.2 Local Hydrology Analysis at Sanderson Avenue

A roadside ditch conveys stormwater along the east side of Sanderson Avenue as shown in the image below. Because the proposed Line E channel would cross Sanderson Avenue and intersect with the existing ditch, the contribution of flow from this roadside ditch to proposed Line E channel was analyzed as part of this study. Results suggest that 49 acres drain to the roadside ditch, as shown in ***Figure 10***. The hydrology subareas are already accounted for in the overall MDP hydrology. A rate of 95 cfs of runoff was generated and was used to size an inlet and 54" RCP lateral to Line E channel. See **Appendix C** for the rational method model results.



(Source: Google Earth, Sanderson Avenue facing southeast)



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 10 LOCAL HYDROLOGY 3-2025.aprx; Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

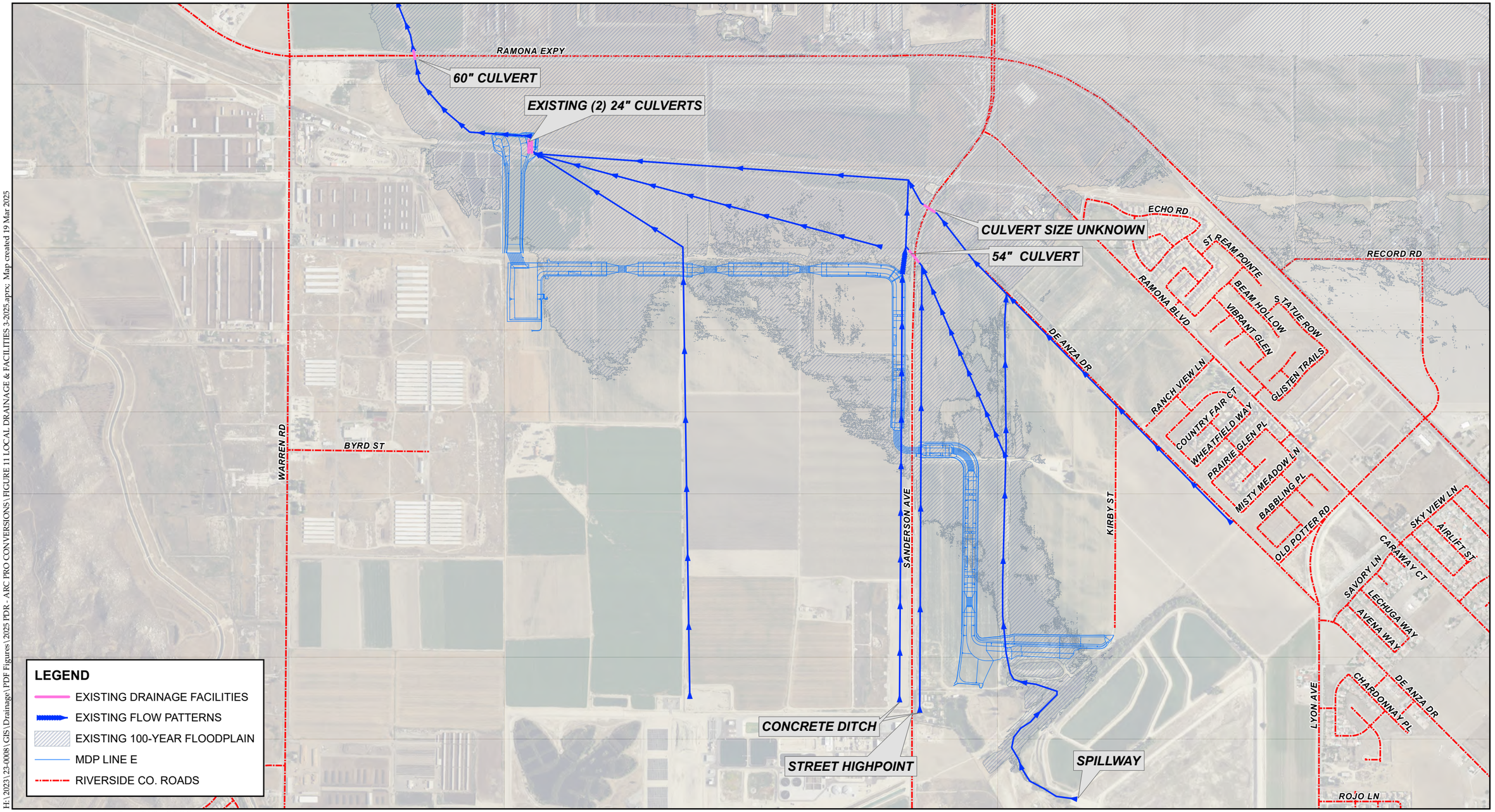
FIGURE 10 - LOCAL FLOW ANALYSIS

MDP LINE E - SANDERSON DITCH INLET

ALBERT A. WEBB ASSOCIATES

3.2.3 Local Flow Pattern at Casa Loma Barrel No. 1

The local drainage pattern is similar to the flow paths illustrated in ***Figure 11***. During small rain events, a significant amount of runoff sheet flows to either side of Sanderson Avenue and is conveyed northerly. As shown in ***Figure 11***, the local existing drainage pattern flows northeasterly eventually to two existing culverts that cross the MWD Casa Loma Barrel No. 1 right of way. Both culverts are 24-inch corrugated metal pipes that sit atop the MWD Casa Loma Barrel No. 1. During any rain event that generates flooding, these culverts are responsible for draining the area south of MWD Casa Loma Barrel No. 1 and bounded by Sanderson Avenue and the EMWD ponds. In the post-project condition, the existing drainage patterns north of Record Road and east of Sanderson Avenue (i.e., east of Line E) will remain. The Project will replace the existing low-flow (2) 24-inch diameter corrugated metal pipes, with (2) 24-inch diameter reinforced concrete pipes that directly outlet into the downstream concrete channel.



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 11 LOCAL DRAINAGE & FACILITIES 3-2025.aprx; Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500
Feet

FIGURE 11 - EXISTING LOCAL DRAINAGE PATTERNS

MDP LINE E

ALBERT A. WEBB ASSOCIATES

Section 4 Hydraulics

Based upon the design flow rates established in *Section 3* of this report, hydraulic analyses were then conducted to size the proposed updated facilities. One-dimensional (1D) HEC-RAS and WSPG were both used to model the hydraulics of the proposed channel and drop structures. Two-dimensional (2D) HEC-RAS was used to model the hydraulics of the proposed training berms at the upstream end of the project and the low flow channel at the downstream end of the project. Transition length sizing is included in **Appendix D** of this report.

In the existing condition, the San Jacinto Valley MDP is mostly unbuilt, and the Line E piece proposed in this study is upstream and downstream of other planned MDP elements to be constructed by others in the future. Refer to the long-axis plot located in **Appendix A** for the preliminary plan and profile of Line E.

4.1 Model Parameters

4.1.1 Boundary Conditions

This study includes three different HEC-RAS models and a WSPG model, with each model having different boundary conditions. See ***Figure 12*** for a visual of each model's spatial extent. The downstream boundary condition for this study is the 100-Year San Jacinto River floodplain elevation (i.e., 1,452.93 feet amsl) and the starting water surface elevation (WSE) for the Line E earthen channel is dictated by the Confluence Basin (i.e., 1456± feet amsl). Below is the breakdown for each model's boundary conditions. See ***Appendix D*** for HEC-RAS exhibits, modeling parameters, and results.

- WSPG Model
  - Starting water surface elevation is 1452.93 ft for northerly MWD ROW crossing (Casa Loma Barrel No. 1)
  - Starting water surface elevation is 1456.15 ft for Line E earthen channel
- 1D HEC-RAS Line E Channel
  - Starting water surface elevation is 1452.93 ft for MWD ROW crossing (Casa Loma Barrel No. 1)
  - Starting water surface elevation is 1456.10 ft for Line E earthen channel
  - Rating curve at Section 13089.04 used for 2D HEC-RAS boundary condition
    - Flows range from 0 to 2,740 cfs, and resulting WSE is used in Rating Curve
- 2D HEC-RAS Line E Inlet
  - Inflow hydrograph from Node 130
  - Inflow location is located at the spillway, Q_{100} = 2,675 cfs to simplify modeling
  - Rating Curve at Section 13089.04

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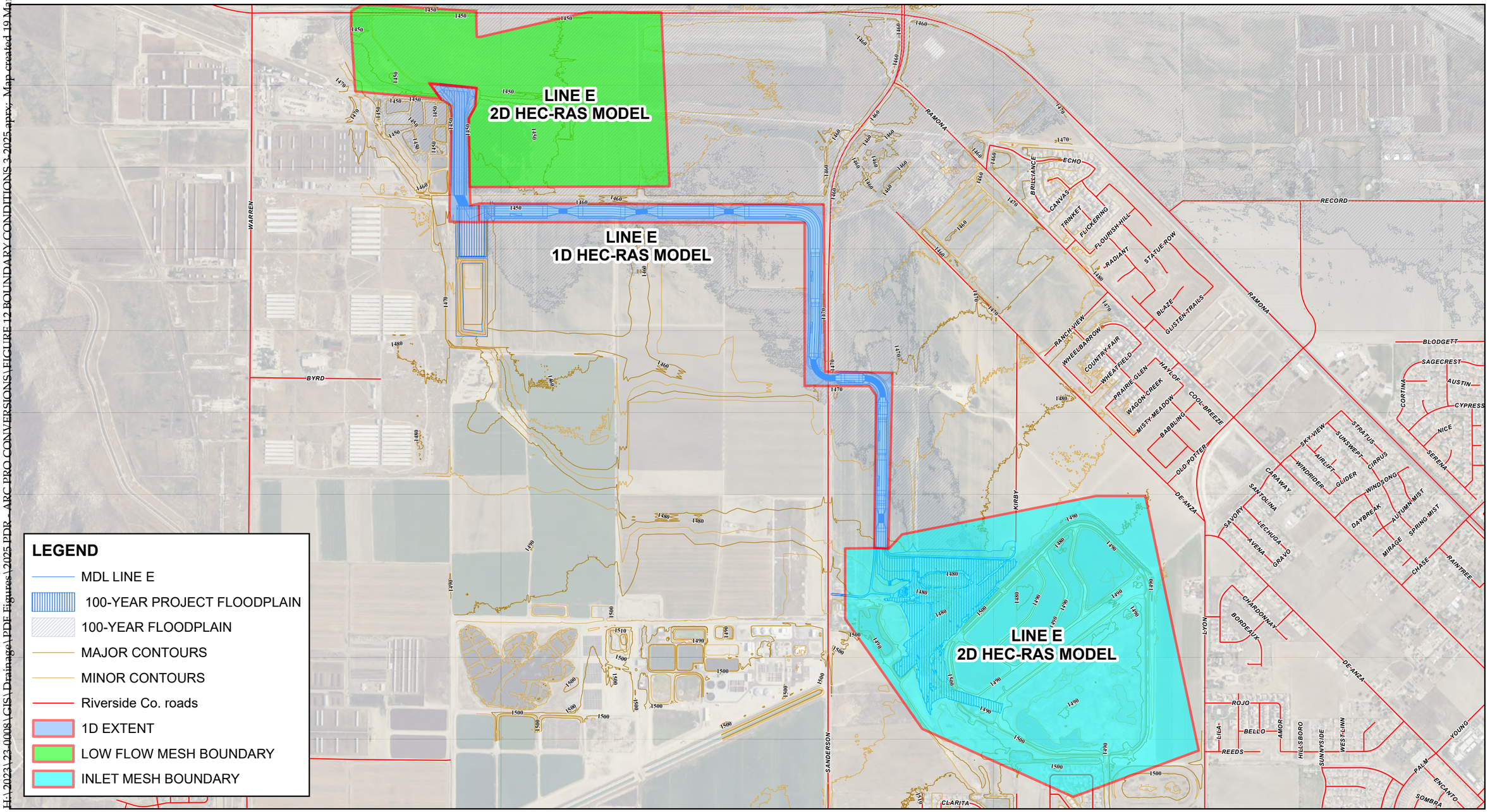


LEGEND

- MDL LINE E
- 100-YEAR PROJECT FLOODPLAIN
- 100-YEAR FLOODPLAIN
- MAJOR CONTOURS
- MINOR CONTOURS
- Riverside Co. roads
- 1D EXTENT
- LOW FLOW MESH BOUNDARY
- INLET MESH BOUNDARY

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500
Feet

FIGURE 12 - BOUNDARY CONDITIONS

MDP LINE E

FOR MORE DETAILS ON BOUNDARY CONDITIONS PLEASE SEE HEC-RAS EXHIBITS

ALBERT A. WEBB ASSOCIATES

- Low Flow
    - Several flow profiles, flows range from 0 cfs to 36 cfs to simulate typical operations.

This study includes three different HEC-RAS models, with each model having different boundary conditions. Starting upstream, the existing and proposed 2D HEC-RAS inlet model uses an inflow hydrograph for the MDP Line E. The inflow hydrograph is based on the updated hydrology at Node 130. For the existing condition, the downstream boundary is the normal depth of the existing flowline at the end of the mesh. In the proposed 2D HEC-RAS inlet model, the downstream boundary condition is a rating curve based on the MDP Line E 1D HEC-RAS model, run with different flow rates to establish comprehensive flow and WSE profiles. See ***Appendix D*** for HEC-RAS exhibits and results.

The second HEC-RAS model of Line E channel is a 1D HEC-RAS model within the limits shown in ***Figure 12***. The upstream boundary is a normal depth with a slope of 0.001. At the Confluence Basin, the two segments of MDP Line E meet at a WSE of 1456.10 ft. The downstream boundary condition is the San Jacinto River floodplain with an elevation of 1452.93 ft. See ***Appendix D*** for HEC-RAS exhibits and results.

The third HEC-RAS model for Line E is a low-flow analysis looking at the effects of pumping the 100-year dead storage from the Confluence Basin and the SJCCSP onsite basin of a flowrate of 36 cfs for 72 hours. The analysis also looked at a 5 cfs interval to the 100-year max of 36 cfs. The interval flow rates are intended to show how lower storm events will impact the downstream. North of the MWD right of way is an existing open channel that will be concreted (in the proposed condition) when parallel to the MWD right of way. This existing channel alignment is where the future MDP Line Z is slated to be constructed. This existing channel conveys low flows northerly to an existing 60-inch culvert at Ramona Expressway. It should be noted that the limiting facility is the existing 60-inch RCP that crosses Ramona Expressway, due to the culvert being nearly flat (slope). Webb surveyed the city-maintained 60-inch culvert and surrounding area to model the downstream correctly. See ***Appendix D*** for HEC-RAS exhibits and results.

4.1.2 Model Domain and 2D Grid

The model domains for the existing and proposed inlets have the same domain and inflow location, as shown in ***Table 3***. The range of adaptive 2D grid sizes and the total number of cells are also provided. Please refer to the existing and proposed work maps in **Appendix D**.

Table 3– Model Domains

	Adaptive 2D Face Area	Mesh Properties	
	avg-min-max [ft^2]	Dx-Dy	cells
EXISTING INLET	97 - 2 - 186	10 -10	147,655
PROPOSED INLET	97 - 2 - 186	10 - 10	147,554
LOW FLOW	219 – 19 - 396	15 - 15	40,352

4.1.3 Topology

The existing condition topology is based on two different areal topographic maps. See **Appendix D** for signed areal topographic maps used in the HEC-RAS modeling and used in design. The topology has a vertical accuracy of 1-foot. For critical design elements such as the Casa Loma Barrel No. 1, surveyors have completed field surveys to verify the elevations used for design.

4.1.4 Manning's "n" Value

The Manning's roughness coefficient ("n") is used to calculate flow in open channels. Higher "n" values represent rougher conduits with higher friction. The Manning's "n" values used in this study are summarized in ***Table 4***.

Table 4 – Roughness Coefficients Used in this Study

Manning's Roughness Coefficient, "n"	Roughness Description
n = 0.013	Reinforced concrete pipe (RCP)
n = 0.014	Reinforced concrete boxes (RCBs)
n = 0.020	Bare earth channel with no vegetation
n = 0.030	Minimum vegetation density within channel
n = 0.043	One-quarter ton riprap (Class V)
n = 0.044	Three-eighths ton riprap (Class VI)
n = 0.046	One ton riprap (Class VIII)
n = 0.015 to 0.032	Low flow channel assuming no maintenance and moderate to very heavy vegetation at the inlet (2D HEC-RAS models)

Source: RCFC&WCD, May 2023 *Draft Hydraulic Manual.*

4.1.5 Model Time Step

The modeling of the inlet of Line E used an adaptive step with a computational interval of 5 seconds, and in this case, the Courant Methodology was utilized. A computational interval of 1 second was used for the Low Flow outlet scenario so this model does not utilize the Courant Methodology. ***Table 5*** below outlines the time steps each 2D HEC-RAS model utilized. It should be noted that this is not relevant to 1D HEC-RAS and WSPG models.

Table 5 – Model Time Steps

Model	Computational Interval [sec]	Adaptive Time Step [sec]		Time Steps		
		Max	Min	Min Doubling	Max Doubling	Max Halving
EXISTING INLET[(a)]	-	4	1	1	2 (20 sec)	5 (0.16 sec)
PROPOSED INLET[(a)]	-	4	1	1	2 (20 sec)	5 (0.16 sec)
LOW FLOW	1	-	-	-	-	-

Notes:
(a) Courant Methodology

4.1.6 Model Error

The percent error for the 2D HEC-RAS model is shown below in ***Table 6***. The percent error is calculated on the model's stability and ability to converge to an answer. The modeling error is reasonable and due to the topography, some volume will remain within the model domain.

Table 6– 2D HEC-RAS Model Error

Model	Percent Error	Mass Balance [acre-ft]	
		In	Out
EXISTING INLET	.000745	946.6	921.8
PROPOSED INLET	.00239	946.6	929.3
LOW FLOW[(a)]	.0001 to .0012	27.7 to 152.2	25.3 to 148.3

[(a)]The Low Flow model consists of several pumping regimes

4.2 Modeled Project Design Features

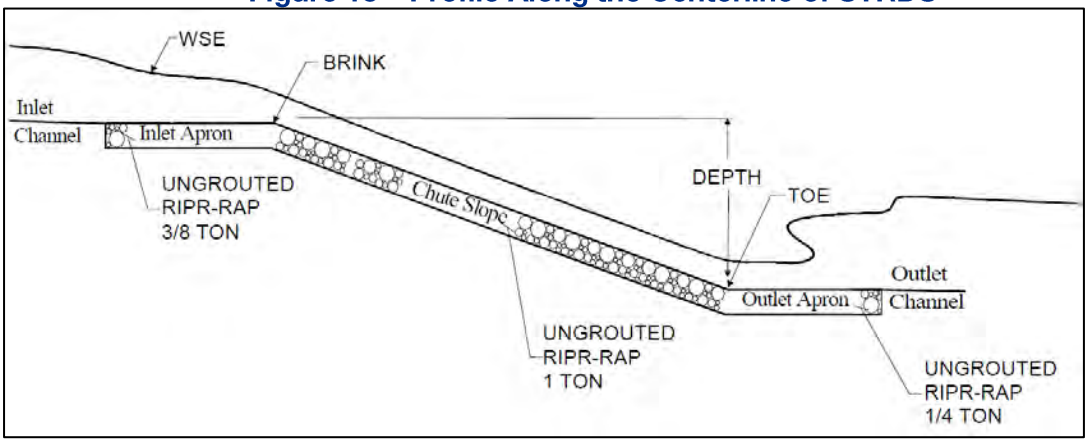
4.2.1 Freeboard

The draft RCFC&WCD Hydraulic Design Manual states that a subcritical channel needs a minimum of 1-foot of freeboard for a subcritical earthen channel. The Froude numbers within the proposed earthen channel sections range from 0.26 to 0.77. At the brink of the drop structures (see ***Figure 13***), the Froude number is 1. At the end of the outlet apron of each drop structure, the Froude number is less than 0.5. In the concrete portion of Line E, the typical Froude number is around 1. The training berms are intended to be conservatively designed with 2-feet of freeboard.

4.2.2 Drop Structures

The original MDP assumed the use of Turf Reinforcement Mat (TRM) for lining the Line E channel as protection against velocity-induced scour. However, RCFC&WCD has since excluded the use of TRM in MDP facilities. Therefore, the design of Line E will instead use Sloped Trapezoidal Rock Drop Structures (STRDS) to reduce channel velocities within the proposed earthen Line E channel.

Figure 13 – Profile Along the Centerline of STRDS

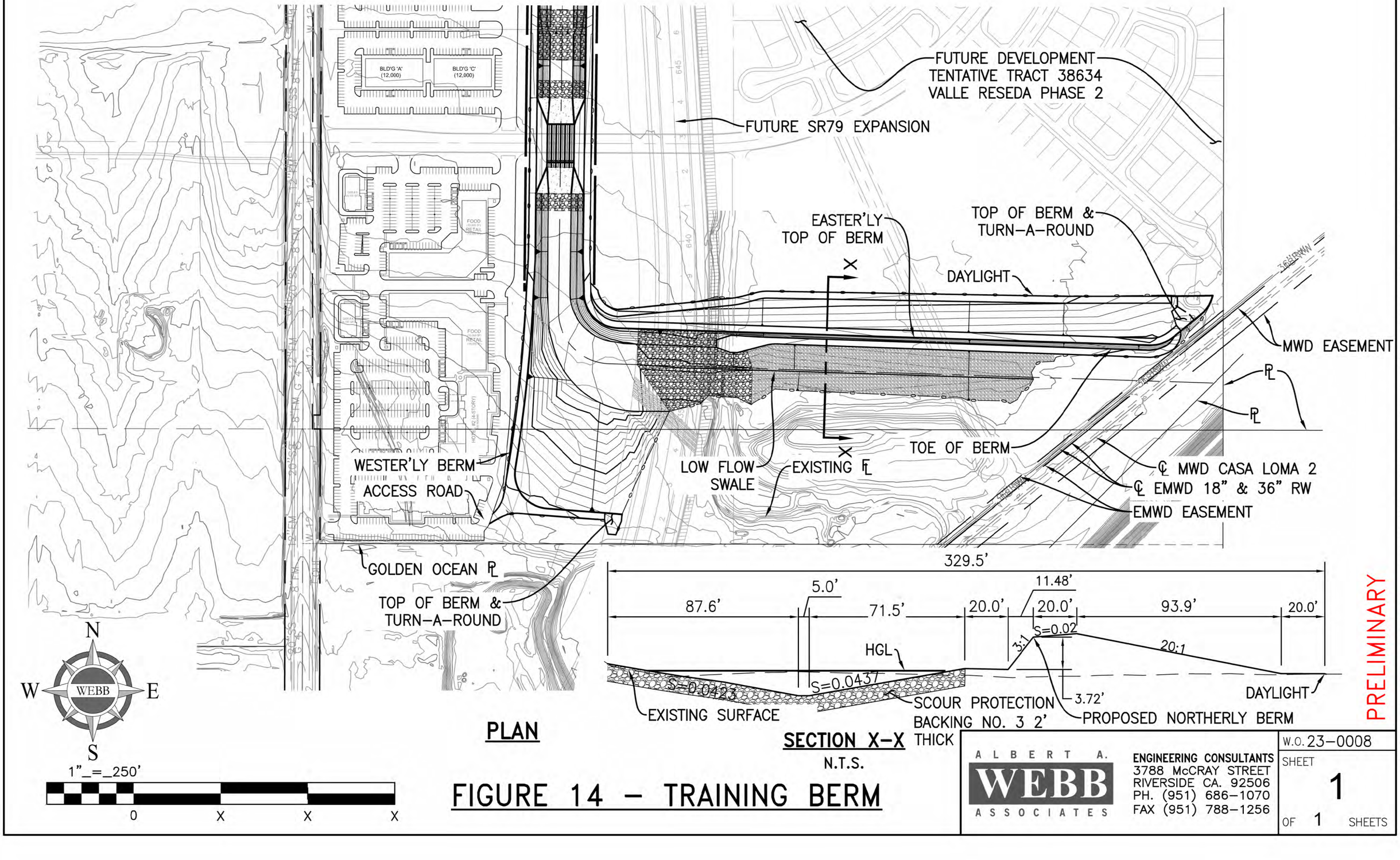


A total of five STRDS are proposed for Line E (**Figure 13**). The upstream and downstream rock-lined channel lengths establish the normal depth (aka steady flow). The downstream length also considers the hydraulic jump length and to be conservative, this study applied a 1.5 safety factor to the apron length.

HEC-RAS was then used to size the STRDS riprap and the sizes of the upstream and downstream ungrouted riprap aprons. The HEC-RAS results are discussed in *Section 4.3*. All riprap in this study is assumed to be ungrouted. Manning's "n" values for the riprap sizes are shown in ***Table 4***. The 3/8-ton riprap will be used in the upstream section of the STRDS, which induces normal depth velocity for the approach. Then, flows drop down inducing critical depth. One-ton riprap is used on the slope where the fastest velocity occurs, and at the end of the grade break, one-quarter ton riprap is used for a slower velocity and returns to normal depth at the end of the downstream apron.

4.2.3 Training Berms

Training berms are proposed to direct flows from the San Jacinto Reservoir Spillway and the sheet flows from the south/southwest into the proposed Line E channel. The Project will have no direct connection to the San Jacinto Reservoir Spillway. The placement of the training berms allows avoidance of MWD Casa Loma Barrel No. 2 easement and EMWD pipeline easement which are located at the end of the easterly training berm (***Figure 14***). Based on the coordination with the City of San Jacinto, the training berm is not considered a levee because the WSE is within 1± foot of the dry side of the Training Berm. In addition, the City of San Jacinto approved a technical memorandum on the hydraulics of MDP Line E Inlet, see **Appendix F**.



PLAN

SECTION X–X
N.T.S.

FIGURE 14 – TRAINING BERM

PRELIMINARY

A L B E R T A.
WEBB
A S S O C I A T E S

ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686–1070
FAX (951) 788–1256

W.O. 23–0008
SHEET 1
OF 1 SHEETS

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2D HEC-RAS modeling is used to demonstrate that pre- and post-project velocities will be essentially equal over the EMWD and MWD easements and the existing cover over the EMWD and MWD pipes will not be scoured. The pre-project (existing condition) water surface elevations and velocities are shown in **Appendix D** 2D HEC-RAS Inlet Existing Model and proposed post-project water surface elevations and velocities are shown in **Appendix D** 2D HEC-RAS Inlet Proposed Model. Modeling results indicate slow velocities and shallow depths in the 100-Year event scenario. However, where velocities exceed 6 fps, the slope of the training berm will be armored with riprap or a cutoff wall to protect against scour – the specifics of which will be determined in the final design. Modeling results of the 2D HEC-RAS analysis are in **Appendix D**. The 100-Year floodplain limits within the Line E footprint are shown in ***Figure 15***.

The placement of the training berms was chosen to avoid disturbing the riparian habitat that is in the area below the spillway. Indeed, the training berms are placed an additional 50 to 100 feet from the riparian habitat to account for temporary construction impacts that might occur from building the berms.

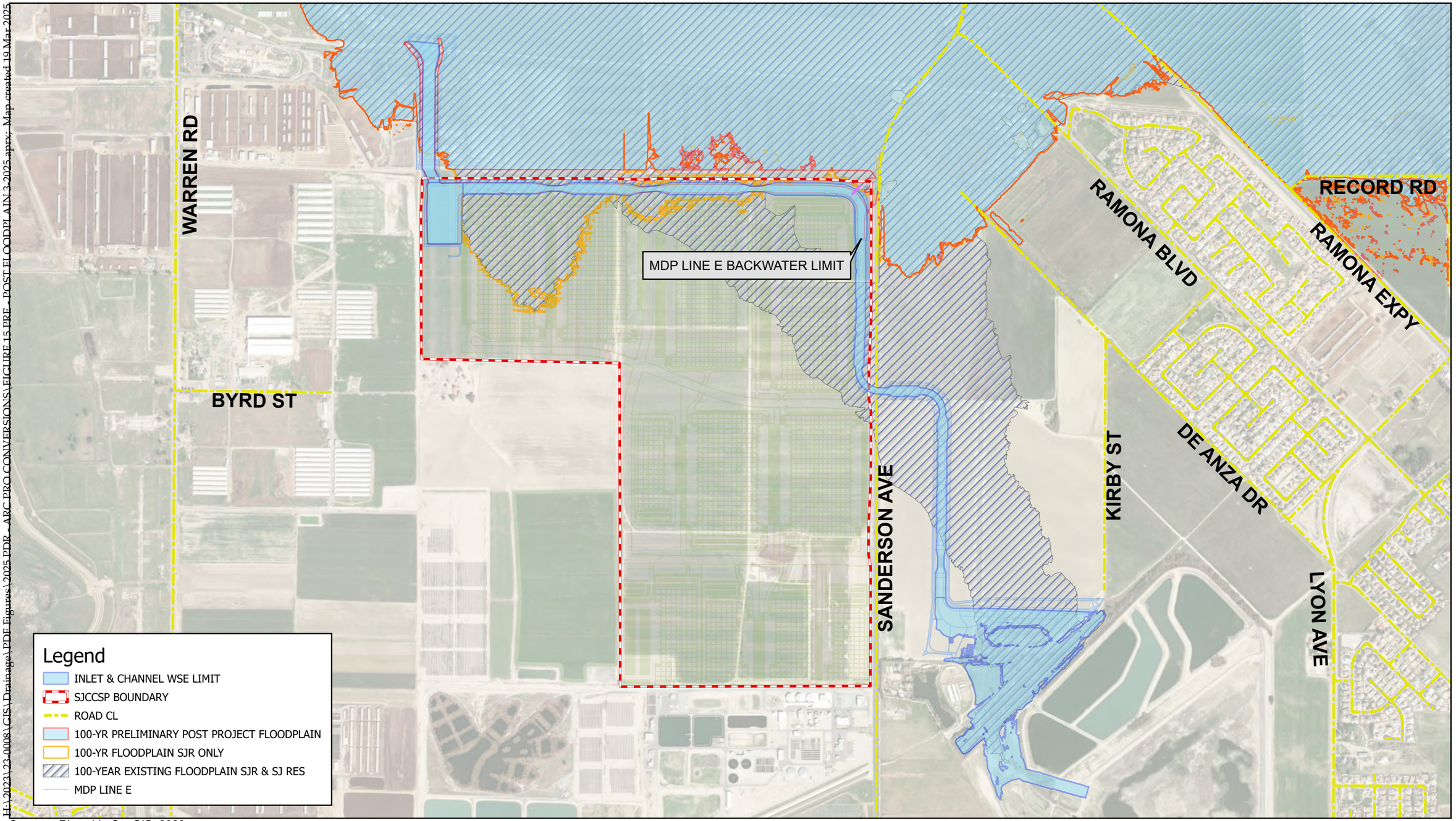
4.2.4 Scour Potential

HEC-RAS was used to model flows in the following three scenarios:

- To assess the highest scour potential conditions, such as in a freshly excavated bare earth unvegetated channel, an “n” value of 0.02 was used. All of the proposed scour mitigation measures will be designed using n = 0.02.
- To assess the post-project condition with a vegetated channel of minimal vegetation density, an “n” value of 0.03 was used, and n = 0.04 was used to represent flows in a vegetated channel with maximum vegetation density. It should be noted that a “n” value of 0.03 was used to plot the HGL on the long plot in **Appendix A**.

4.2.5 Onsite Basin, Confluence Basin, and Pump Station

The SJCCSP proposes an “Onsite Basin” to capture onsite stormwater and nuisance flows, which works with the proposed MDP Confluence Basin and both basins will be pumped out by a proposed pump station to be located on the SJCCSP property, which will discharge flows into a downstream segment of Line E (***Figure 16***).



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 15 PRE - POST FLOODPLAIN 3-2025.aprx; Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

FIGURE 15 - EXISTING FLOODPLAIN & PRELIMINARY POST PROJECT FLOODPLAIN

MDP LINE E

ALBERT A. WEBB ASSOCIATES

Onsite Basin

The Onsite Basin that is proposed for the SJCCSP property is designed to mitigate the effects of hydromodification that the SJCCSP project poses to areas downstream. Flows will be released from the Onsite Basin via pumps, at a rate no greater than 110% of the pre-development runoff condition's 2-year, 24-hour peak flow rate. Per the city water quality requirements the Onsite Basin dimensions and capacity are not set by this requirement, but rather they were set as a result of the storm drain invert elevations running from the southernmost portion of the SJCCSP site. Under the spillway elevation, the Onsite Basin can hold roughly 145 acre-feet (47.3 million gallons). A 20-foot-wide maintenance access road is provided along the top perimeter of the entire basin. Please refer to the SJCCSP Hydrology and Hydraulics Report prepared by WEBB for details on the onsite storm drain system.

MDP Confluence Basin

The MDP includes a Confluence Basin at the downstream end of the earthen portion of Line E. The basin is earthen with 4:1 side slopes. The RCB outlet of the of Confluence Basin is 4.4± feet higher than the bottom of the basin (1446.50-feet amsl basin bottom). The Confluence Basin has 57± acre-feet capacity over an area of 6.25 acres, with 72-hour drawdown. To pump out the dead storage, the basin parcel includes a pump station. When entitlement is completed for the SJCCSP, the proposed Confluence Basin will be dedicated as its own parcel within the SJCCSP, the parcel will be owned by the City of San Jacinto. The pump station will be located on the Confluence Basin parcel.

Pump Station

A pump station is proposed on the SJCCSP property that will house pumps to drain both the Onsite Basin and the Confluence Basin back into Line E downstream of the basins (***Figure 16***). ***Table 7*** summarizes the pumps that would be required to pump the dead storage volumes from both basins. The primary design criterion for the pumps is to draw down both basins within 72 hours. The total pump station combined flow rate is 36 cfs that will outlet into the RCB's crossing Record Rd. Pump station details will be provided in the final design. The conceptual cost of the pump station is approximately $9.1 million.

Downstream Perched Channel & Levee Concern

The concrete downstream of Line E from the confluence basin to the northerly MWD right of way is a perched channel. During a review of the PDR RCFC&WCD noted that the City will need to make the determination if this portion of Line E is a leveed channel. The City made the determination in an email dated 11-27-24 where the city determined the channel is not leveed. A copy of the email will be included in **Appendix F**.

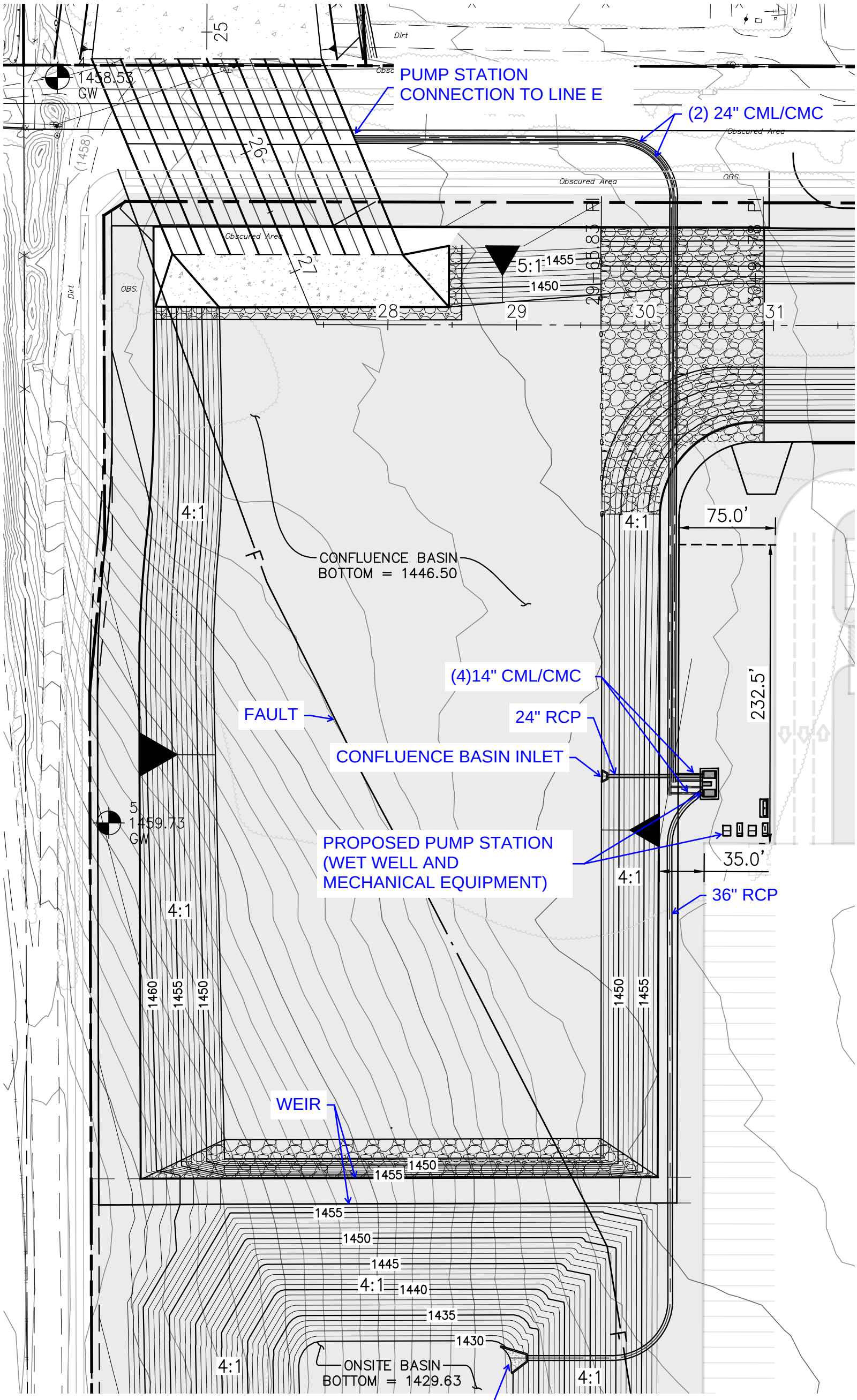
Table 7 -Basin's & Pump Station Details

Confluence Basin	
Dead Storage Volume	57.6 AF 2,509,056 CF
Required Pump Flow	10 cfs 3,142 gpm
Number of Pumps	2
Drawdown Time	72 hours
Onsite Basin	
Dead Storage Volume	146.4 AF 6,377,184 CF
Required Pump Flow	HCOC - 13 cfs (within 110% of 18.8 cfs the 2-year 24-hour event) = 5,834.8 gpm 100-Year - 13 cfs =5,834.8 gpm Combined 26 cfs =11,670 gpm
Number of Pumps	2
Drawdown Time	72 hours

Notes: "Dead storage" refers to the volume of water that has no free flow outlet, e.g., the water below the spillway.
AF = acre-feet; CF = cubic feet; cfs = cubic feet per second; hp = horsepower; gpm = gallon per minute

Pumps – (4) WEMCO H12K-SS	
Horse Power	35.6 HP each dry-pit submersible pump & motor
Required Pump Flow	Q_{total} = 16,158 gpm
Pump Selection	(2) 650 RPM @ 800 gpm at 15.5-ft TDH (2) 880 RPM @ 800 gpm at 32-ft TDH
Pumping Ranges controlled by VFDs	650 RPM @ 1,120 gpm (one pump, LWL) 650 RPM @ 16,000 gpm (four pumps, HWL) 880 RPM @ 4,080 gpm (one pump, LWL) 880 RPM @ 24,000 gpm (four pumps, HWL)
Piping	
Onsite Basin	600 LF, 36” dia. RCP
Confluence Basin	100 LF, 36” dia. RCP
Pump Station Discharge	300 LF, 14” dia. CML/CMC
Force Main Outlet	700 LF, (2) 24” dia. CML/CMC
Wet Well & Mechanical	
Wet Well Dimensions	40-foot deep wet well by 15-foot x 20-foot with 2’ thick reinforced concrete walls with removable galvanized steel grates for access Reinforced concrete pad foundation
Emergency Standby Generator	300 KW Weather and sound attenuating enclosure 400-gallon sub-base fuel tank
Electrical Service	480V, 3Ph, 400 Amp Transformer and Pad

Notes: “Dead storage” refers to the volume of water that has no free flow outlet, e.g., the water below the spillway.
AF = acre-feet; CF = cubic feet; cfs = cubic feet per second; hp = horsepower; gpm = gallon per minute



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 16 PUMP STATION 3-2025.aprx: Map created 19 Mar 2025

FIGURE 16 - BASIN & CONCEPTUAL PUMP STATION

MDP LINE E

0 100 200 300
Feet

ALBERT A. WEBB ASSOCIATES

4.3 Hydraulic Model Results

The results of the hydraulic modeling suggest that post-project flow conditions approximate existing pre-project flow conditions through the MWD and EMWD rights-of-way near the San Jacinto Reservoir Spillway.

In addition, model results suggest the proposed Line E channel has sufficient capacity when an "n" value of 0.04 is applied (i.e., maximum vegetation density) while also sufficiently designed for no scour occurring at the "n" value of 0.03 (i.e., minimum vegetation density).

The velocity profiles along Line E depend on the modeling method used. Both WSPG and HEC-RAS produce similar results for slow and steady flow (see **Appendix A**, Long Plot, Sheets 2 & 3). However, as the flow transitions to unsteady conditions, the models begin to diverge.

This divergence is particularly evident at the STRDS drop structures, where WSPG struggles to accurately compute energy dissipation. WSPG predicts a high-energy hydraulic jump (as shown on Sheet 5 of the Long Plot), while HEC-RAS models a submerged hydraulic jump. The submerged jump is expected due to the downstream water surface elevation being higher than the upstream brink elevation.

Additionally, the Long Plot shows that approach velocities calculated by WSPG are approximately ±2 fps higher than those from HEC-RAS. This suggests that the approach apron in WSPG simulations would, in some cases, experience increased velocities.

Furthermore, the proposed drop structures (STRDS) reduce the 100-Year maximum channel velocities effectively. Model results show the same hydraulics occur downstream of and upstream of each drop structure. Because the net change in flow rates from the upstream and downstream areas of each drop structure is zero, scour is mitigated, and capacity maintained in the proposed channel. The design target velocity is 4 fps for the unvegetated channel and 4 to 6 fps for the vegetated channel. The proposed design has either concrete or ungrouted riprap armor in all locations where velocities are more than 6 fps. Indeed, the modeled velocities for the segment of the proposed Line E channel within the SJCCSP are 6 fps and less, (at the approach of one drop structure the approach velocity reaches 7 fps). Where velocities exceed 4 fps and are below 6 fps, hydroseed will be used for erosion control (refer to **Appendix E** for hydroseed mix provided by RFC&WCD).

Likewise, the low flow model results for pumping out the Confluence Basin and Onsite Basin suggest the downstream (offsite) system is not impacted during pumping out of the dead storage. Based on the model results, the (off-site) low flow channel has a capacity of 75 cfs before spilling over. However, the city-maintained 60" RCP culvert crossing Ramona Expressway, is undersized. Webb surveyed the existing culvert to include the actual culvert slope and length for the Low Flow Analysis, see **Appendix D** for result exhibits.

On the other hand, where the concrete-lined portion of Line E outlets to the existing downstream/offsite low flow channel to the north of the Project, as shown in ***Figure 11***, the velocity increases to more than existing. In addition, if the San Jacinto Reservoir overflows, but the San Jacinto River is not overflowing and flooding the area, the functionality of the 60-inch diameter RCP culvert under Ramona Expressway that drains the low flow channel to which the Project drains, is absolutely critical to successful drainage of the study area. However, that capacity is limited and by the time the peak flow from Line E arrives to the culvert at Ramona Expressway, the area will already be inundated. Detailed analysis of offsite downstream properties is not included in this study.

Section 5 Right of Way & Maintenance

Maintenance obligations are currently expected to be assigned as follows, overall maintenance and easement areas are defined in ***Figure 17*** MDP Line E Lower Reach (outlet) and ***Figure 18*** MDP Line E Upper Reach (Inlet):

- Riverside County Flood Control & Water Conservation District

  Project Components

  RCFC&WCD would maintain Training Berms & inlet line and grade via a drainage easement and slope easement, Line E channel (with 20-foot access roads) and owned right of way (includes Line E downstream of confluence basin to MWD right of way and starting from station 80+95 per the Long Plot in **Appendix A** (from station 80+95 to 82+25 access road transitions from a 15' to 20'), RCBs, and drop structures within Right of Way, Line E and over the Casa Loma Barrel No. 1 & MWD right-of-way via a maintenance easement, geotechnical and structural measures to protect Casa Loma Barrel No 1.

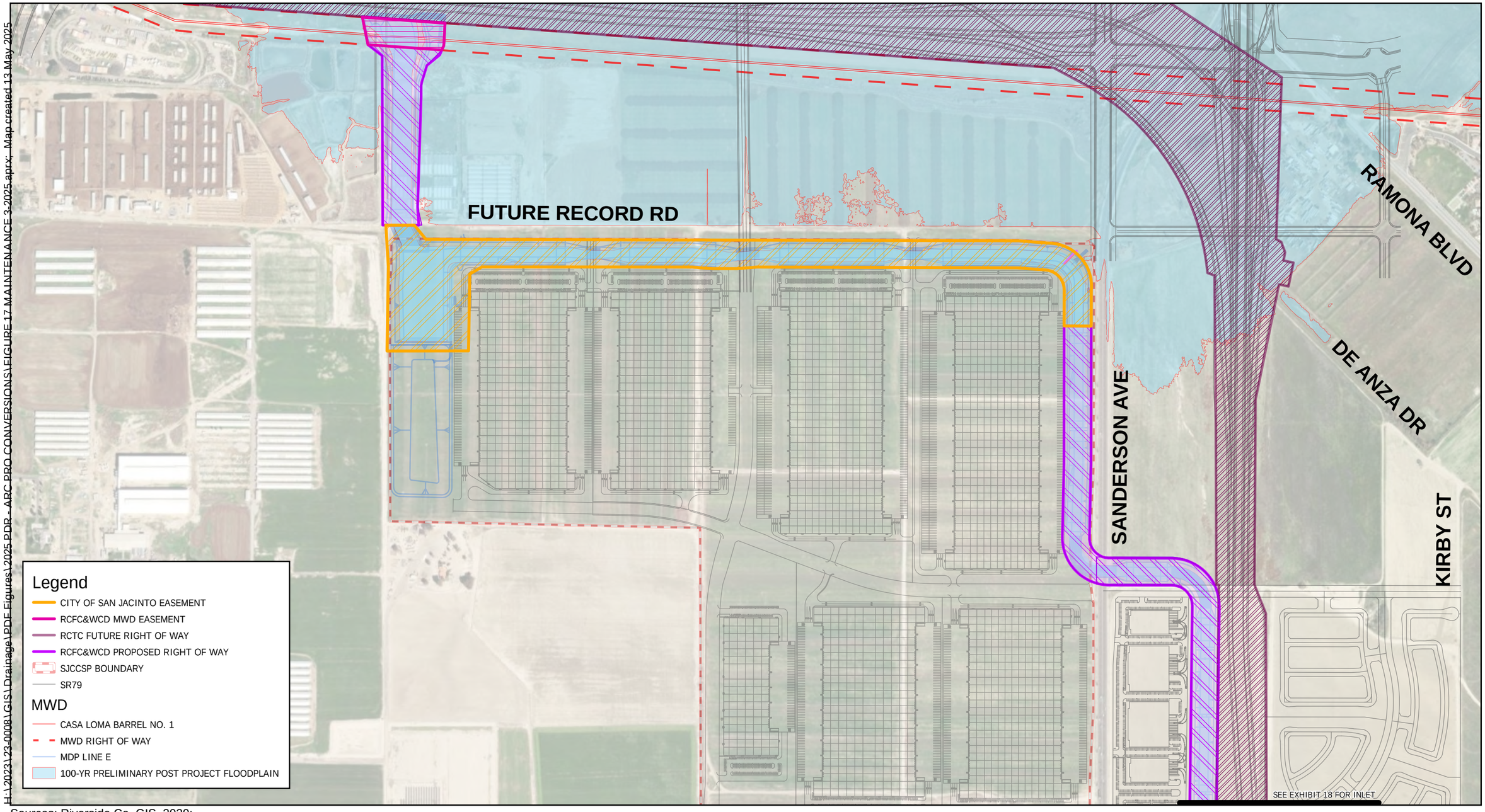
- City of San Jacinto

  Project Components

  City of San Jacinto would maintain the Line E channel segment (with 15-foot access roads) within the SJCCSP boundary via a drainage easement, onsite water quality basin, Confluence Basin, and Pump Station. The city-maintained segment of Line E ends at the downstream end of the first drop structure, which is station 80+95 per the Long Plot in **Appendix A**.

It should be noted that MWD will not maintain structural (structural protection of Casa Loma No. 1) or geotechnical (lightweight fill) design components of this project.

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 17 MAINTENANCE 3-2025.aprx; Map created 13 May 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 17 - MDP LINE E MAINTENANCE DELINEATION

LOWER REACH

ALBERT A. WEBB ASSOCIATES

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 18 MAINTENANCE 3-2025.aprx; Map created 13 May 2025

SEE EXHIBIT 16 FOR OUTLET

TRAINING BERM EXTENTS

A

A

SANDERSON AVE

KIRBY ST

EMWD FACILITY

SAN JACINTO RESERVOIR

LEGEND

- RCTC FUTURE RIGHT OF WAY
- RCFC&WCD MAINTENANCE EASEMENT
- RCFC&WCD SLOPE EASEMENT
- MWD & EMWD EASEMENTS
- RCFC&WCD PROPOSED RIGHT OF WAY
- GOLDEN OCEAN PRELIMINARY SITE PLAN
- SJCCSP BOUNDARY
- ROAD CL
- 100-YR PRELIMINARY POST PROJECT FLOODPLAIN
- MDP LINE E

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 250 500 750 Feet

FIGURE 18 - MDP LINE E MAINTENANCE DELINEATION

UPPER REACH

ALBERT A. WEBB ASSOCIATES

Section 6 Recommendations

Based on the analysis presented herein, it is recommended that the City and RCFC&WCD approve the proposed modifications to the MDP Line E alignment. It is also recommended that Line V be removed because this drainage area will now be accommodated by an onsite system on the SJCCSP site. MDP Line E-2 will have to cross MWD Casa Loma Barrel No. 2 to connect to MDP Line E. Feasibility of MDP Line E-2 is not within the scope of this project.

Final design of the Line E system will take place in conjunction with the development of the SJCCSP, *Section 7* outlines the final design items. Other future projects will design downstream MDP facilities, Line G and Line E-2 as well as other backbone facilities throughout the City. It should also be noted that the connection of MDP Line E to the San Jacinto Spillway while crossing Casa Loma Barrel No. 2 and the San Diego Pipeline, is planned as a future project. It is recommended that the flow rates established in this report be utilized for the Final Design of Line E and Line G.

Section 7 Next Steps

Following the approval of the PDR the following items will need to be developed, coordinated, or designed in the final design stage of MDP Line E development. The following list includes long lead items but is not exhaustive of all design elements.

- MWD
  - Finalize structural design for Casa Loma Barrel No. 1 for final design
  - Finalize geotechnical analysis for final design
  - Casa Loma Barrel No. 1 blowoff manhole structural design to proposed grade
  - Lightweight fill extents and protection extents
  - Obtain final MWD approval on structural and geotechnical construction plans and reports
  - Easement for construction and RCFC&WCD to maintain Line E from MWD's Real Estate Group

- City of San Jacinto
  - Onsite & Confluence Basin
    - Size, freeboard, weir design, and scour protection
  - Pump Station
    - Final pump selection, mechanical selection, electrical plan, Structural design of wet well
  - Easement for the City of San Jacinto to maintain Line E

- RCFC&WCD
  - Obtain RCFC&WCD approval of freeboard for MDP Line E for areas outside of SJCCSP boundary and within adjacent developments to verify offsite drainage
  - 20' access roads within the SJCCSP boundary
  - Non-standard RCB structural design, transition structures structural design
  - Low flow channel per RCFC&WCD CH324, extents and design to be determined
  - Right of Way Acquisition and Easements for Line E Maintenance (including MWD)
  - Additional groundwater investigations near inlet
  - Construction phasing
- Environmental
  - Complete the CEQA process with the City of San Jacinto and obtain regulatory permits for the construction and maintenance of Line E.
  - City of San Jacinto, as CEQA lead agency adopts Addendum
  - RCFC&WCD as a CEQA-responsible agency makes Responsible Agency Findings
  - Implement mitigation measures identified in the Addendum's Clarified Mitigation Monitoring and Reporting Program (Clarified MMRP)

Section 8 References

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Lan	Lockwood, Andrews, and Newnan, Inc. *MS 212 San Jacinto MDP Line E Plan Check No. 1 Account No. 137-0-3-75369*. October 20, 2023. Plan Check 2
Lan	Lockwood, Andrews, and Newnan, Inc. *MS 212 San Jacinto MDP Line E Plan Check No. 1 Account No. 137-0-3-75369*. February 9, 2024.
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RCFC(a)	Riverside County Flood Control & Water Conservation District. *Hydrology Manual.* April 1978.
RCFC(b)	Riverside County Flood Control & Water Conservation District. *Hydraulic Design Manual.* (draft available for comment March 2024).
USDT	U.S. Department of Transportation, Federal Highway Administration. *Hydraulic Engineering Circular No. 14, Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels.* Publication no. FHWA-NHI-06-086, July 2006.
WEBB(a)	Albert A. Webb Associates. *Draft Environmental Impact Report for the San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment (SJV-MDP), SCH 2009041077 for City of San Jacinto.* May 2010. *Final Environmental Impact Report for the San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment (SJV-MDP), SCH 2009041077, City of San Jacinto, October 2012. (Certified by the San Jacinto City Council on January 14, 2013. Responsible Agency Findings made by the Riverside County Flood Control and Water Conservation District Board of Supervisors, October 6, 2015.)*
WEBB(b)	Albert A. Webb Associates. *San Jacinto Valley MDP Line E Alternative Analysis Memorandum*. September 7, 2023.

Appendices

Appendix A Long-Axis Plan

Appendix B Geotechnical Report

Appendix C Hydrology

Appendix D Hydraulics

APPENDIX E HYDROSEED MIX

Appendix F Reference

Appendix D

2021/2022 Wet Season Fairy Shrimp Report

GLENN LUKOS ASSOCIATES

Regulatory Services

October 17, 2022

Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Report of Findings for 2021-2022 Wet-Season Survey for Listed Branchiopods Conducted for the Villages of San Jacinto Project Site, an Approximately 514-Acre Site Located in the City of San Jacinto, Riverside County, California

Dear Ms. Love:

Glenn Lukos Associates, Inc. (GLA) conducted wet-season surveys for listed branchiopods (fairy shrimp) of 58 potential seasonally ponded features at the Villages of San Jacinto Project Site (Property), a 514-acre property located in the City of San Jacinto, Riverside County, California.

Frank Wegscheider (TE-038716-4) conducted the 2021-2022 wet season survey with the objective of determining the presence or absence of federally-listed Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and vernal pool fairy shrimp (*Branchinecta lynchi*).

The versatile fairy shrimp (*Branchinecta lindahli*) was detected in 7 of the 42 features that ponded sufficiently to conduct sampling. No listed branchiopods were detected on site.

I. SITE LOCATION AND DESCRIPTION

The Project site is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within Sections 19, 30, and unsectioned portions of Township 4 South, and Range 1 West and Section 24 of Township 4 South, and Range 2 West of the Lakeview, California USGS 7.5-minute quadrangle map [Exhibit 2 – Vicinity Map].

The Study Area, including the main development parcels and additional offsite road improvement areas, is generally bounded by Ramona Expressway, commercial nursey, and agricultural fields to the north, North Sanderson Avenue and agricultural fields to the east, the San Jacinto Valley Sewage Plant to the south, and an egg farm and a dairy to the west. Universal

Transverse Mercator (UTM) coordinates approximately corresponding to the Study Area are 499080 mE and 3740693 mN.

The 2021-2022 wet season survey area consists primarily of active agricultural fields and surrounding roads and an inactive dairy facility. The majority of depressional features consisted of un-vegetated road ruts. A few features support non-native species including red brome (*Bromus madritensis* ssp. *rubens*), foxtail barley (*Hordeum murinum*), London rocket (*Sisymbrium irio*), common wheat (*Triticum aestivum*) and Russian thistle (*Salsola tragus*).

Exhibit 3 depicts the 2021-2022 wet season fairy shrimp survey area.

II. METHODOLOGY

GLA biologist David Moskovitz provided a written notification to commence wet and dry season surveys to the U.S. Fish and Wildlife Service (USFWS), Carlsbad Field Office on December 1, 2021. Rain on December 14, 2021, initiated mapping of features, conducted by Frank Wegscheider, on December 15 and 17, 2021. Several features sustained ponding or were frequently re-inundated due to irrigation run-off.

In accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines) dated November 13, 2017[1], site visits were conducted within 24 hours of rain events to determine whether features contained a minimum of three centimeters (cm) of ponding. Under typical conditions, sampling commences within seven days of initial ponding. Sampling continued weekly until the feature was dry or had been inundated continuously for 120 days. If dried features were re-inundated, sampling would begin again as above. Sampling for the presence of fairy shrimp was performed using a dip net within representative portions of the depression bottom, edges, and vertical water column when there was adequate ponding. Specimens were placed into vials, with unique depression information, containing 95% ethanol solution. Specimens were identified in the field. Datasheets are attached as Appendix 1.

IV. RESULTS

A total of 58 features were identified as potentially suitable fairy shrimp habitat. A total of 49 features ponded and were sampled during the 2021-2022 wet season. The remaining 9 features never ponded to allow for sampling. Of the 49 features sampled, seven features supported fairy shrimp. The common, versatile fairy shrimp (*Branchinecta lindahli*) was detected in the seven features. No listed species were detected. Table 1 includes the wet season fairy shrimp survey

[1] USFWS. *Survey Guidelines for the Listed Large Branchiopods*, Revised: November 13, 2017.

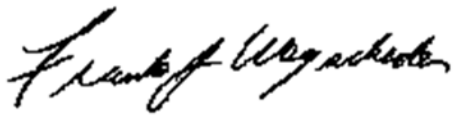
results. Exhibit 4 depicts the fairy shrimp wet season survey results map. Site photographs are depicted in Exhibit 5.

Table 1 Wet Season Fairy Shrimp Survey Results

Pool ID	Fairy Shrimp Present	SURFACE AREA MAX (MxM)	DEPTH MAX (cm)	Easting	Northing
1	No	6x4	6.0	498910.09	3741409.22
2	No	6x2.5	7.0	498908.03	3741185.88
3	Not sampled	no ponding		499175.30	3740023.82
4	No	60x5.5	12.0	498907.71	3741753.93
5	Yes	52x6	20.0	498435.02	3741741.34
6	No	9x3	6.0	498436.61	3741675.65
7	No	9x3.5	10.0	498439.55	3741248.61
8	No	12x4	6.0	498492.55	3741252.29
9	No	11x4	3.0	498642.01	3741252.41
10	No	4x3	3.0	498854.65	3741252.75
11	No	9x3	6.0	498458.76	3740946.69
12	No	11x6	6.0	498968.08	3740517.31
13	No	11x2	4.0	498993.04	3740521.42
14	No	12x3.5	10.0	499035.46	3740528.88
15	Yes	25x3	18.0	499067.77	3740531.66
16	No	10x4.5	8.0	499080.92	3740523.69
17	Not sampled	no ponding		499187.71	3740452.14
18	Not sampled	no ponding		499188.50	3740507.42
19	Not sampled	no ponding		499272.81	3740496.92
20	No	0.2x1	1.0	499274.00	3740478.81
21	No	45x15	11.0	499328.21	3740478.50
22	No	25x0.7	15.0	499345.09	3740469.10
23	Not sampled	no ponding		499165.31	3740142.58
24	Not sampled	no ponding		499190.40	3740127.48
25	Yes	21x4.5	10.0	498967.05	3740006.91
26	Yes	8x3.5	5.0	499054.32	3740009.51
27	Not sampled	no ponding		499193.13	3740029.74
28	No	0.25x0.25	2.0	499184.42	3740006.25
29	Not sampled	no ponding		499240.75	3740025.77
30	Not sampled	no ponding		499258.74	3740027.26

Pool ID	Fairy Shrimp Present	SURFACE AREA MAX (MxM)	DEPTH MAX (cm)	Easting	Northing
31	Yes	6x4	7.0	499264.72	3740002.76
32	No	15x5.5	22.0	498661.98	3740529.35
33	Yes	15x4.5	12.0	498874.84	3740531.19
34	No	16x4.5	12.0	498999.87	3740499.14
35	No	6x2.5	6.0	499049.22	3740489.41
36	No	20x3	19.0	499090.48	3740524.80
37	No	7x4	7.0	498930.02	3740367.21
38	No	3x4	9.0	498959.43	3740368.26
39	No	18x3	5.0	499319.17	3740514.30
40	No	2.5x1	12.0	498867.80	3740005.70
41	No	23x3.5	12.0	498998.62	3740005.41
42	No	8x6	10.0	499020.83	3740002.98
43	No	25x3	5.0	499122.64	3740008.15
44	Yes	7x2	9.0	499214.16	3740003.26
45	No	8x3.5	6.0	499305.25	3740006.51
46	No	4x1.5	3.0	497738.96	3741760.20
47	No	35x3	9.0	498060.02	3741804.01
48	No	6x3	3.0	497737.31	3741247.16
49	No	5x2.5	3.0	498436.49	3741625.35
50	No	1.5x6	3.0	498437.33	3741575.50
51	No	6.5x3.5	5.0	498438.80	3741407.56
52	No	10x10	10.0	498422.44	3741152.56
53	No	2.5x3	3.0	498458.65	3741240.54
54	No	8x4.5	2.5	498809.96	3741251.50
55	No	10x4.5	3.0	498832.44	3741251.93
56	No	5x4	5.0	498907.23	3741450.79
57	No	2.5x2	8.0	498872.25	3740003.76
58	No	4x3	3.0	499116.77	3740349.93

I certify that the information in this survey report and the attached exhibits fully and accurately represent my work. If you have any questions regarding this report, please contact me via phone at (714) 402-2899 or email at fwegscheider@fullerton.edu. GLA biologist David Moskovitz can be reached via email at dmoskovitz@wetlandpermitting.com.



Frank J. Wegscheider (TE-038716-4)

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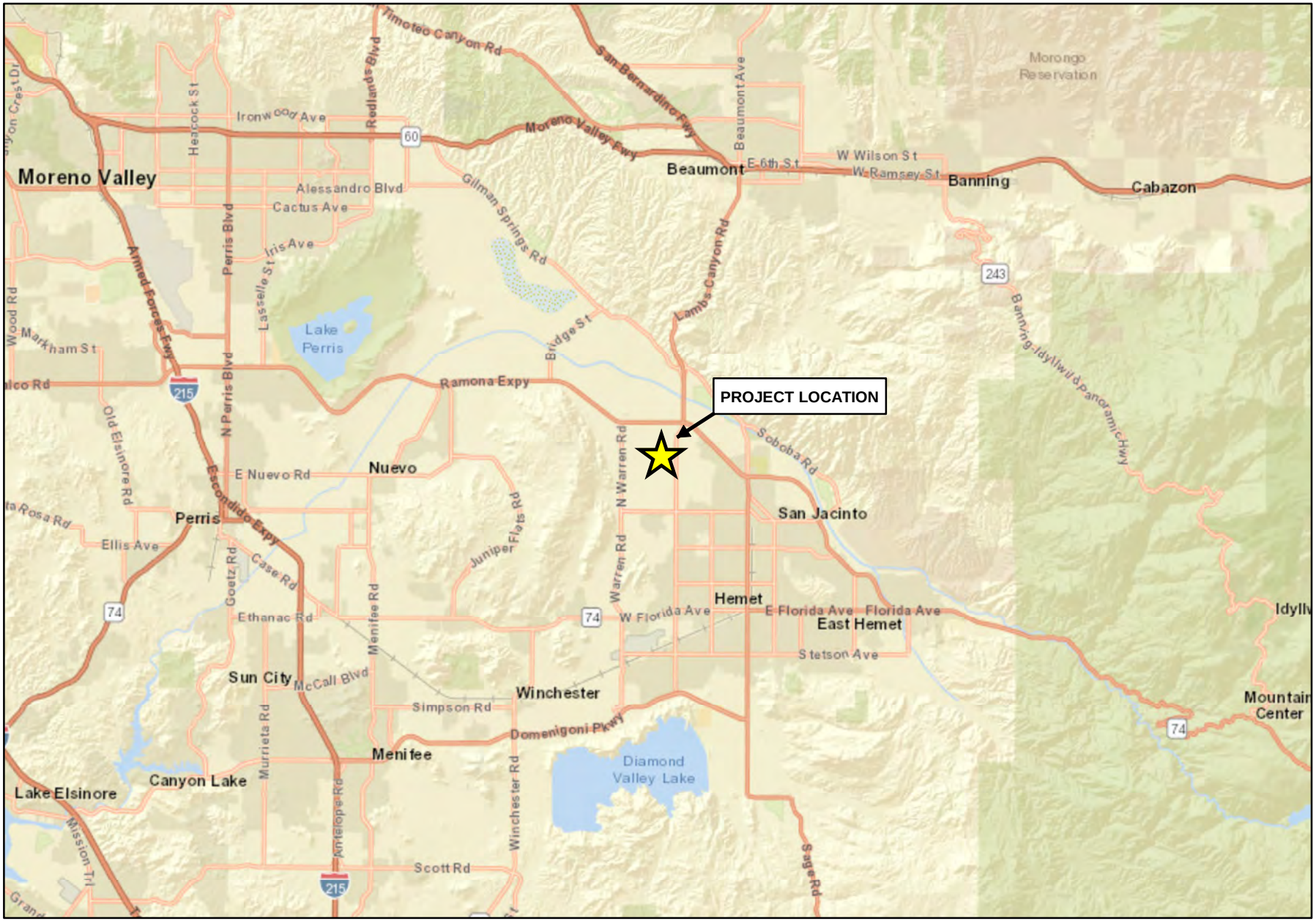


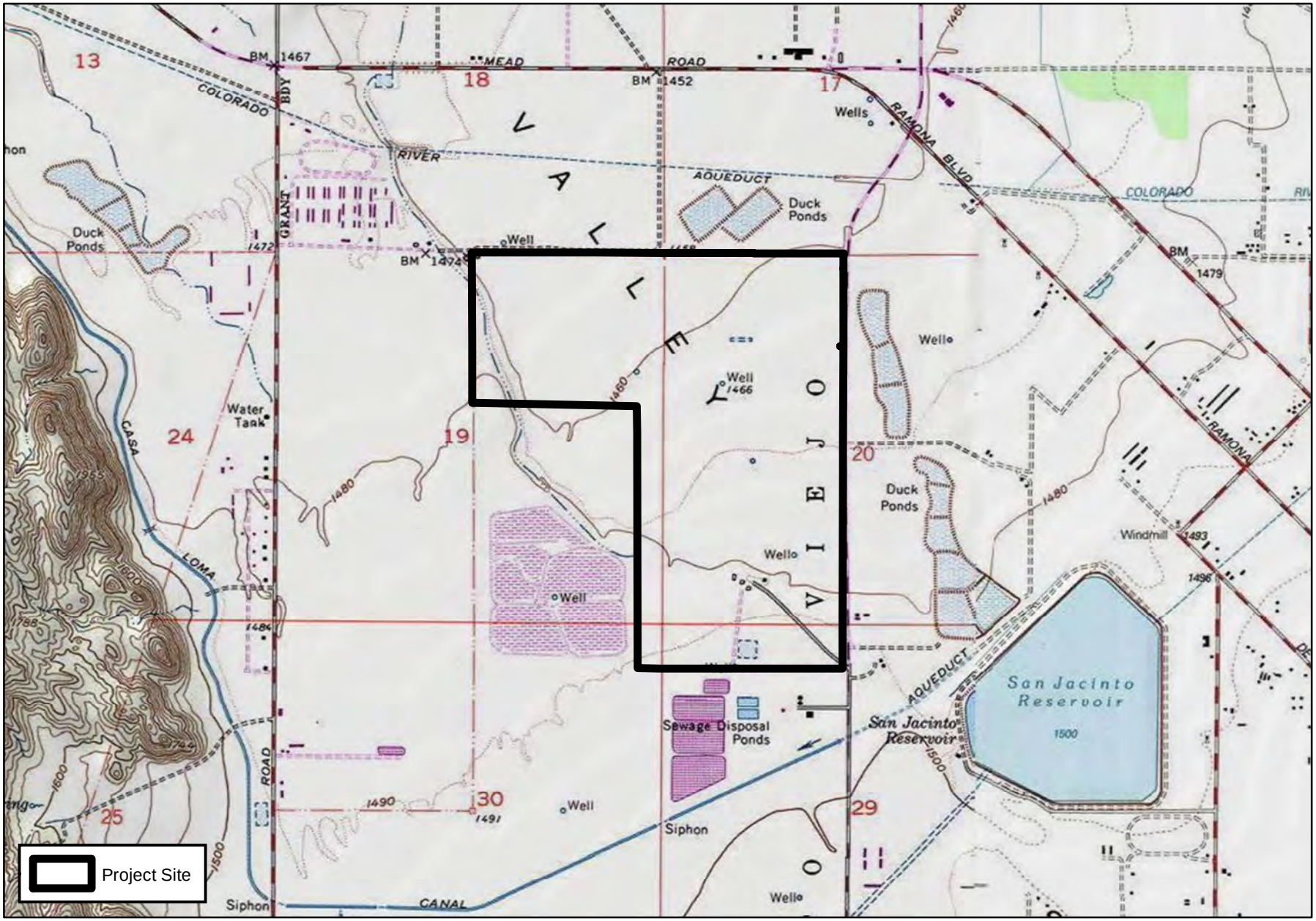
Source: ESRI World Street Map

VILLAGES OF SAN JACINTO

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



VILLAGES OF SAN JACINTO

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



2021-2022
Fairy Shrimp
Wet Survey Area

N

0 325 650 1,300
Feet

1 inch = 650 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 21, 2022

VILLAGES OF SAN JACINTO

2021-2022 Fairy Shrimp Wet Survey Area Map

GLENN LUKOS ASSOCIATES

Exhibit 3

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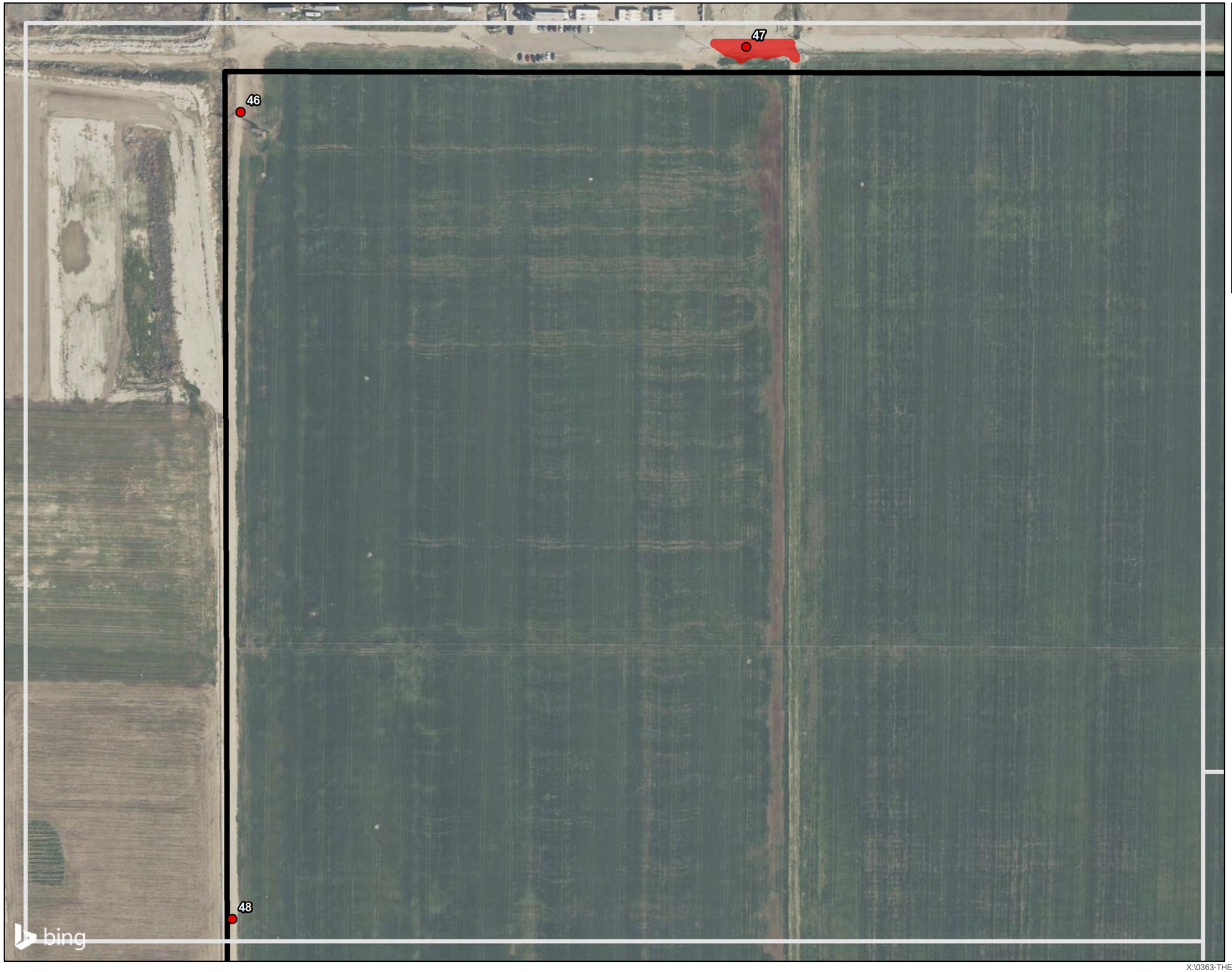

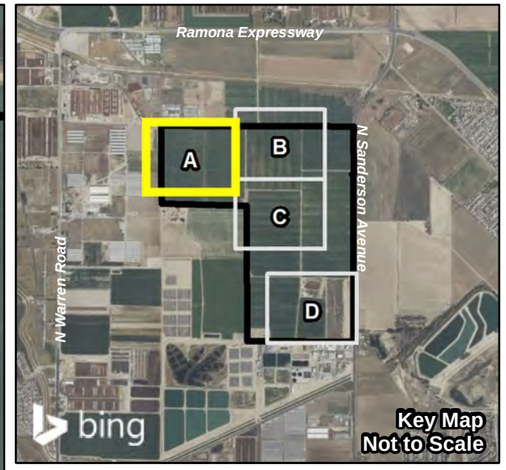

Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

VILLAGES OF SAN JACINTO

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4A

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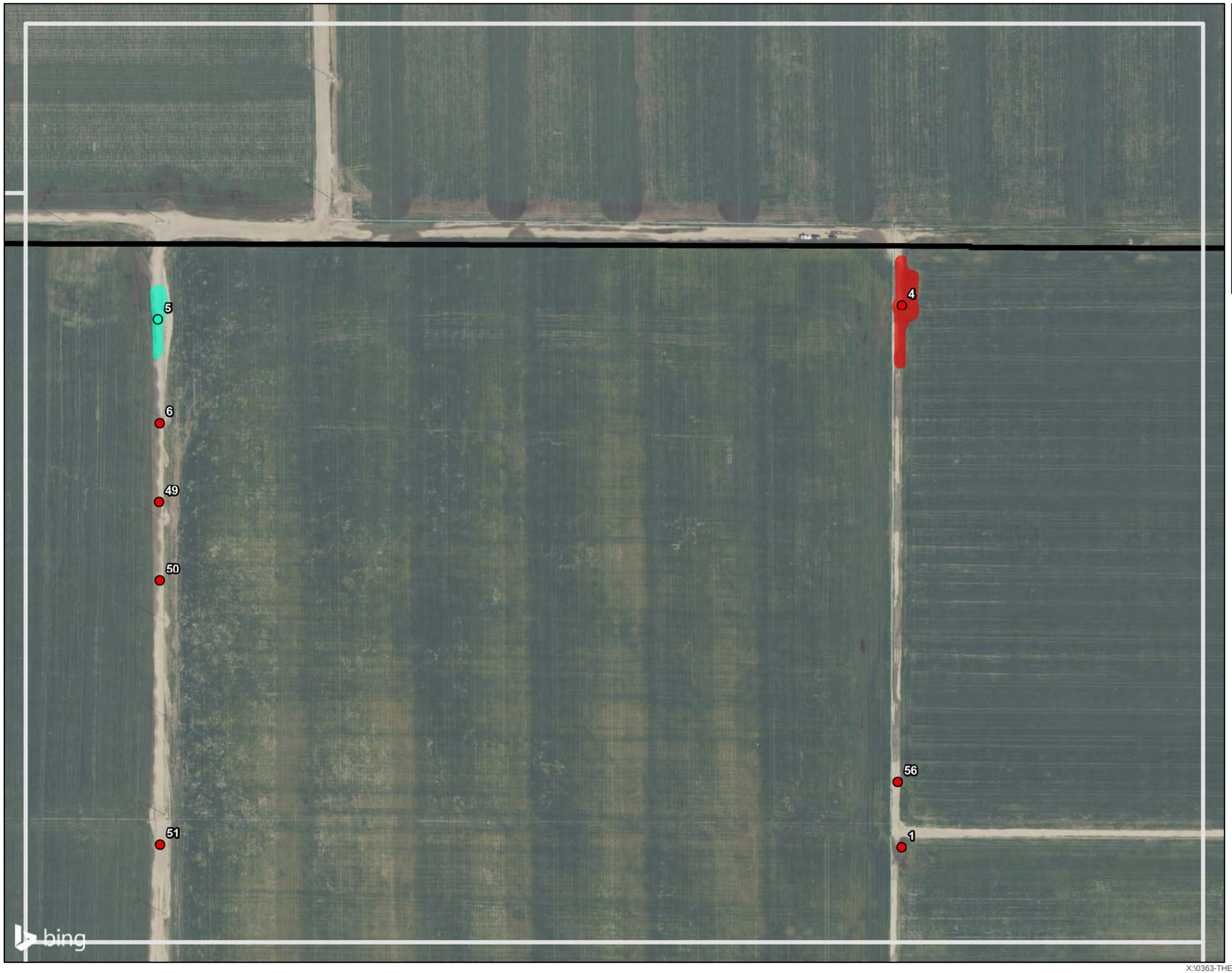

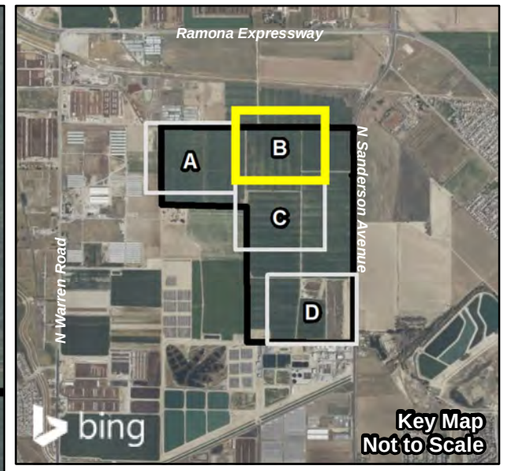

Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

VILLAGES OF SAN JACINTO

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4B

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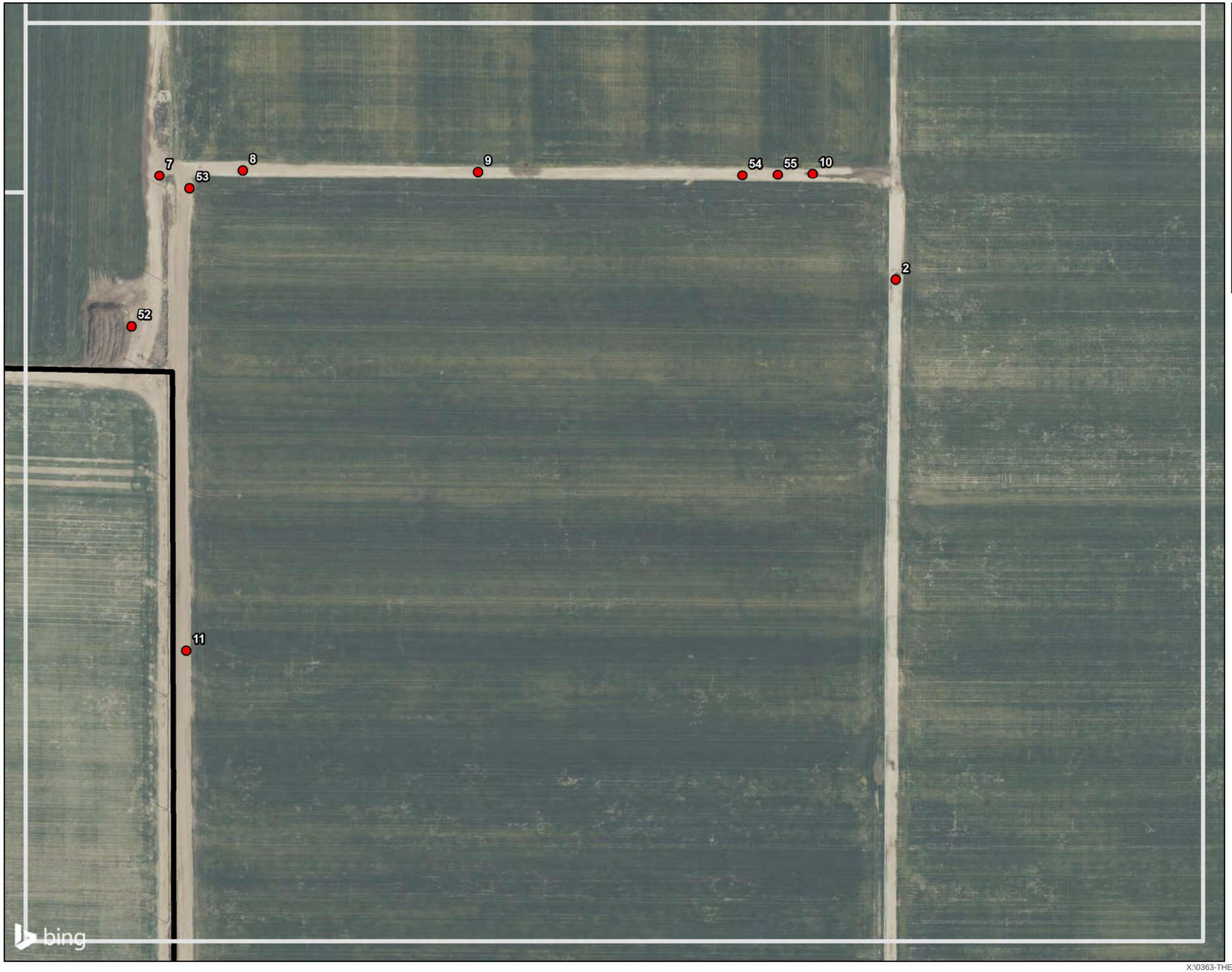
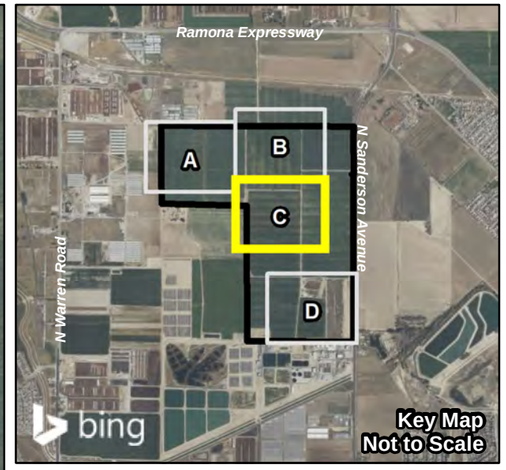




Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400

Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

VILLAGES OF SAN JACINTO

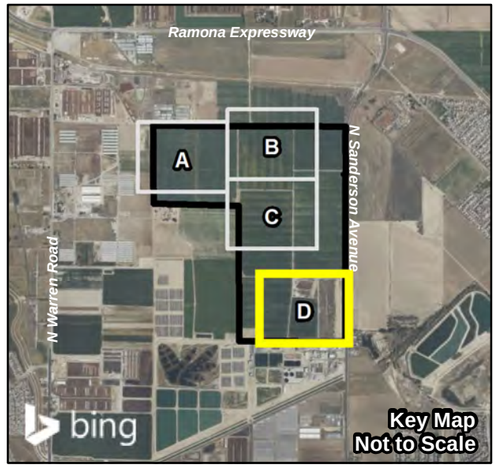
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4C

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\640-84_FSWetSurveyResults.mxd





Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

VILLAGES OF SAN JACINTO

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4D

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\640-84_FSWetSurveyResults.mxd



Photograph 1: View facing approximately north near the southeastern portion of the Project Site.



Photograph 2: View facing approximately west from the central portion of the Project Site.

GLENN LUKOS ASSOCIATES

Exhibit 5 – Page 1

VILLAGES AT SAN JACINTO PROJECT

Site Photographs



Photograph 3: View facing approximately west depicting feature 15. (499067.77 E, 3740531.65 N UTM Zone 11N, December 17, 2021, FW, *B. lindahli* present)



Photograph 4: View facing approximately west depicting feature 33. (498874.84 E, 3740531.18 N UTM Zone 11N, December 25, 2021, FW, *B. lindahli* present))

GLENN LUKOS ASSOCIATES

VILLAGES AT SAN JACINTO PROJECT

Site Photographs



Photograph 5: View facing approximately west depicting feature 25. (498967.05 E, 3740006.91 N UTM Zone 11N, December 17, 2021, FW, *B. lindahli* present))



Photograph 6: View facing approximately east depicting feature 10. (498854.65 E, 3741252.75 N UTM Zone 11N, December 17, 2021, FW)

GLENN LUKOS ASSOCIATES

VILLAGES AT SAN JACINTO PROJECT

Site Photographs

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/15/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1					3.0		5x4												Road rut
2					7.0		3x5												
3																		DRY	road rut
14					7.0		12x3												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/17/2021	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1																		DRY	Road rut, muddy
2																		DRY	Road rut
3																		DRY	Road rut
4					5.0		12x3.5												Road rut
5					12.0		40x3.5												Road rut
6					4.0		5x3												Road rut
7					5.0		2x2												Road rut
8					5.0		8x4												Road rut
9					2.0		5x2.5												Road rut
10					3.0		4x3												Road rut
11					4.0		4x2												Road rut
12																		DRY	Road rut
13																		DRY	Road rut
14					6.0		7x3												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/17/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15					11.0		18x3												Road rut
16																		DRY	Road rut
17																		DRY	Road rut
18																		DRY	Road rut
19																		DRY	Road rut
20																		DRY	Road rut
21																		DRY	Road rut
22					14.0		25x0.35												Road rut
23																		DRY	Road rut
24																		DRY	Road rut
25					10.0		8x4												Road rut
26					3.0		6x3												Road rut
27																		DRY	Road rut
28																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/17/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
29																		DRY	Road rut
30																		DRY	Road rut
31					4.0		1x1												Road rut
32					14.0		6x12												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/25/2021	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1					6.0		6x4												Road rut
2					5.0	6x2.5	3x5												Road rut
3																		DRY	Road rut
4					12.0	60x5.5	12x3.5												Road rut
5					20.0		52x6												Road rut
6					6.0	9x3	5x3												Road rut
7					5.0	9x3.5	2x2												Road rut
8					6.0	12x4	8x4												Road rut
9					3.0	11x4	5x2.5												Road rut
10					2.0	4x3	4x3												Road rut
11					6.0	9x3	4x2												Road rut
12					6.0	11x6													Road rut
13					3.0	9x2.5													Road rut
14					10.0	12x3.5	7x3												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/25/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15					18.0	25x3	18x3												Road rut
16					8.0	10x4.5													Road rut
17																		DRY	Road rut
18																		DRY	Road rut
19																		DRY	Road rut
20					1.0	0.2x1													Road rut
21					11.0	45x15													Road rut
22					15.0	25x0.7	25x0.35												Road rut
23																		DRY	Road rut
24																		DRY	Road rut
25					6.0	21x4.5	8x4												Road rut
26					5.0	8x3.5	6x3												Road rut
27																		DRY	Road rut
28					2.0	0.25x0.25													Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/25/2021	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
29																		DRY	Road rut
30																		DRY	Road rut
31						7.0	1x1	0.5x0.5											Road rut
32						22.0	14x6	6x12											Road rut
33						11.0	13x5.5												Road rut
34						8.0	8x3												Road rut
35						6.0	6x2.5												Road rut
36						19.0	20x3												Road rut
37						7.0	6x6												Road rut
38						6.0	3.5x3.5												Road rut
39						5.0	15x10												Road rut
40						12.0	2.5x1												Road rut
41						12.0	23x3.5												Road rut
42						10.0	8x6												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/25/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
43					3.0	25x3													Road rut
44					9.0	7x2													Road rut
45					6.0	8x3.5													Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/26/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
46					3.0	4x1.5													Road rut
47					8.0	35x3													Road rut
48					3.0	6x3													Road rut
49					3.0	5x2.5													Road rut
50					3.0	1.5x6													Road rut
51					5.0	6.5x3.5													Road rut
52					10.0	10x10													Road rut
53					3.0	2.5x3													Road rut
54					2.5	8x4.5													Road rut
55					3.0	10x4.5													Road rut
56					5.0	5x4													Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/31/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12					4.0	7x3.5													Road rut
13					4.0	11x2													Road rut
14					10.0	11x3	7x3												Road rut
15					12.0	14x4	18x3												Road rut
16																		DRY	Road rut
17																		DRY	Road rut
18																		DRY	Road rut
19																		DRY	Road rut
20																		DRY	Road rut
21					2.0	18x18													Road rut
22					16.0	25x1	25x0.35												Road rut
23																		DRY	Road rut
24																		DRY	Road rut
25					12.0	14x2	8x4												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/31/2021	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
26					5.0	7x3.5	6x3												Road rut
27																		DRY	Road rut
28																		DRY	Road rut
29																		DRY	Road rut
30																		DRY	Road rut
31					7.0	4.5x2	0.5x0.5												Road rut
32					22.0	15x5.5	6x12												Road rut
33					12.0	15x4.5													Road rut
34					12.0	16x4.5													Road rut
35					5.0	22x22													Road rut
36																		DRY	Road rut
37					7.0	7x4													Road rut
38					9.0	3x4													Road rut
39					5.0	18x3													Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:12/31/2021 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
40					8.0	1x2													Road rut
41					10.0	15x1													Road rut
42					3.0	1x1.5													Road rut
43					5.0	15x2.5													Road rut
44					3.0	2x3													Road rut
45					4.0	4.5x2.5													Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/01/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1					3.0	0.75x0.75	6x4												Road rut
2					7.0	5x2.5	3x5												Road rut
3																		DRY	Road rut
4					9.0	22x2	12x3.5												Road rut
5					19.0	45x4	52x6												Road rut, immature BRLI
6					3.0	7x2.5	5x3												Road rut
7					5.0	8x8	2x2												Road rut
8					5.0	9x4	8x4												Road rut
9					3.0	5x3	5x2.5												Road rut
10					3.0	4x2.5	4x3												Road rut
11					5.0	8x3	4x2												Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindeniella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/01/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
46					1.5	0.5x0.5													Road rut
47					9.0	12x2.5													Road rut
48					2.5	4x1.5													Road rut
49					1.0	0.25x0.25													Road rut
50																		DRY	Road rut
51																		DRY	Road rut
52																		DRY	Road rut
53																		DRY	Road rut
54					2.0	3x2													Road rut
55					2.0	4x2													Road rut
56					4.0	4x1.5													Road rut
57					8.0	2.5x2													

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/07/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
7																		DRY	Road rut
8			19		3.0	3x2	8x4												Road rut
9																		DRY	Road rut
11			19		3.0	4x0.75	4x2						x						Road rut
12																		DRY	Road rut
13																		DRY	Road rut
14			17		5.0	5x3	7x3												Road rut
15			17		10.0	11x2.5	18x3												Road rut
16																		DRY	Road rut
17																		DRY	Road rut
18																		DRY	Road rut
19																		DRY	Road rut
20																		DRY	Road rut
21																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/07/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
22																		DRY	Road rut
23																		DRY	Road rut
24																		DRY	Road rut
25			9.6		8.0	8x2.5	8x4	10s					x						Road rut, BRLI
26			13		4.0	5.5x2.5	6x3	10s					x						Road rut, BRLI
27																		DRY	Road rut
28																		DRY	Road rut
29																		DRY	Road rut
30																		DRY	Road rut
31					0.3	0.5x0.5	0.5x0.5	100s											Road rut, immature branchinecta
32			15		15.0	8x7	6x12												Road rut
33			18		9.0	9x3		1					x						Road rut, BRLI
34			13		8.0	8x2.5													Road rut, manure
35																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/07/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
36																		DRY	Road rut
37			17		4.0	1.5x3													Road rut
38			17		4.0	1x2													Road rut
39																		DRY	Road rut
40																		DRY	Road rut
41																		DRY	Road rut
42																		DRY	Road rut
43																		DRY	Road rut
44																		DRY	Road rut, remains
45																		DRY	Road rut
46																		DRY	Road rut
47																		DRY	Road rut
48																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/07/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
52																		DRY	Road rut
53																		DRY	Road rut
57																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/08/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1																		DRY	Road rut, disked
2			14		3.0	5x2.5	3x5						x						Road rut
3																		DRY	Road rut
4			13		4.0	12x0.5	12x3.5												Road rut
5			12		14.0	35x3	52x6	100s						x					Road rut, BRLI
6																		DRY	Road rut
10																		DRY	Road rut
49																		DRY	Road rut
50																		DRY	Road rut
51																		DRY	Road rut
54																		DRY	Road rut
55																		DRY	Road rut
56																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/15/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1																		DRY	Road rut, disked
2																		DRY	Road rut
3																		DRY	Road rut
4																		DRY	Road rut
5			14.8		10.0	17x4	52x6	100s					x	x					Road rut, BRLI
6 to 14																		DRY	Road rut
15			15.9		4.0	1x3	18x3												Road rut, branchinecta sp
16 to 24																		DRY	Road rut, disked
25			11.9		3.0	7x0.5	8x4	10s											Road rut, BRLI
26 to 31													x						Road rut
32			15		3.0	8x2	6x12						x						Road rut
33			12.1		9.0	8x1		10s					x						Road rut, BRLI
34			16.2		2.0	4x4													Road rut, disked
35 to 57																		DRY	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/22/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1																		DRY	Road rut, disked
2																		DRY	Road rut
3																		DRY	Road rut
4																		DRY	Road rut
5			15.4		7.0	9x3	52x6	100s					x	x					Road rut, BRLI
6 to 57																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/29/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			17.8		8.0	12x4	5x4												Road rut, irigation run off
2			19		5.0	5x2	3x5												Road rut, irigation run off
3																		DRY	Road rut
4			15.8		10.0	28x4													Road rut, irigation run off
5			14.9		9.0	17x3.5													Road rut, irigation run off
6			17		5.0	5x2.5													Road rut, irigation run off
7			18.2		3.0	2x3													Road rut, irigation run off
8																		DRY	Road rut
9						1x1													Road rut, irigation run off
10																		DRY	Road rut
11																		DRY	Road rut
12			20.2		3.0	8x2													Road rut, irigation run off
13																		DRY	
14			21.8		8.0	7x3	12x3												Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:01/29/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15			10		7.0	10x3													Road rut, irigation run off
16			10.9		6.0	1x3													Road rut, irigation run off
17 to 32																		DRY	Road rut, disked
33			17.8		8.0	10x1													Road rut, irigation run off
34 to 48																		DRY	Road rut
49						2x3													Road rut, irigation run off
50						1x0.5													Road rut
51 to 53																		DRY	Road rut
54						7x3													Road rut, irigation run off
55																		DRY	Road rut
56			18.8		3.0	4.5x2.5													Road rut
57																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/05/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			18.2		8.0	12x3.5	5x4						x						Road rut, irigation run off
2			21.1		5.0	4x2.5													Road rut, irigation run off
3																		DRY	Road rut
4			19.3		10.0	20x1													Road rut, irigation run off
5			18.5		5.0	8x3							x	x					Road rut, irigation run off
6 to 13																		DRY	Road rut
14			18.5		4.0	6x1	12x3												Road rut, irigation run off
15			15.7		8.0	10x2.5													Road rut, irigation run off
16			17.5		2.0	4x0.5													Road rut, irigation run off
17 to 31																		DRY	Road rut, disked
32						1x1	6x12						x						Road rut, irigation run off
33			19.5		3.0	5x0.75													Road rut, irigation run off
34 to 53																		DRY	Road rut
54			22		3.0	8x3													Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/05/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
55																		DRY	Road rut
56			20.7		4.0	4x2													Road rut, irigation run off
57																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/12/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			23		6.0	3x3	5x4							x					Road rut, irigation run off
2 to 3																		DRY	Road rut
4			22.7		10.0	20x1							x						Road rut, irigation run off
5 to 7																		DRY	Road rut
8			25.7		4.0	1x3													Road rut, irigation run off
9			25.4		4.0	6x3.5	12x3												Road rut, irigation run off
10			24.8		2.0	6x1.5													Road rut, irigation run off
11 to 14																		DRY	Road rut
15			22.4		5.0	1x7		10s											Road rut, irigation run off, BRLI
16 to 53																		DRY	Road rut, disked
54			25.8		2.0	5x3													Road rut, irigation run off
55																		DRY	Road rut
56			22.8		5.0	4x3													Road rut, irigation run off
57																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/19/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			20.9		8.0	15x6													Road rut, irigation run off
2 to 3																		DRY	Road rut
4			23.6		12.0	18x2							x						Road rut, irigation run off
5			13.8		14.0	13x4													Road rut, irigation run off
6																		DRY	Road rut
7			25.4		5.0	3x3													Road rut, irigation run off
8			24		6.0	7x3.5							x						Road rut, irigation run off
9			25.3		3.0	3x2													Road rut, irigation run off
10			27.1		2.0	4x2.5													Road rut, irigation run off
11																		DRY	Road rut, disked
12			21		4.0	8x4													Road rut, irigation run off
13																		DRY	Road rut, irigation run off
14			18.8		6.0	6x1.25													Road rut, irigation run off
15			12.3		7.0	9x3													Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindeniella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/19/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
16 to 24																		DRY	Road rut, disked
25			13		4.0	7x0.75													Road rut, irigation run off
26			20		2.0	1x2													Road rut, irigation run off
27 to 34																		DRY	Road rut, disked
35						1.5x1													Road rut, irigation run off
36 to 45																		DRY	Road rut
46			22		2.0	0.5x0.5													Road rut, irigation run off
47 to 55																		DRY	Road rut
56			25.2		4.0	6x3													Road rut, irigation run off
57																		DRY	Road rut
58			21.7		6.0	3x2													Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/26/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			19.6		8.0	12x4													Road rut, irigation run off
2			20.1		4.0	5.2													Road rut, irigation run off
3																		DRY	
4			16.3		10.0	16x2.5							x			x			Road rut, irigation run off
5 to 6																		DRY	Road rut
7			25.4		1.0	0.25x0.25													Road rut, irigation run off
8																		DRY	Road rut
9			21.9		1.0	2x4													Road rut, irigation run off
10			22		4.0	5.5x2.5													Road rut, irigation run off
11																		DRY	Road rut, disked
11																		DRY	Road rut, disked
12			22.9		3.0	7x2.5													Road rut, irigation run off, manure
13																		DRY	
14			20.4		3.0	1x3													Road rut, irigation run off, manure

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/26/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
15			19.2		8.0	8x3													Road rut, irigation run off
16 to 25																		DRY	Road rut, disked
26			22		1.0	1x1.5													Road rut, irigation run off
27 to 34																		DRY	Road rut, disked
35						2x0.25													Road rut, irigation run off
36																		DRY	Road rut
37			21.9		5.0	2.5x2.5													Road rut, irigation run off
38			20.5		8.0	3x2													Road rut, irigation run off
39 to 42																		DRY	Road rut
43			20.6		1.5	0.25x0.25													Road rut, irigation run off
44 to 46																		DRY	Road rut
47			19.7		6.0	2x2													Road rut, irigation run off
48 to 54																		DRY	Road rut
55			22.1		1.5	4x3													Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:02/26/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
56			19.5		4.0	4.5x3													Road rut, irigation run off
57																		DRY	Road rut
58			20.9		5.0	4x3													Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:03/05/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			15.7		11.0	13x6													Road rut, irigation run off
2			17.7		6.0	4.5x2.5													Road rut, irigation run off
3																		DRY	
4			14.6		14.0	16x2.5							x	x		x			Road rut, irigation run off
5																		DRY	Road rut, plowed/filled
6 to 7																		DRY	Road rut
8			16		8.0	11x3													Road rut, irigation run off
9			16.3		4.0	8x3													Road rut, irigation run off
10			16.8		4.0	4.5x2													Road rut, irigation run off
11 to 36																		DRY	Road rut, disked
37			14.9		5.0														Road rut, irigation run off, manure
38			15.5		6.0	2x2													Road rut, irigation run off, manure
39 to 45																		DRY	
46			14		1.5	0.25x0.25													Road rut, irigation run off, manure

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:03/05/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
47 to 49																		DRY	Road rut
50			14.9		3.0	1x0.5													Road rut, irigation run off
51 to 53																		DRY	Road rut
54			16.8		4.0	8x2.5													Road rut, irigation run off
55			17		3.0	6x2.5													Road rut, irigation run off
56 to 58																		DRY	Road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindeniella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:03/12/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			23.1		60.0	7x5				x			x						Road rut, irigation run off
2			28.1		2.0	1x1													Road rut, irigation run off
3																		DRY	
4			19.9		4.0	1x9							x						Road rut, irigation run off
5 to 7																		DRY	Road rut, plowed/filled
8			25.9		1..5	3x0.5													Road rut, irigation run off
9 to 31																		DRY	Road rut, irigation run off
32			23		10.0	14x0.7													Road rut, irigation run off
33 to 58																		DRY	Road rut, disked

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:03/19/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			20		10.0	6x10							x						Road rut, irigation run off
2			22.5		5.0	5x3													Road rut, irigation run off
3																		DRY	
4			15.1		12.0	15x4							x			x			Road rut, irigation run off
5 to 8																		DRY	
9			23.5		1.0	2x2													Road rut
10 to 14																		DRY	
15			25.1		5.0	1x1													Road rut, irigation run off
16 to 58																		DRY	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:03/26/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			15.8		4.0	3x2							x		x				Road rut, irigation run off
2			14.8		3.0	1.5x2													Road rut, irigation run off
3																		DRY	
4			12.7		12.0	18.1x3							x						Road rut, irigation run off
5 to 7																		DRY	
8																		DRY	Road rut
9			15.7		2.0	8x3													Road rut, irigation run off
10			16		1.0	1x0.35													Road rut, irigation run off
11 to 55																		DRY	
56			15		5.0	5x2.5													Road rut, irigation run off, manure
57 to 58																		DRY	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/02/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			16.9		12.0	15x5							x						Road rut, irigation run off
2			17.9		6.0	6x2.5													Road rut, irigation run off
3																		DRY	
4			15.2		16.0	18x4					x		x	x		x			Road rut, irigation run off
5 to 7																		DRY	
8			17.3		6.0	8x3													Road rut
9			18.4		3.5	5x3													Road rut, irigation run off
10			18.8		5.0	5x2													Road rut, irigation run off
11 to 36																		DRY	
37			17.5		3.0	0.25x0.25													Road rut, irigation run off, manure
38			18		2.5	0.5x0.25													Road rut, irigation run off, manure
39 to 53																		DRY	
54			18.7		1.0	1x3													Road rut, irigation run off, manure
55			19.1		4.0	8x3.5													Road rut, irigation run off, manure

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/02/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
56			17.8		7.0	6x3								x					Road rut, irigation run off
57																		DRY	Road rut
58																		DRY	Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/09/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			21.6		11.0	12x6													Road rut, irigation run off
2			25.4		9.0	5x2.5													Road rut, irigation run off
3																		DRY	
4			20.2		13.0	18x4							x			x			Road rut, irigation run off
5 to11																		DRY	
12			34.2		3.0	2x3													Road rut
13																			Road rut, irigation run off
14																		DRY	
15			30.2		7.0	1.5x2.5													Road rut, irigation run off
16 to 55																		DRY	
56			23		6.0	5.5x3							x						Road rut, irigation run off, manure
57																		DRY	
58																		DRY	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/16/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1																		DRY	Road rut, irigation run off
2																		DRY	Road rut, irigation run off
3																		DRY	
4			20.2		13.0	11x2.5					x		x						Road rut, irigation run off
5 to 14																		DRY	
15			23.4		4.0	1.5x0.75													Road rut
16 to 55																		DRY	Road rut, irigation run off
56			21.8		4.0	1.5x3							x						Road rut, irigation run off
57																		DRY	
58			18.3		8.0	1.5x5													Road rut, irigation run off, manure

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/23/2022 | Time: | Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1			30.2		3.0	1x0.5													Road rut, irigation run off
2			29.3		8.0	7x2.5							x						Road rut, irigation run off
3																		DRY	
4			26.2		10.0	15x1					x		x	x					Road rut, irigation run off
5 to 7																		DRY	
8			31.8		5.0	7x2.5							x						Road rut
9			31.8		3.0	6x2													Road rut, irigation run off
10			31.8		2.5	3x1.5													Road rut, irigation run off
11 to 36																		DRY	
37			29.6		2.0	0.5x0.5													Road rut, irigation run off, manure
38			29.5		5.0	3x1													Road rut, irigation run off, manure
39 to 46																		DRY	
47			30.2		10.0	5x2.5							x						Road rut, irigation run off, manure
48 to 49																		DRY	Road rut, irigation run off, manure

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/23/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
50			30.3		5.0	2.5x1													Road rut, irigation run off
51 to 53																		DRY	
54			31.1		2.0	1x4													Road rut, irigation run off
55			32.2		2.0	0.5x4													Road rut, irigation run off
56			31.1		6.0	6x2							x			x			Road rut, irigation run off
57																		DRY	Road rut
58																		DRY	Road rut, irigation run off

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Villages of San Jacinto	County: Riverside	Quad: Lakeview	Township:	Range:	Section:

SURVEYOR / Permit Number: Frank Wegscheider (TE-038716-4)

Date:04/30/2022	Time:	Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1																		DRY	Road rut, irigation run off
2																		DRY	Road rut, irigation run off
3																		DRY	
4			27.9		4.0	21x0.5					x		x	x					Road rut, irigation run off
5 to 46																		DRY	
47			31.9		10.0	5x2.5							x	x					Road rut
48 to 58																		DRY	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix E

2023 Dry Season Fairy Shrimp Report

GLENN LUKOS ASSOCIATES
Regulatory Services

October 7, 2024

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Dry Season Survey Results for Listed Branchiopods Conducted for the San Jacinto Commerce Center Specific Plan (formerly the Villages at San Jacinto) Project Site, City of San Jacinto, Riverside County, California

Dear Ms. Love:

This letter report documents the results of a dry season survey conducted by Glenn Lukos Associates, Inc. (GLA) for 89 depressional features at the San Jacinto Commerce Center Specific Plan Project Site (formerly the Villages at San Jacinto), an approximately 660-acre site (514-acre onsite area and 146-acre offsite area; hereafter, Study Area) located in the City of San Jacinto, Riverside County, California. GLA notified the U.S. Fish and Wildlife Service (USFWS) of the intent to perform the dry season surveys on December 1, 2021, and a revised notification was sent on November 14, 2023, to clarify changes in project acreages. Dry season soil collection was conducted on October 9, 2023.

GLA biologist David Moskovitz (PER0010680-0) performed the soil collection from the features, with assistance from GLA biologist Stephanie Cashin (TE-20280D-0) and Chris Waterston (ESPER-2380694), and from GLA trainees David Smith and Velvet Park (under supervision). Brent Helm (TE-795930-12) processed the soil samples to determine cyst presence/absence and species identification through culturing. Appendix A summarizes the results of soil analysis, which was provided to GLA in final form on August 2, 2024.

I. SITE LOCATION AND DESCRIPTION

The Study area is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within Sections 19, 30, and unsectioned portions of Township 4 South and Range 1 West, and Section 24 of Township 4 South, and Range 2 West of the Lakeview, California USGS 7.5-minute quadrangle map [Exhibit 2 – Vicinity Map]. The Study Area, including the

main development parcels and additional offsite road improvement areas, is generally bounded by Ramona Expressway, commercial nursey, and agricultural fields to the north, North Sanderson Avenue and agricultural fields to the east, the San Jacinto Valley Sewage Plant to the south, an egg farm and a dairy to the west. Universal Transverse Mercator (UTM) coordinates approximately corresponding to the Study Area are 499080 mE and 3740693 mN [Exhibit 3 – Fairy Shrimp Survey Area Map].

II. DESCRIPTION OF THE DEPRESSIONAL FEATURES

A total of 89 ponded features were included for dry season soil sampling. The features were characterized as unvegetated or vegetated. Unvegetated features include road ruts, dirt parking areas, and an agricultural fields. Vegetated features included agricultural and roadside ditches and basins. One ponded feature (Pool 95) that was included in wet season sampling was not able to be included in dry soil sampling as this feature remained ponded from irrigation run-off on the dry season sampling date.

Unvegetated (Road Ruts, Dirt Parking Areas, and Agricultural Fields)

Of the 89 features included in dry season soil sampling, 70 features can be described as road ruts, dirt parking areas, and agricultural fields which were all unvegetated. Of the 70 unvegetated features, 58 features were road ruts and represented the majority of the ponded features at the Project (Pools 1,2, 4-16, 25, 26, 28, 31-56, 58, 74, 84-94, and 100). The dirt parking area included ten ponded features (Pools 63 through 72). There were two ponded features (Pools 20 and 21) associated with a flooded agricultural field.

Vegetated (Agricultural and Roadside Ditches and Basins)

Of the 89 features included in dry season soil sampling, 19 features can be described as agricultural and roadside ditches and basins (Pools 22, 59-62, 73, 75-83, and 96-99) that supported at least some vegetation. Most of the ditches and basins were sparsely vegetated, commonly supporting weedy annual species including five-hook bassia (*Bassia hyssopifolia*), stinknet (*Oncosiphon piluliferum*), Russian thistle (*Salsola tragus*), lamb's quarters (*Chenopodium album*), cheeseweed (*Malva parviflora*), black mustard (*Brassica nigra*), and annual brome grasses (*Bromus sp.*). Native species including Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*) and smooth tarplant (*Centromadia pungens* ssp. *laevis*) were observed in a few features, as well as Goodding's willow (*Salix gooddingii*), mulefat (*Baccharis salicifolia*), and Canada horseweed (*Erigeron canadensis*) was observed in some of the basins.

III. METHODOLOGY

A. Soil Collection

Soil sample collection and processing followed the USFWS *Survey Guidelines for the Listed Large Branchiopods*, November 13, 2017 (USFWS 2017). Soil sample collection was conducted by GLA biologist David Moskovitz with assistance from Stephanie Cashin and Chris Waterston; and GLA biologists, David Smith and Velvet Park (under supervision) on October 9, 2023.

The number of samples collected for the ponded features is summarized in Table 1 below, which follows the Table 1 - Soil Sample Summary in the USFWS 2017 Survey Guidelines. Soil sub-sampling locations were distributed in a grid pattern to cover the entire feature with targeted collection in the lowest topographic areas that would potentially exhibit past aquatic invertebrate accumulation.

Soil samples of approximately 100 milliliters each were removed at each sub-sample location using a hand trowel and were combined into a labeled bag for each feature with the collection date, location, feature ID, name of collector, and stored for future processing. Samples were stored in a dry location out of direct sunlight until shipped for processing.

Table 1 – Soil Sample Summary

Feature Size		Number of Samples Collected per Pool	Number of Pools of Each Feature Size Class
Square Meters	Approx. Acreage		
< 2.5	0.0005	As appropriate	6
2.5–24	0.005	10	28
25–235	0.05	25	45
236–2300	0.5	50	9
2300–23,225	5.0	100	1
Total Pools Sampled			89

B. Soil Processing and Culturing Analysis

Soil sample processing is described in the soil analysis and cyst culturing report [Appendix A] and summarized that soil samples were prepared for analysis by dissolving the clumps of soil in a brine solution while breaking clumps by hand, then skimming and placing floating material into stacked sieves, 600-micron atop 75-micron, pushing material through the sieve by rinsing

with lukewarm water and gentle rubbing with brush, and finally removing material from 75-micron sieve and spread thinly into petri dishes. The sieved material was examined under a microscope for large branchiopod cysts (embryonic eggs). Cyst identification was assisted using a cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock *et al*. 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, Thiery *et al.* 1995, and Rabet 2010).

Isolated cysts were cultured and fairy shrimp were grown until mature and identified using keys and diagrams from "Fairy Shrimps of California's Puddles, Pools, and Playas" (Eriksen and Belk 1999) and recent publications concerning identification of San Diego fairy shrimp (*Branchinecta sandiegonesis*) (Simovish *et al.* 2013, Patel *et al.* 2018). If listed large branchiopods were identified, mature shrimp were sacrificed in 95% ethyl alcohol as species vouchers.

IV. RESULTS OF DRY SEASON SURVEY

A total of 89 features were sampled during the 2023 dry season surveys. Of the 89 features sampled, cysts of the genus *Branchinecta* were identified from 54 features. The versatile fairy shrimp (*Branchinecta lindahli*) was hatched and identified from 32 of the 54 features with *Branchinecta* cysts. No listed *Branchinecta* species were hatched. *Streptocephalus* cysts were not present in any of the features [Appendix A]. No listed species were detected. Table 2 includes the results of 2023 dry season fairy shrimp soil analysis and cyst culturing. Exhibit 4 depicts the results of the 2023 dry season soil analysis and successful cyst culturing. Representative site photographs are included as Exhibit 5.

Table 2 – Dry Season Fairy Shrimp Results Summary

Pool ID	*BRANCHINECTA CYSTS* DETECTED 2023	*B. LINDAHLI* CULTURED 2023-2024	ZONE 11N		FEATURE TYPE
			EASTING	NORTHING	
1	No		498910.09	3741409.22	road rut
2	No		498908.03	3741185.88	road rut
4	No		498907.71	3741753.93	road rut
5	Yes		498435.02	3741741.34	road rut
6	No		498436.61	3741675.65	road rut
7	No		498439.55	3741248.61	road rut
8	Yes		498492.55	3741252.29	road rut
9	No		498642.01	3741252.41	road rut

Pool ID	*BRANCHINECTA CYSTS* DETECTED 2023	*B. LINDAHLI* CULTURED 2023-2024	ZONE 11N		FEATURE TYPE
			EASTING	NORTHING	
10	No		498854.65	3741252.75	road rut
11	Yes		498458.76	3740946.69	road rut
12	Yes		498968.08	3740517.31	road rut
13	Yes	Yes	498993.04	3740521.42	road rut
14	Yes		499035.46	3740528.88	road rut
15	Yes	Yes	499067.77	3740531.66	road rut
16	Yes	Yes	499080.92	3740523.69	road rut
20	No		499274.00	3740478.81	agriculture
21	No		499328.21	3740478.50	agriculture
22	Yes		499345.09	3740469.10	ditch
25	Yes	Yes	498967.05	3740006.91	road rut
26	Yes		499054.32	3740009.51	road rut
28	Yes		499184.42	3740006.25	road rut
31	Yes	Yes	499264.72	3740002.76	road rut
32	No		498661.98	3740529.35	road rut
33	Yes		498874.84	3740531.19	road rut
34	Yes		498999.87	3740499.14	road rut
35	Yes	Yes	499049.22	3740489.41	road rut
36	Yes	Yes	499090.48	3740524.80	road rut
37	Yes		498930.02	3740367.21	road rut
38	No		498959.43	3740368.26	road rut
39	No		499319.17	3740514.30	road rut
40	Yes		498867.80	3740005.70	road rut
41	Yes	Yes	498998.62	3740005.41	road rut
42	Yes	Yes	499020.83	3740002.98	road rut
43	Yes	Yes	499122.64	3740008.15	road rut
44	Yes	Yes	499214.16	3740003.26	road rut
45	Yes	Yes	499305.25	3740006.51	road rut
46	No		497738.96	3741760.20	road rut
47	No		498060.02	3741804.01	road rut
48	No		497737.31	3741247.16	road rut
49	No		498436.49	3741625.35	road rut

Pool ID	*BRANCHINECTA CYSTS* DETECTED 2023	*B. LINDAHLI* CULTURED 2023-2024	ZONE 11N		FEATURE TYPE
			EASTING	NORTHING	
50	No		498437.33	3741575.50	road rut
51	No		498438.80	3741407.56	road rut
52	Yes		498422.44	3741152.56	road rut
53	No		498458.65	3741240.54	road rut
54	No		498809.96	3741251.50	road rut
55	No		498832.44	3741251.93	road rut
56	No		498907.23	3741450.79	road rut
58	No		499116.77	3740349.93	road rut
59	Yes	Yes	496847.43	3742541.31	basin
60	Yes	Yes	496869.35	3742527.05	ditch
61	Yes	Yes	496902.41	3742595.39	ditch
62	Yes	Yes	496917.09	3742595.10	ditch
63	Yes		496891.42	3742394.04	parking
64	Yes	Yes	496895.84	3742424.22	parking
65	Yes		496903.02	3742436.18	parking
66	Yes	Yes	496892.38	3742445.23	parking
67	Yes	Yes	496898.29	3742451.22	parking
68	Yes	Yes	496892.27	3742460.83	parking
69	Yes	Yes	496902.20	3742495.29	parking
70	Yes	Yes	496913.06	3742529.61	parking
71	Yes	Yes	496896.76	3742534.79	parking
72	Yes	Yes	496928.28	3742546.12	parking
73	Yes	Yes	496999.32	3742561.44	ditch
74	Yes	Yes	497088.27	3742568.96	road rut
75	Yes	Yes	497495.89	3742562.04	ditch
76	Yes	Yes	497536.23	3742561.01	ditch
77	Yes	Yes	497585.81	3742562.69	ditch
78	Yes	Yes	497748.79	3742564.52	ditch
79	Yes	Yes	497829.46	3742564.77	ditch
80	No		497670.84	3742599.99	ditch
81	No		497697.28	3742601.18	ditch
82	No		497905.90	3742602.54	ditch

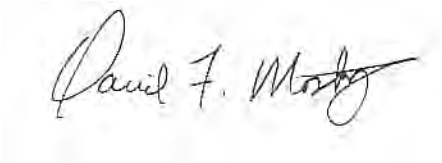
Pool ID	*BRANCHINECTA CYSTS* DETECTED 2023	*B. LINDAHLI* CULTURED 2023-2024	ZONE 11N		FEATURE TYPE
			EASTING	NORTHING	
83	No		497959.83	3742601.94	ditch
84	Yes	Yes	497700.72	3741797.28	road rut
85	No		498525.76	3742504.74	road rut
86	No		498523.63	3742497.67	road rut
87	No		498526.74	3742484.75	road rut
88	No		498525.50	3742480.12	road rut
89	No		498523.52	3742441.72	road rut
90	Yes		498524.52	3742396.54	road rut
91	No		498526.93	3742357.02	road rut
92	No		498522.08	3742315.55	road rut
93	Yes		498527.55	3742254.94	road rut
94	Yes		498528.39	3742232.77	road rut
96	No		499643.14	3742446.84	ditch
97	Yes		499599.75	3742316.08	basin
98	Yes		499587.37	3742301.18	ditch
99	Yes		499461.08	3742018.12	basin
100	Yes	Yes	499377.46	3739170.60	road rut

I certify that the information in this survey report and the attached exhibits fully and accurately represent my work.

If you have any questions regarding this report, please contact me via email at dmoskovitz@wetlandpermitting.com.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.



David Moskovitz
Biologist (PER0010680-0)



Stephanie Cashin
Biologist (TE-20280D-0)



Chris Waterston
Biologist (ESPER-2380694)

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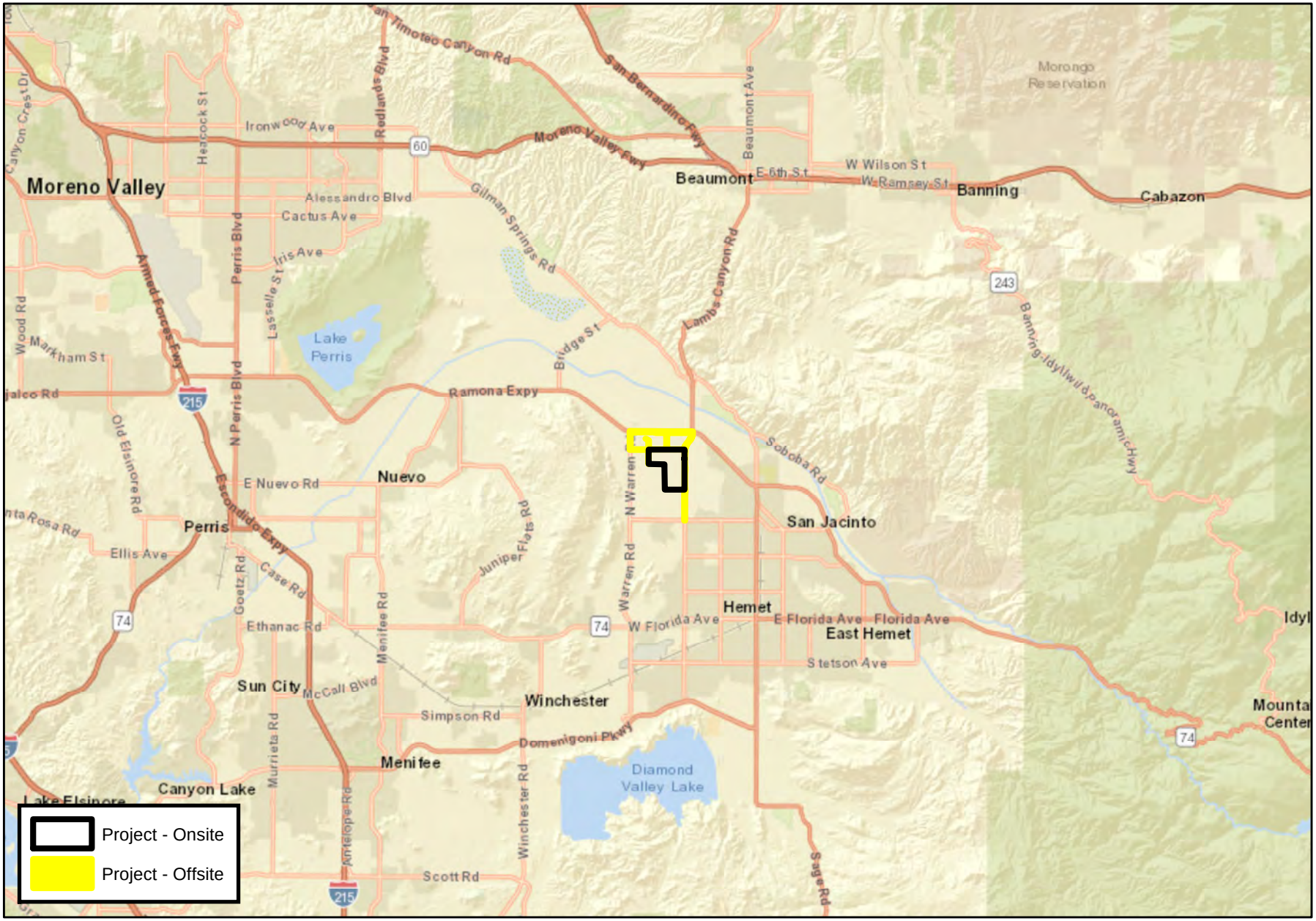


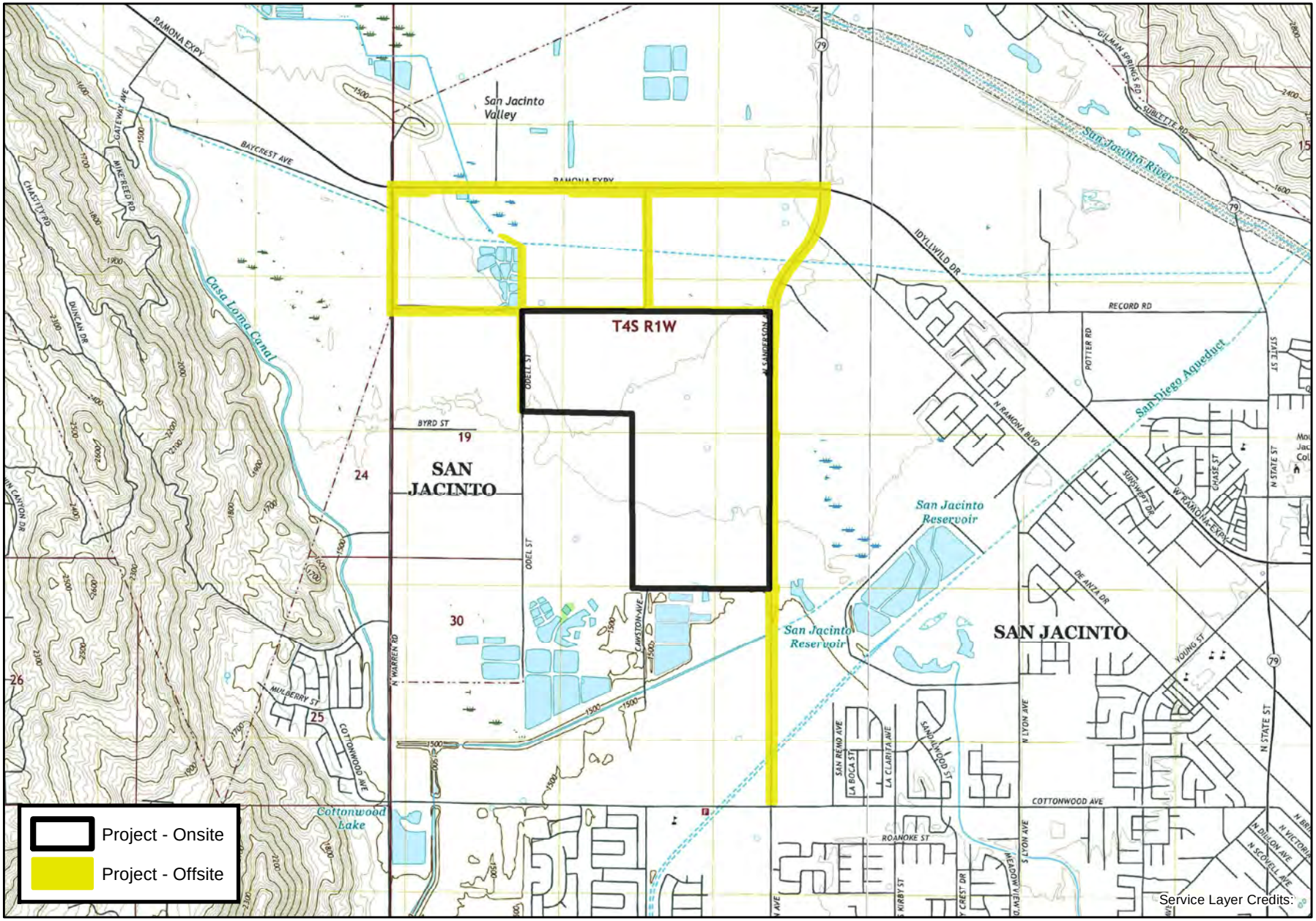
Source: ESRI World Street Map

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

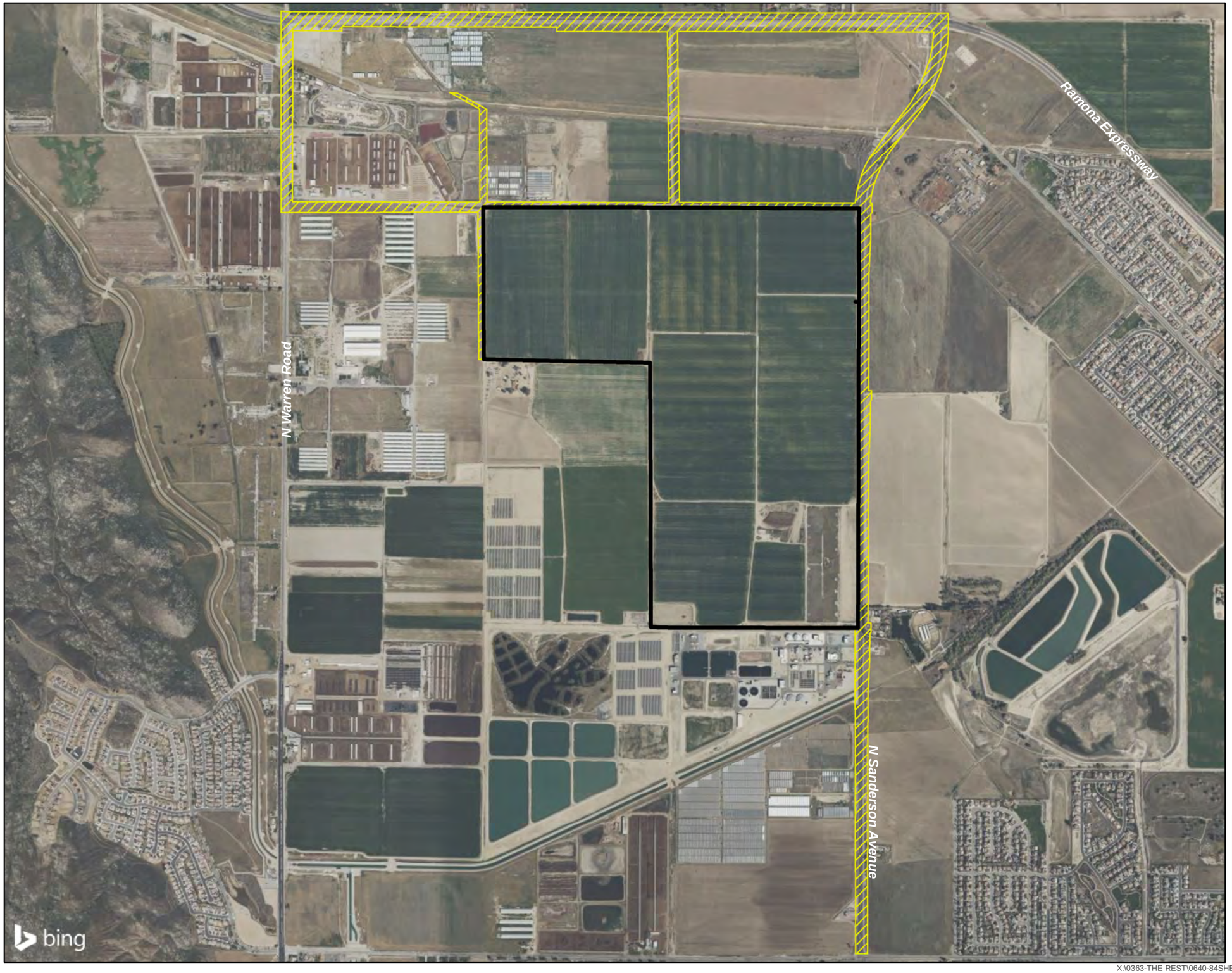


SAN JACINTO
COMMERCE CENTER SPECIFIC PLAN

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project - Onsite/
Fairy Shrimp Survey Area

Project - Offsite/
Fairy Shrimp Survey Area

N

0 675 1,350 2,700

Feet

1 inch = 1,350 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 7, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Fairy Shrimp Survey Area Map

GLENN LUKOS ASSOCIATES

Exhibit 3

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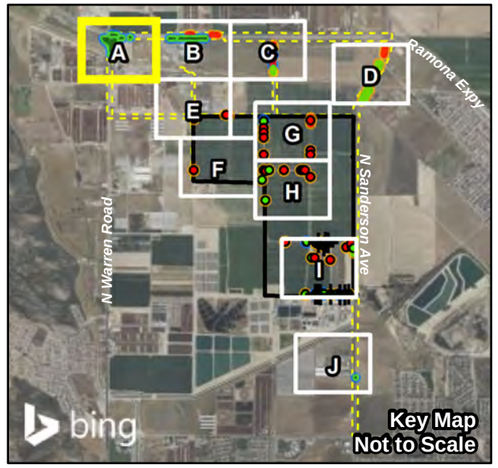

Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet A

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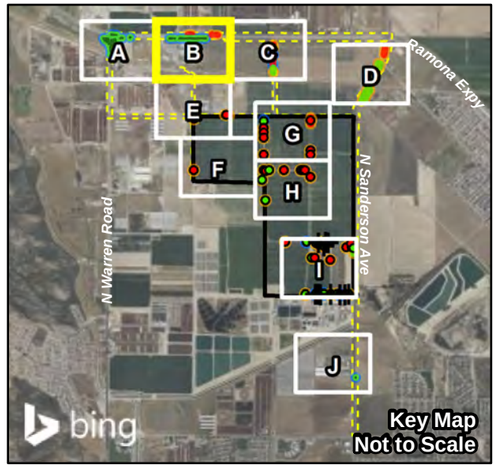

Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet B

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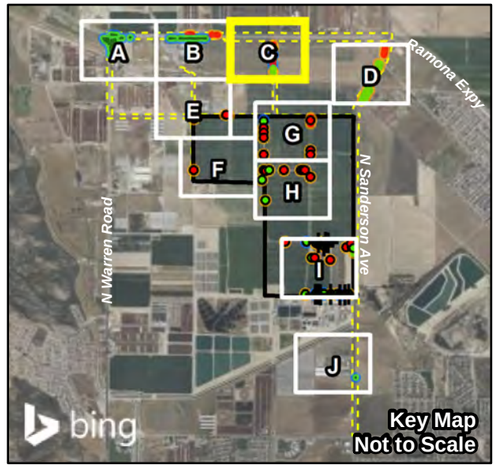


Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

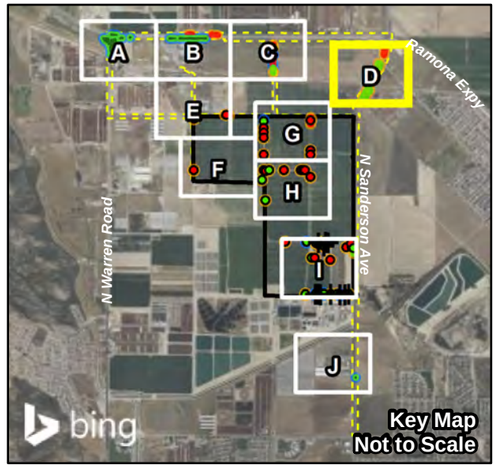
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet C

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd





Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO
COMMERCE CENTER SPECIFIC PLAN

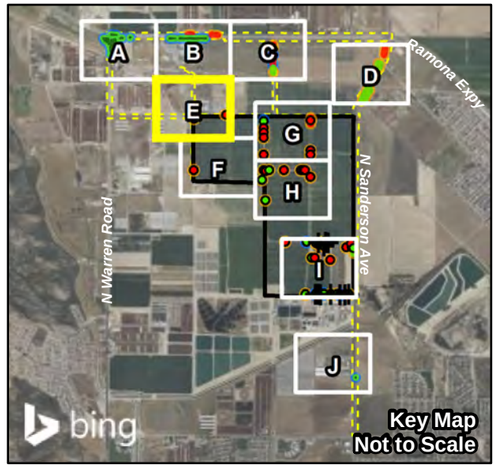
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet D

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd





Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet E

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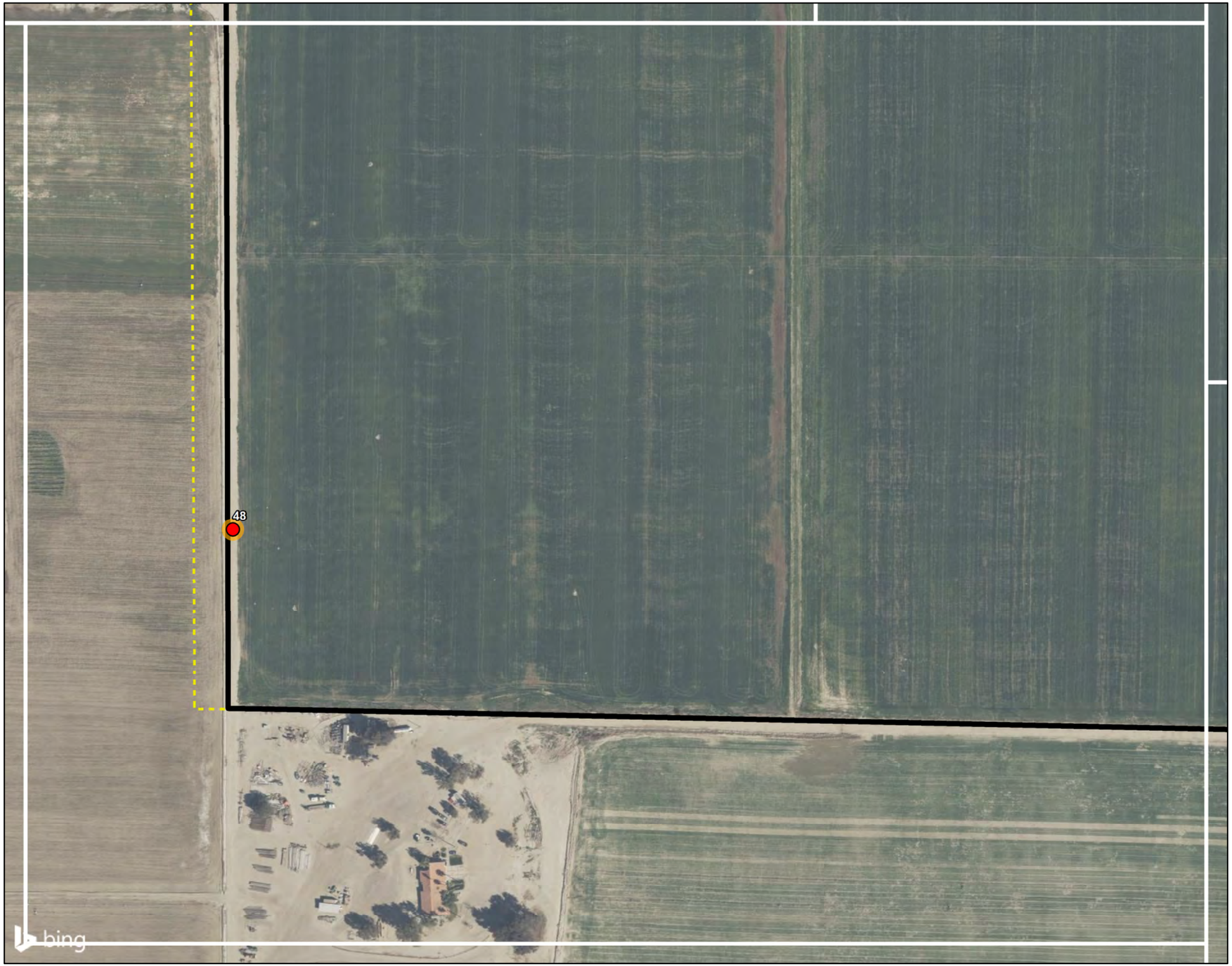
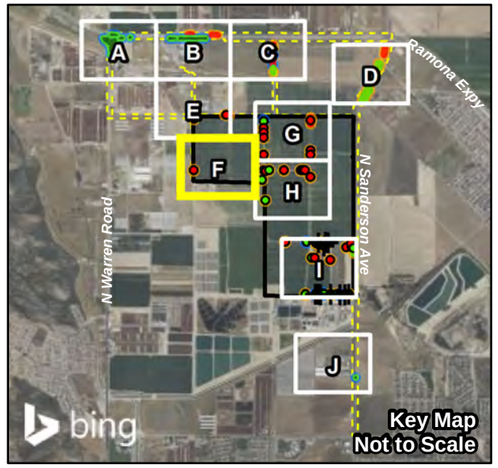




Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

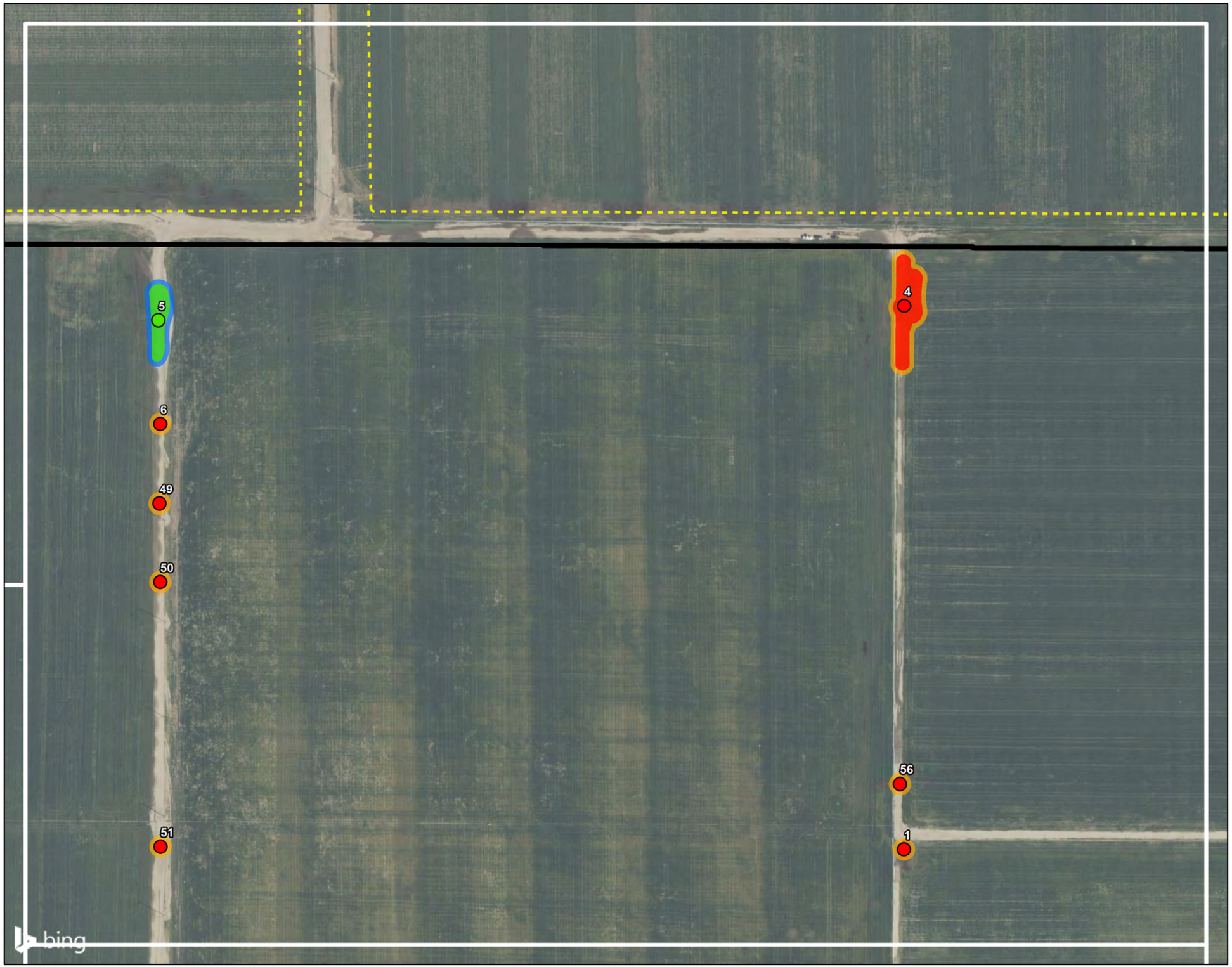
SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

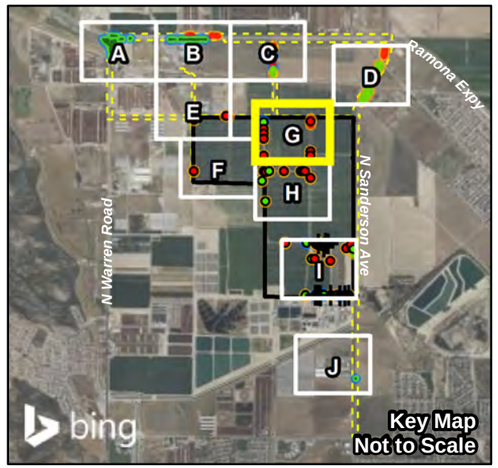
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet F

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd





Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

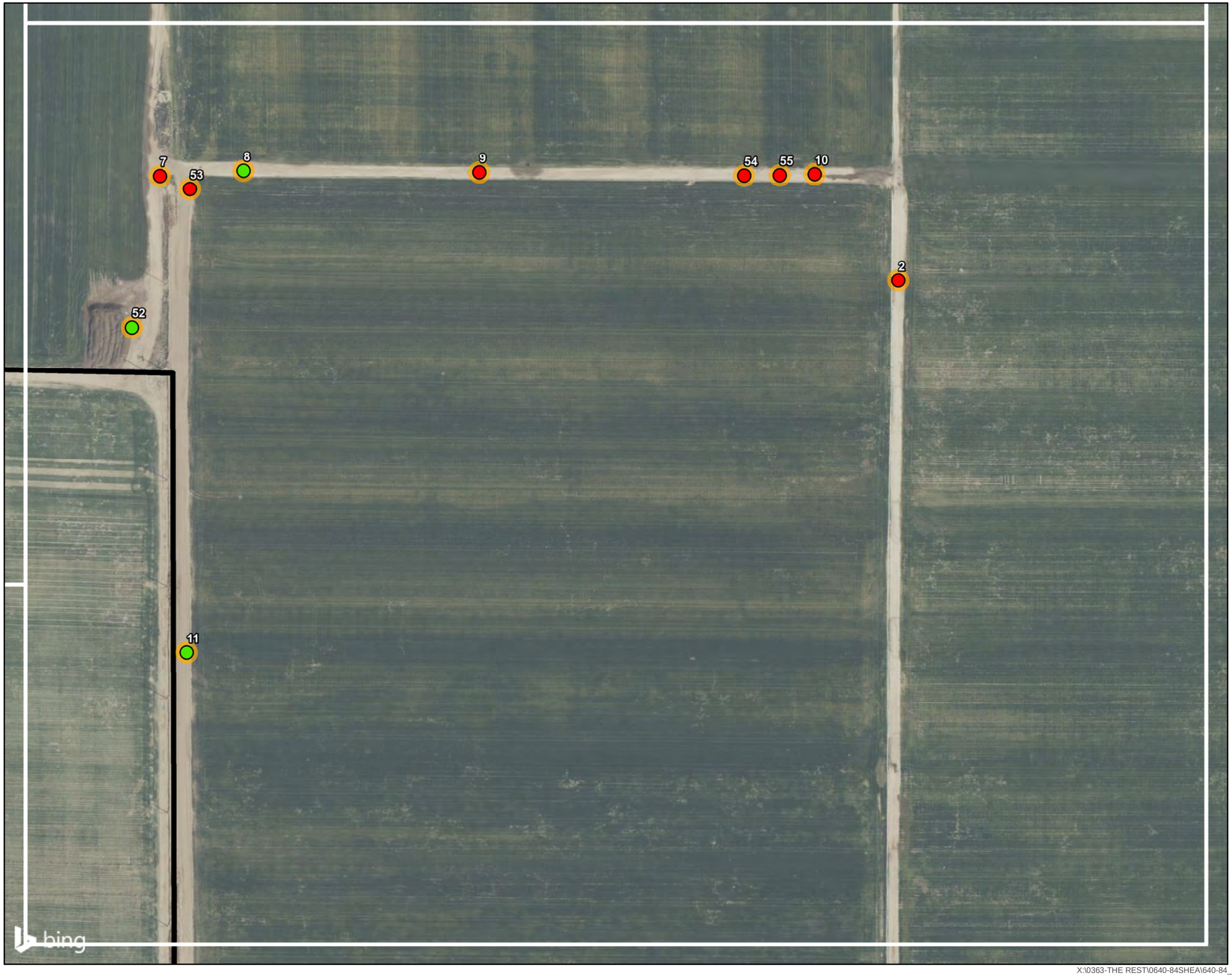
SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

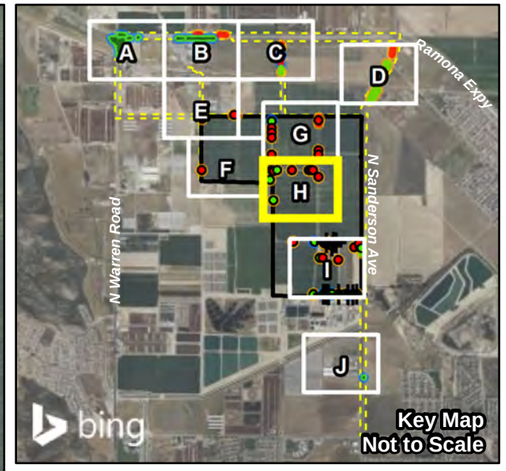
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet G

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd





Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

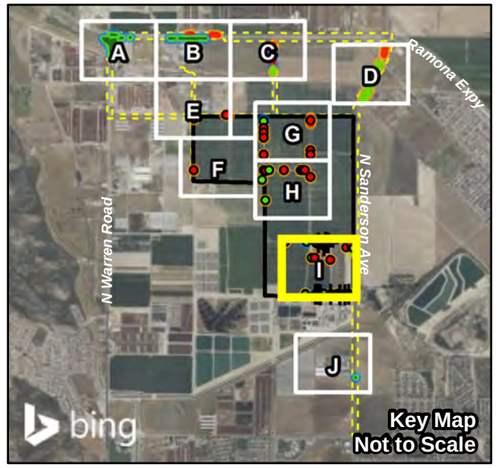
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet H

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd





Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

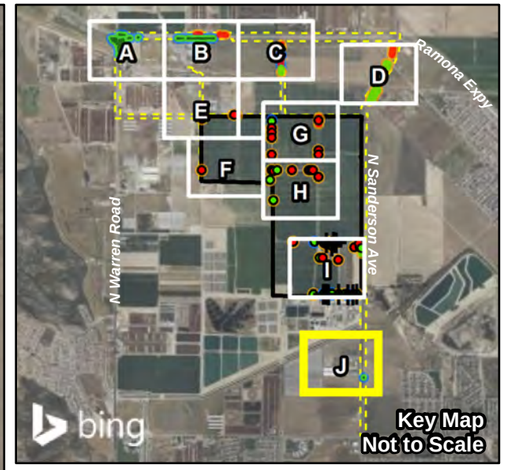
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet I

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd





Project - Onsite /
Fairy Shrimp Survey Area

Project - Offsite /
Fairy Shrimp Survey Area

Dry Season Survey Results

Branchinecta Cysts Detected

Branchinecta Cysts Not Detected

B. lindahli Cultured

Wet Season Survey Results

B. lindahli Detected

B. lindahli Not Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 11, 2024

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet J

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeasons_Combined\0640-84_FSSurveyResults_MSHCP.mxd



Photograph 1: View facing approximately east near the northwestern Study area (497741 E, 3741461 N UTM Zone 11N, November 11, 2021, SC).



Photograph 2 View facing approximately north near the southeastern Study area. (499292 E, 3740012 N UTM Zone 11N, November 11, 2021, SC)

SAN JACINTO COMMERCE CENTER SPECIFIC PLAN

Site Photographs



Photograph 3: View facing approximately east depicting feature 37. (498930.02 E, 3740367.21 N UTM Zone 11N, October 9, 2023, SC, *B. lindahli* cysts present)



Photograph 4: View facing approximately east depicting feature 55. (498832.44E, 3741251.93 N UTM Zone 11N, October 9, 2023, SC)



Photograph 5: View facing approximately north depicting feature 66 with 67 and 68 in distance. (496892.38 E, 3742445.23 N UTM Zone 11N, October 9, 2023, SC (*B. lindahli* present))



Photograph 6: View facing approximately west depicting feature 76 with 75 in distance. (497536.23 E, 3742561.01 N UTM Zone 11N, , October 9, 2023, SC (*B. lindahli* present))

DRY SOIL ANALYSIS AND CYST CULTURING FOR THE DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE VILLAGES OF SAN JACINTO, RIVERSIDE COUNTY, CALIFORNIA



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August 2024

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4600 Karchner Rd, Sheridan, CA 95681

DRY SOIL ANALYSIS AND CYST CULTURING FOR THE DETECTION OF FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE VILLAGES OF SAN JACINTO, RIVERSIDE COUNTY, CALIFORNIA

INTRODUCTION

Helm Biological Consulting (HBC), a division of Tansley Team, Inc., was contracted by Glenn Lukos Associates, Inc. (GLA) to perform an analysis of soils collected from dry seasonally-inundated depressions (hereafter "features") at the Villages of San Jacinto (hereafter "Project"), for the presence of large branchiopods (fairy shrimp, tadpole shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., the threatened vernal pool fairy shrimp [*Branchinecta lynchi*], the endangered Riverside fairy shrimp [*Streptocephalus woottoni*]). In addition, HBC was contracted by GLA to culture large branchiopod cysts (hatch cysts and rear hatchlings to maturity for positive identification of species) obtained from the soil analysis.

The Project is located in the City of San Jacinto, Riverside County, California, south of Ramona Expressway, east of North Warren Road, west of North Sanderson Avenue, and north of Cottonwood Avenue (Figure 1). The Project resides in the southern ½ of Section 18, part of the southern ½ of Section 17, NE ¼ of Section 19, western ½ of Section 20 and a thin strip along the edge of the western ½ of Section 29 of the San Bernardino Base & Meridian of the U.S. Geological Survey's (USGS') Lakeview 7.5-minute quadrangle map (Figure 1). Decimal degrees of the World Geodetic System 1984 corresponding to the center of the Project are Latitude: 33.810613° and Longitude: -117.011966°.

The remainder of this report discusses the methods and results of the soil examinations and cyst culturing to determine the presence of federally-listed large branchiopods at the Project.

"We certify that the information in this survey report and attached exhibits fully and accurately represents our work."

Brent P. Helm (TE-795930-12) Signature _____ Date 8-2-2024

David Moskovitz (PER0010680-0) Signature _____ Date 8-2-2024

Stephanie Cashin (TE-20280D-0) Signature _____ Date 8-2-2024

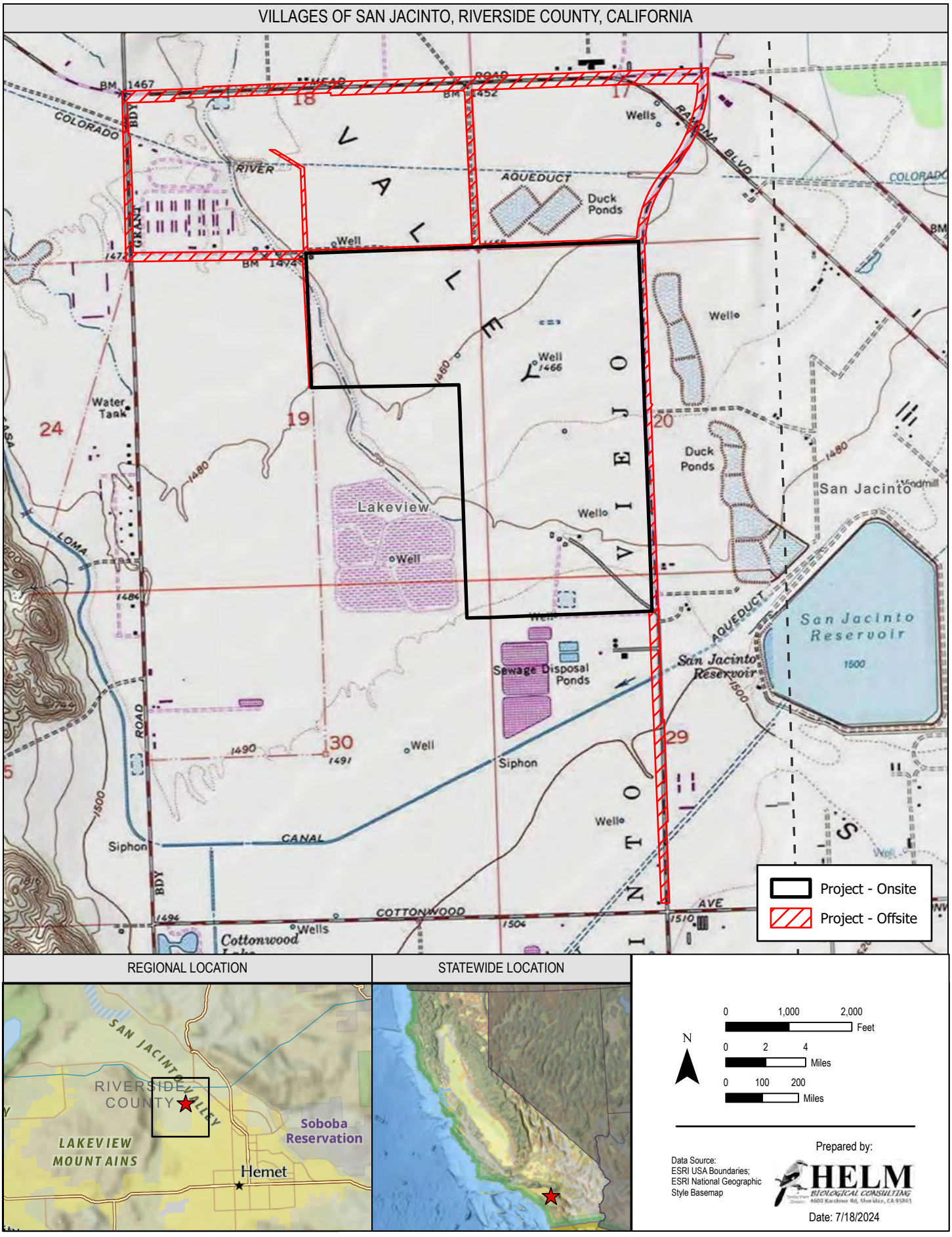

Figure 1. Project Vicinity and Location

METHODS

Methods followed U.S. Fish and Wildlife Service's (USFWS 2017) *Survey Guidelines for Listed Large Branchiopods* for dry-season sampling and consisted of first soil collection, second soil processing and analysis, and last cyst culturing as described below.

SOIL COLLECTION

Dry soils were collected on October 9, 2023 by David Moskovitz (PER0010680-0) and Stephanie Cashin (TE-20280D-0), as authorized by USFWS Section 10(a)(1)(A) of the federal Endangered Species Act (ESA), 16 U.S.C. 1531 et seq., and its implementing regulations (Appendix A). The collected soils were delivered to HBC for subsequent processing and analysis as described below.

SOIL PROCESSING AND ANALYSIS

Soil samples obtained from GLA, on October 24, 2023, were processed and analyzed by Dr. Brent Helm of HBC as authorized by the USFWS under recovery permit number TE-795930-12 of Section 10(a)(1)(A) of the federal ESA, 16 U.S.C. 1531 et seq., and its implementing regulations. In HBC's laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The soil retained from the 75-micron diameter pore size sieve was then removed and thinly (≈1.0 mm) spread into plastic petri dishes.

The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock *et al*. 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, Thiery *et al.* 1995, and Rabet 2010) were used to identify and compare any cysts observed within the soil samples. This processing method (described above) favors the detection of cysts belonging to the genera *Branchinecta*, *Lepidurus*, and *Streptocephalus* since these three genera have species that are federally listed. The presence of other aquatic macroinvertebrates encountered was also noted on the laboratory data sheet.

Because there are several species within the genus *Branchinecta* that could occur or are known to occur within the vicinity of the Project, cysts belonging to the genus *Branchinecta* observed within the soils, were cultured to determine species as described below.

CYST CULTURING

Petri dishes containing soils with *Branchinecta* cysts were placed into individual six-quart plastic containers. The soils were saturated with 50° F well water (non-chlorinated) and allowed to dry. This saturation and drying process was repeated three times. The soils were then inundated completely with 50° F well water. The containers holding the inundated soils were inserted into an environmental chamber. The environmental chamber controls were set to mimic the winter light, humidity, and temperature fluctuations of the Project's vicinity. The contents of the containers were monitored daily for fairy shrimp hatchlings (instars).

If no hatchlings were observed after ten (10) days, the containers were removed from the environmental chamber and the soils were allowed to completely dry before reinitiating the hatching process described above. A total of three hatching attempts were performed on each soil sample.

Fairy shrimp hatchlings were feed ground fish food and reared in the environmental chamber until they were mature enough to be identified using dichotomous keys and diagrams from "Fairy Shrimps of California's Puddles, Pools, and Playas" (Eriksen and Belk 1999) and two more recent publications concerning the identification of San Diego fairy shrimp (*Branchinecta sandiegonensis*) (Simovich *et al.* 2013, Patel *et al.* 2018); along with comparisons to Dr. Helm's large branchiopod reference collection. Representative mature listed large branchiopods specimens were obtained from each container and preserved in 95% ethanol as species vouchers.

RESULTS

SOIL COLLECTION

Soil samples collected from a total of 89 dry features (Exhibit 1A – 1J) by GLA were processed and analyzed by HBC.

SOIL PROCESSING AND ANALYSIS

Visual examinations of the processed soils revealed the presence of cysts belonging to the genus *Branchinecta* in 54 of the soils collected from 89 features (Table 1). No evidence of cysts belonging to the genus *Streptocephalus* were observed in the processed soils. Representative photographs of the features sampled using dry-season techniques are provided in Appendix B.

CYST CULTURING

The non-special status versatile fairy shrimp (*Branchinecta lindahli*) was successfully hatched and raised to maturity from 32 of the 54 feature soils that were observed to have *Branchinecta* cysts. After three hatching attempts, a total of 1,505 fairy shrimp were hatched and 213 were raised to maturity and identified as the versatile fairy shrimp (Table 2).

Table 1. Results of Soil Examinations

Feature No.	Insect Exo-Skeletons	Micro-Turbellaria Cysts	Cladocera Ephippia	Ostracods Live/Cysts/Carapaces	Large Branchiopod Cysts *Branchinecta* sp.	Nematoda	Collembola
GLA-01	X						X
GLA-02	X						X
GLA-04	X						X
GLA-05	X				Low		X
GLA-06	X						X
GLA-07	X						X
GLA-08	X				Low		X
GLA-09	X						X
GLA-10	X						X
GLA-11	X				Medium		X
GLA-12	X				Low		X
GLA-13	X		X		Low		X
GLA-14	X				Low		X
GLA-15	X				High		X
GLA-16	X		X		High		X
GLA-20	X						X
GLA-21	X						X
GLA-22	X				Low		X
GLA-25	X				Medium		X
GLA-26	X		X		Medium		X
GLA-28	X				Low		X
GLA-31	X				High		X
GLA-32	X						X
GLA-33	X				Medium		X
GLA-34	X				High		X
GLA-35	X				Low	X	X
GLA-36	X		X		Medium		X
GLA-37	X				Low		X
GLA-38	X						X
GLA-39	X						X
GLA-40	X				High	X	X
GLA-41	X		X		High		X
GLA-42	X				High		X
GLA-43	X		X		High		X
GLA-44	X				High		X
GLA-45	X	X	X	X	High		X
GLA-46	X						X
GLA-47	X		X				X
GLA-48	X						X
GLA-49	X						X
GLA-50	X						X
GLA-51	X						X
GLA-52	X				Low		X
GLA-53	X						X
GLA-54	X		X				X
GLA-55	X						X
GLA-56	X						X
GLA-58	X						X
GLA-59	X				High		X
GLA-60	X				Medium	X	X
GLA-61	X				High		X
GLA-62	X				High	X	X
GLA-63	X				Medium		X
GLA-64	X				High	X	X
GLA-65	X				Low		X
GLA-66	X				Medium		X
GLA-67	X				High		X
GLA-68	X				High	X	X
GLA-69	X				High		X
GLA-70	X				High		X
GLA-71	X			X	High		X
GLA-72	X				High		X
GLA-73	X				High		X
GLA-74	X				Medium		X
GLA-75	X				High		X
GLA-76	X			X	High		X
GLA-77	X				High		X
GLA-78	X		X		High		X
GLA-79	X				High		X
GLA-80	X						X
GLA-81	X		X				X
GLA-82	X						X
GLA-83	X						X
GLA-84	X				Medium		X
GLA-85	X						X
GLA-86	X						X
GLA-87	X						X
GLA-88	X						X
GLA-89	X						X
GLA-90	X				Low		X
GLA-91	X						X
GLA-92	X						X
GLA-93	X				Low		X
GLA-94	X				Low		X
GLA-96	X						X
GLA-97	X		X		Low		X
GLA-98	X				High		X
GLA-99	X		X		Low	X	X
GLA-100	X				High	X	X

X = Results

*Abundance categories are derived from USFWS's Survey Guidelines for the Listed Large Branchiopods - Section VI(d) (none = no cysts found in sample; low abundance = estimate of 1-10 cysts/100 ml soil; medium abundance = estimate of 11-50 cysts/100 ml soil; high abundance = estimate of more than 50 cysts/100 ml soil)

Table 2. Cyst Culturing Results from Soils Collected at the Villages of San Jacinto, Riverside County, California

	Hatching Round #									Total		
	1			2			3					
Feature #	# of BRsp Hatched	# of Identified BRLI		# of BRsp Hatched	# of Identified BRLI		# of BRsp Hatched	# of Identified BRLI		# of BRsp Hatched	# of Identified BRLI	
		Male	Female		Male	Female		Male	Female		Male	Female
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	2	0	2	0	0	0	0	0	0	2	0	2
14	0	0	0	0	0	0	0	0	0	0	0	0
15	2	0	0	0	0	0	0	0	0	2	0	0
16	5	1	0	25	0	1	4	0	0	34	1	1
22	0	0	0	0	0	0	0	0	0	0	0	0
25	3	0	2	0	0	0	0	0	0	3	0	2
26	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
31	5	0	1	0	0	0	0	0	0	5	0	1
33	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0
35	2	0	1	0	0	0	0	0	0	2	0	1
36	3	1	0	0	0	0	0	0	0	3	1	0
37	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0
41	20	4	2	55	3	1	21	2	1	96	9	4
42	20	1	2	15	1	2	5	1	0	40	3	4
43	10	2	4	15	3	2	3	0	0	28	5	6
44	10	1	1	0	0	0	5	0	0	15	1	1
45	40	4	1	20	6	2	10	0	0	70	10	3
52	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	1	0	1	2	0	0	3	0	1
60	5	3	0	10	4	0	0	0	0	15	7	0
61	15	3	2	20	1	1	10	3	4	45	7	7
62	30	5	2	55	3	3	35	5	5	120	13	10
63	0	0	0	0	0	0	0	0	0	0	0	0
64	20	1	2	0	0	0	10	4	2	30	5	4
65	0	0	0	0	0	0	0	0	0	0	0	0
66	15	3	2	10	0	0	0	0	0	25	3	2
67	15	4	0	0	0	0	11	2	1	26	6	1
68	75	3	1	20	2	0	9	0	0	104	5	1
69	60	4	1	40	1	2	50	0	2	150	5	5
70	15	0	0	10	0	3	15	1	1	40	1	4
71	10	1	0	5	0	1	3	0	0	18	1	1
72	40	7	2	5	0	2	8	1	1	53	8	5
73	40	4	3	60	0	2	13	0	0	113	4	5
74	3	1	1	25	5	1	5	0	0	33	6	2
75	60	3	0	20	1	0	9	1	0	89	5	0
76	30	7	0	10	1	0	10	0	0	50	8	0
77	80	5	0	40	3	2	15	0	0	135	8	2
78	60	1	3	0	0	0	12	0	1	72	1	4
79	50	4	3	10	0	0	8	0	1	68	4	4
84	6	2	1	0	0	0	0	0	0	6	2	1
90	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0
100	10	0	0	0	0	0	0	0	0	10	0	0
Total	**761**	**75**	**39**	**471**	**34**	**26**	**273**	**20**	**19**	**1505**	**129**	**84**

Note: BRsp = *Branchinecta* sp. Immature, BRLI = *Branchinecta lindahli* versatile fairy shrimp

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APPENDIX A.
USFWS AUTHORIZATION LETTER

GLENN LUKOS ASSOCIATES

Regulatory Services

December 1, 2021
[Revised November 14, 2023]

Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Revised Notification to Commence Dry Season Surveys for Listed Fairy Shrimp at the Villages of San Jacinto Project Site, an Approximately 660-Acre Site Located in the City of San Jacinto, Riverside County, California

Dear Ms. Love:

Please accept this letter and attachments as a revised notification to conduct dry season surveys for listed fairy shrimp at the Villages of San Jacinto Project Site, an approximately 660-acre site (514-acre onsite area and 146-acre offsite area) located in the City of San Jacinto, Riverside County, California (Study Area).

Pursuant to the original 2021 notification, GLA performed wet season surveys for both the onsite (2021-2022) and offsite (2022-2023) areas. Also pursuant to the original notification, dry season surveys were initiated with soil sample collection on October 9, 2023 for those features sampled during the wet season surveys. Soil samples were collected by David Moskovitz (PER0010680-0), supervising Stephanie Cashin (TE-20280D-0), per the USFWS survey protocol entitled ***Survey Guidelines for the Listed Large Branchiopods*** (dated November 13, 2017). This revised notification is being submitted to identify that soil processing and cyst culturing will be performed by Brent Helm (TE-795930-12) of Helm Biological Consulting. Within 90 days of completing the processing, a report will be submitted to USFWS documenting the dry season survey results.

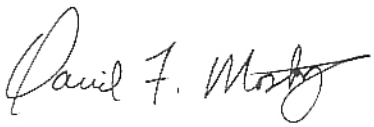
The Project site is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within Sections 19, 30, and unsectioned portions of , Township 4 South, and Range 1 West and Section 24 of Township 4 South, and Range 2 West of the Lakeview, California USGS 7.5-minute quadrangle map [Exhibit 2 – Vicinity Map]. The Study Area, including the main development parcels and additional offsite road improvement areas, is generally bounded by Ramona Expressway, commercial nursey, and agricultural fields to the north, North Sanderson Avenue and agricultural fields to the east, the San Jacinto Valley Sewage

Plant to the south, and an egg farm and a dairy to the west. Universal Transverse Mercator (UTM) coordinates approximately corresponding to the Study Area are 499080 mE and 3740693 mN [Exhibit 3 – Aerial Map].

If you have any questions regarding this request, please contact me at (949) 340-2562 or via email at dmoskovitz@wetlandpermitting.com.

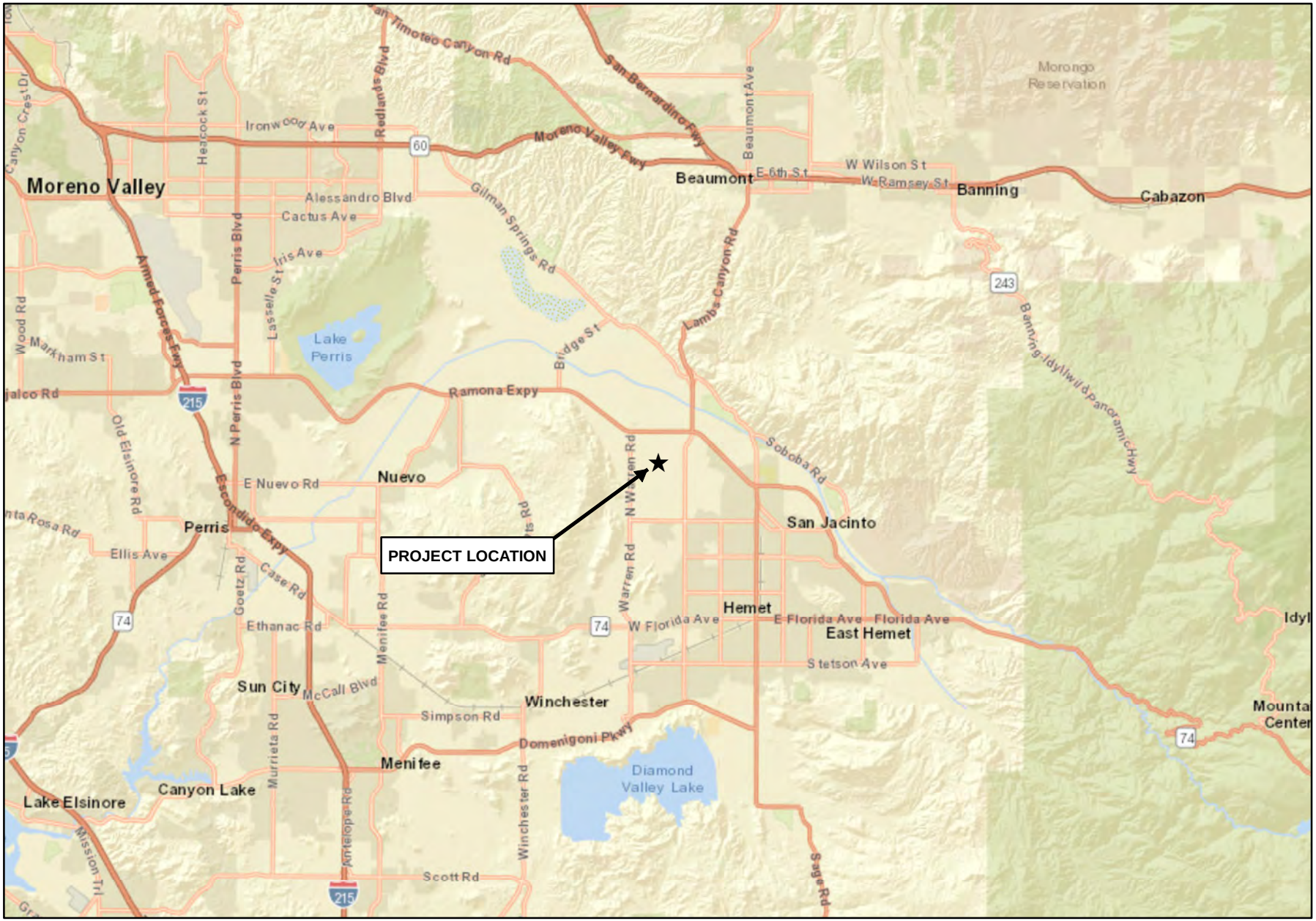
Sincerely,

GLENN LUKOS ASSOCIATES, INC.



David F. Moskovitz
Senior Biologist

p:0640-84b.2023_revised notification



Source: ESRI World Street Map

N

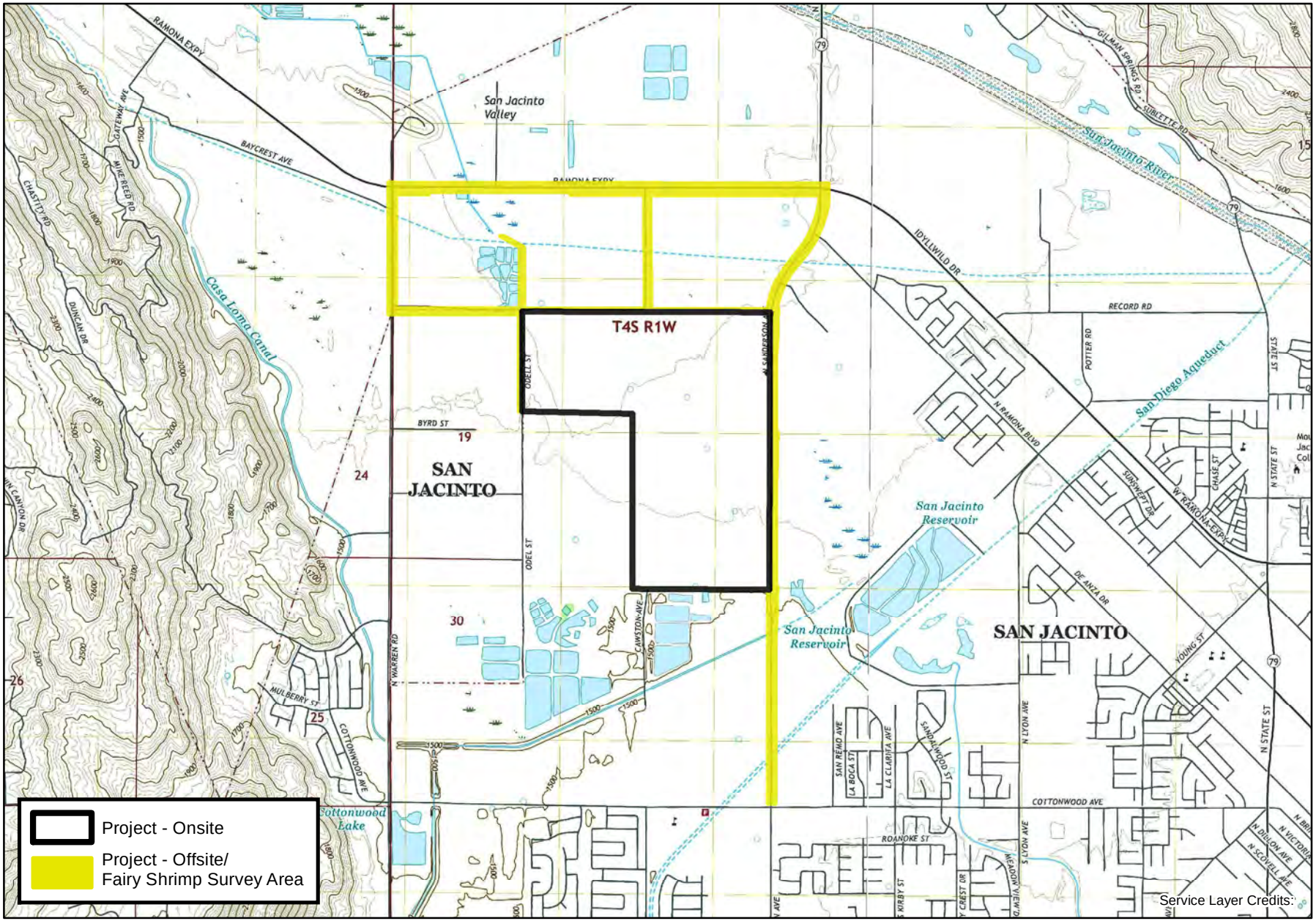
0 2 4 8 Miles

VILLAGES OF SAN JACINTO

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

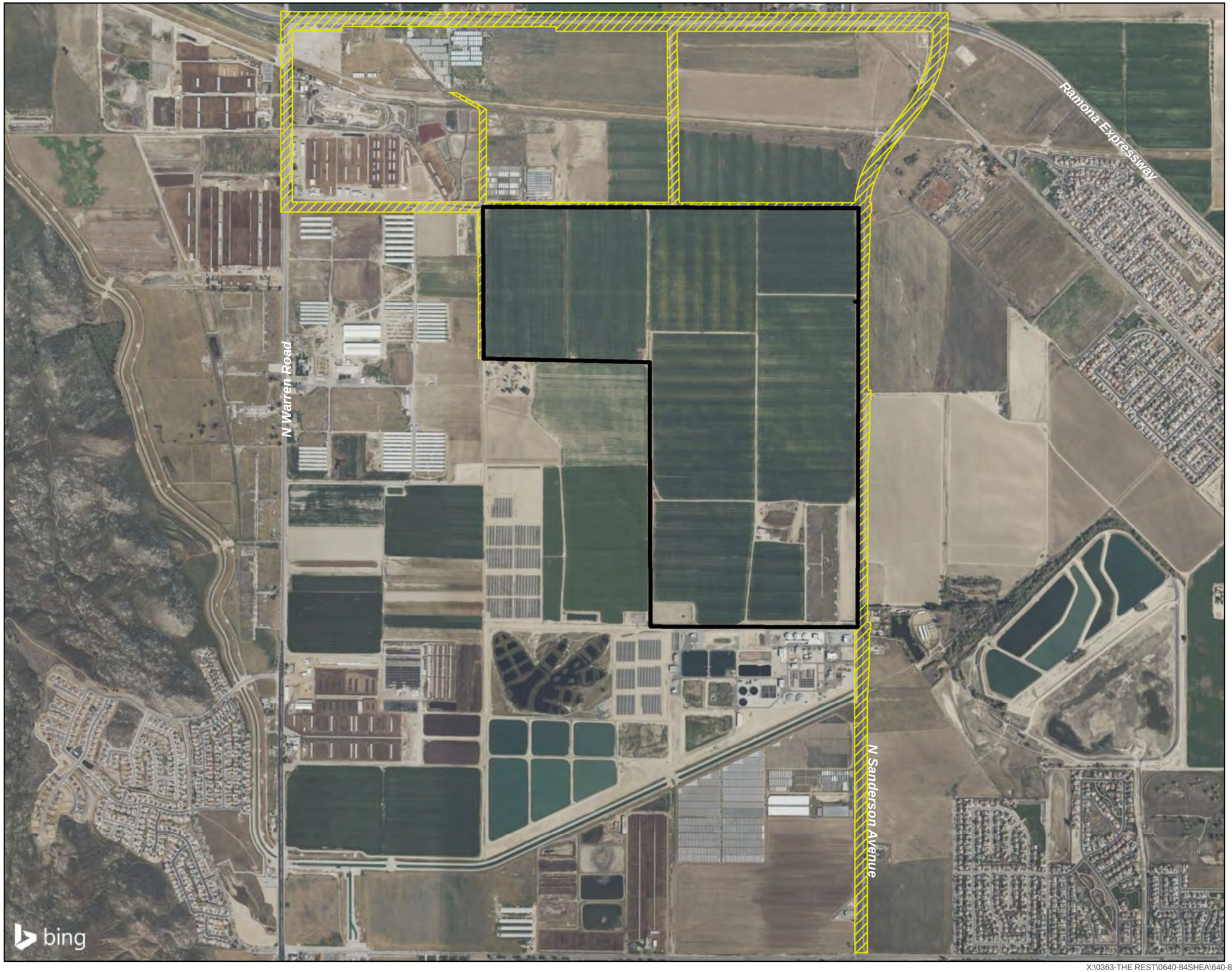


VILLAGES OF SAN JACINTO

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

N

0 675 1,350 2,700

Feet

1 inch = 1,350 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

2022-2023 Fairy Shrimp Wet Survey Area Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyArea2023.mxd

APPENDIX B.
REPRESENTATIVE PHOTOGRAPHS



Photograph of feature 37 facing East.



Photograph of feature 55 facing East.

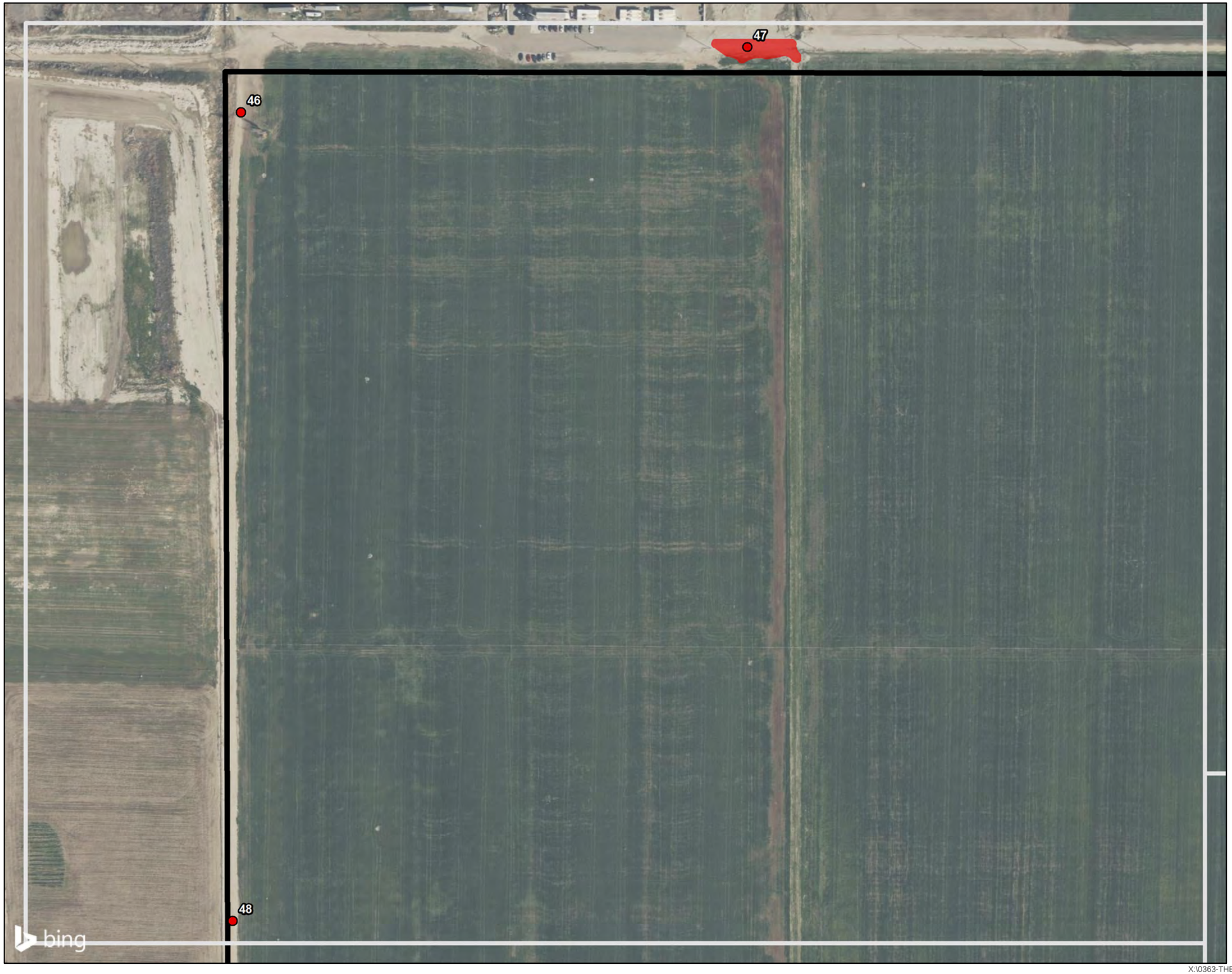


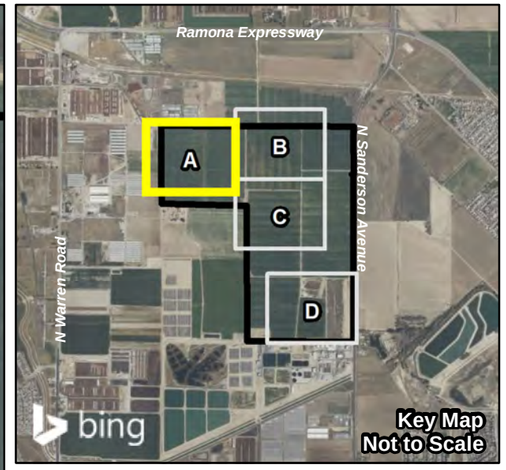
Photograph of feature 66 facing North. Features 67 and 68 in the distant.



Photograph of feature 76 facing West. Feature 75 in the distant.

EXHIBIT 1A-1J
MAP OF SAMPLED FEATURES
BY
B. GALE OF GLA





Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400

Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

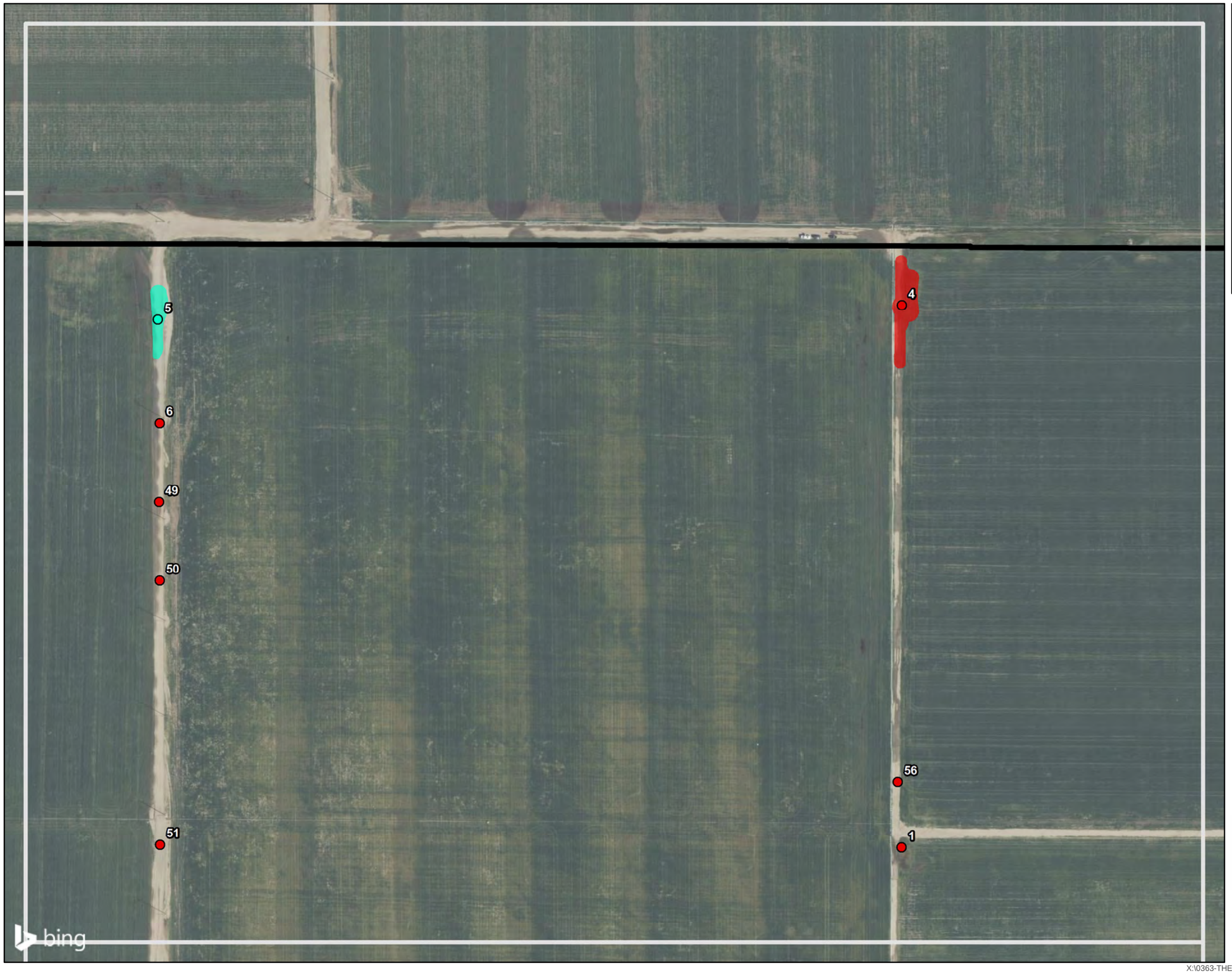
VILLAGES OF SAN JACINTO

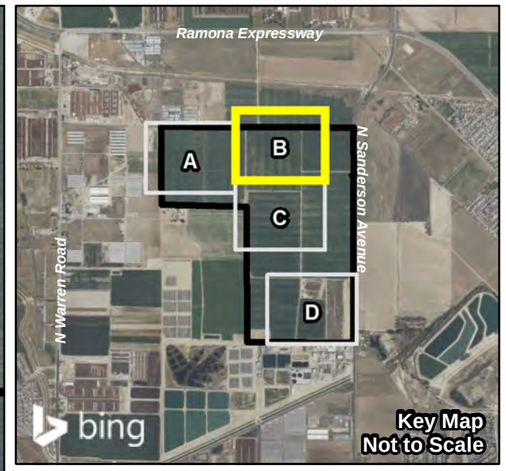
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1A

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\640-84_FSWetSurveyResults.mxd





Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

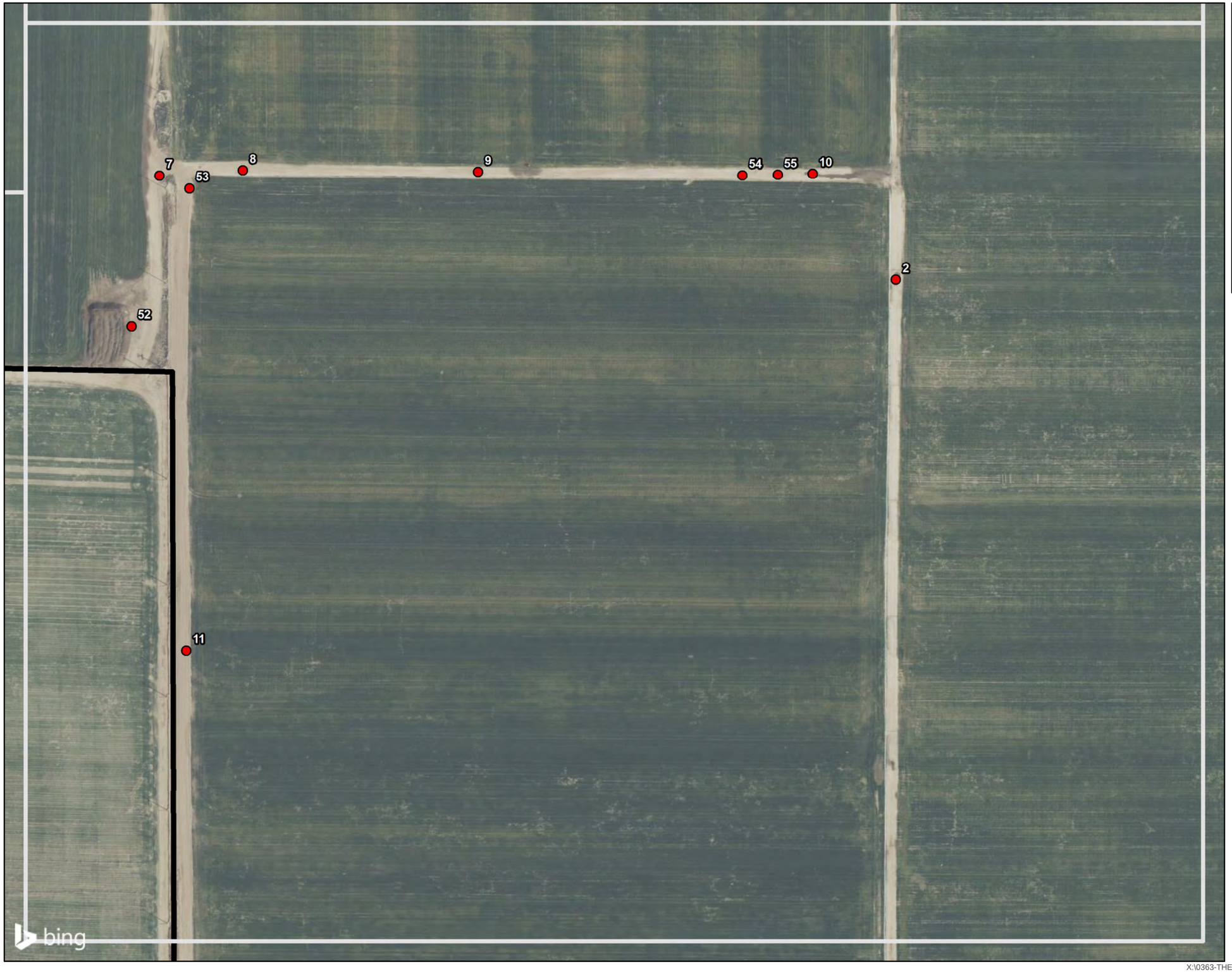
VILLAGES OF SAN JACINTO

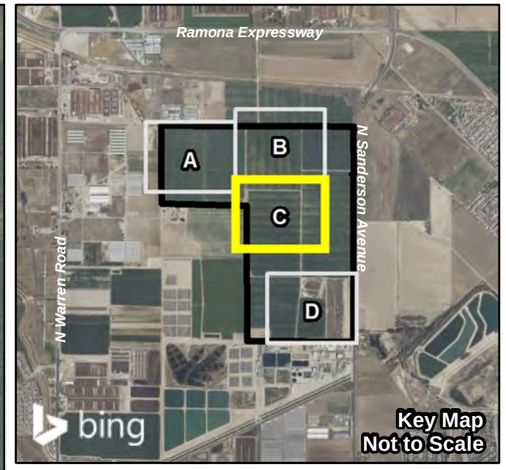
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1B

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\640-84_FSWetSurveyResults.mxd





Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400

Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

VILLAGES OF SAN JACINTO

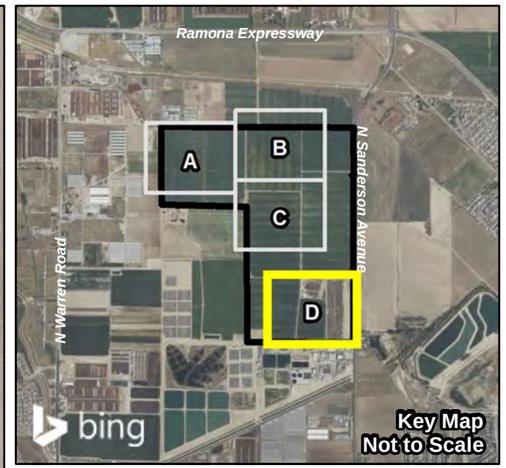
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1C

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\640-84_FSWetSurveyResults.mxd





Map Sheet

Fairy Shrimp Survey Area

Sampled - Fairy Shrimp Present

Sampled - No Fairy Shrimp

Not Sampled

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 14, 2022

VILLAGES OF SAN JACINTO

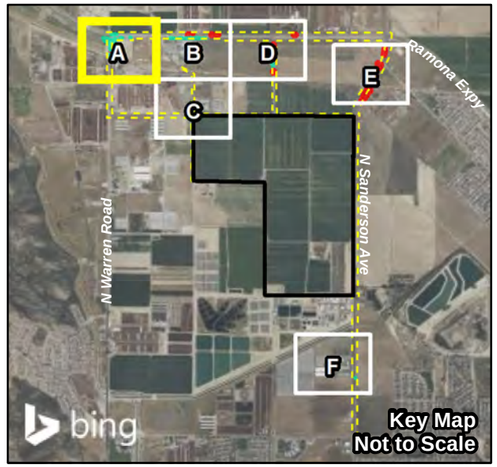
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1D

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\640-84_FSWetSurveyResults.mxd





Map Sheet

Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

Fairy Shrimp Detected

No Fairy Shrimp Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

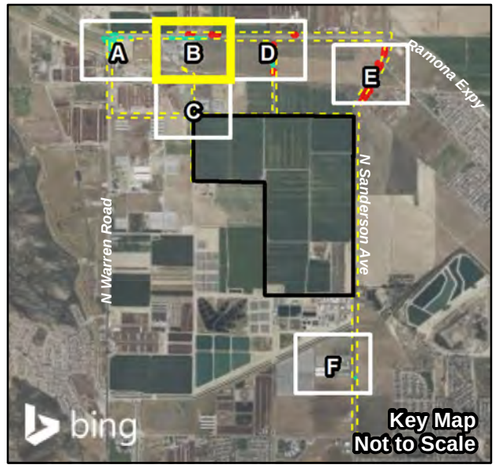
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1E

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyResults2023.mxd





Map Sheet

Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

Fairy Shrimp Detected

No Fairy Shrimp Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

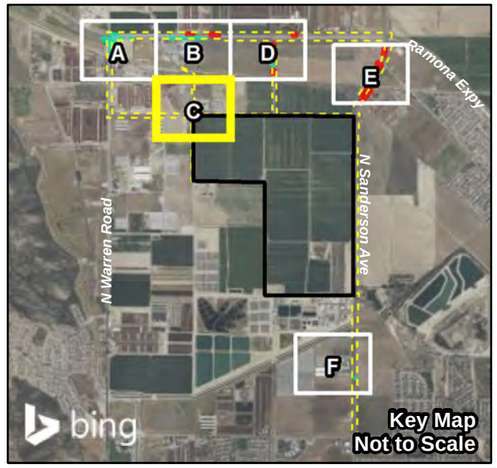
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1F

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyResults2023.mxd





Map Sheet

Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

Fairy Shrimp Detected

No Fairy Shrimp Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

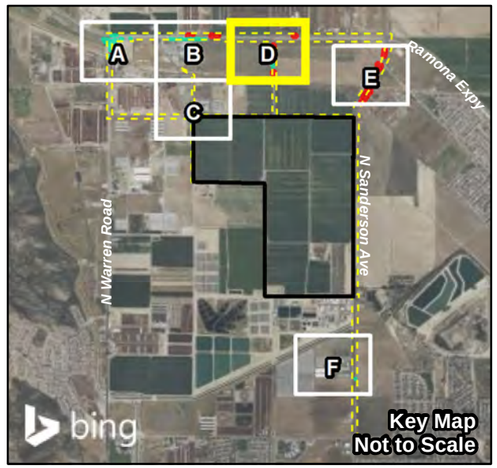
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1G

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyResults2023.mxd





Map Sheet

Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

Fairy Shrimp Detected

No Fairy Shrimp Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

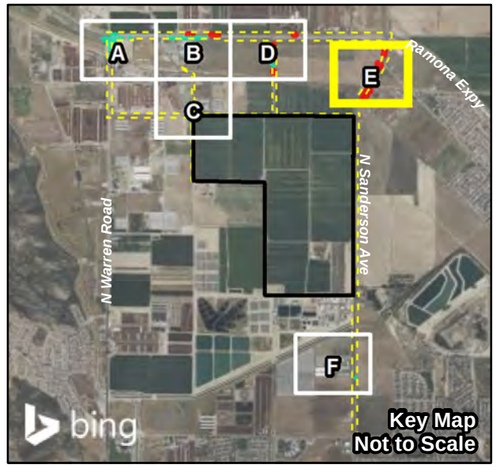
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1H

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyResults2023.mxd





Map Sheet

Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

Fairy Shrimp Detected

No Fairy Shrimp Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

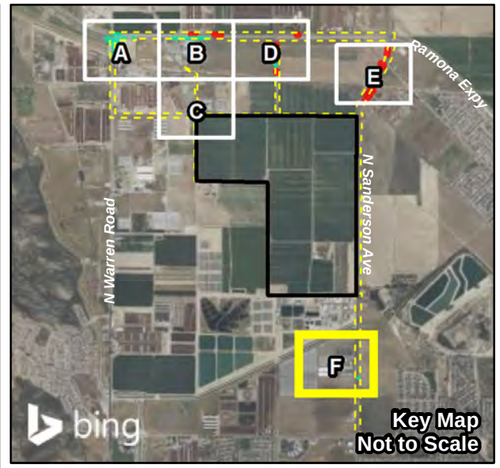
Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1I

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyResults2023.mxd





Map Sheet

Project - Onsite

Project - Offsite/
Fairy Shrimp Survey Area

Fairy Shrimp Detected

No Fairy Shrimp Detected

0 100 200 400
Feet

1 inch = 200 feet

N

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 16, 2023

VILLAGES OF SAN JACINTO

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 1J

X:\0363-THE REST\0640-84SHEA\640-84_GIS\FairyShrimpGIS\WetSeason_2022-2023\0640-84_FSWetSurveyResults2023.mxd

Appendix F

2023/2024 Wet Season Fairy Shrimp Report

GLENN LUKOS ASSOCIATES
Regulatory Services

October 11, 2024

Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Report of Findings for a Wet-Season Survey for Listed Branchiopods Conducted for the Master Drainage Plan (MDP) Line E Project, an Approximately 14,000 Linear-Foot Drainage Alignment in the City of San Jacinto, Riverside County, California

Dear Ms. Love:

Glenn Lukos Associates, Inc. (GLA) conducted wet-season surveys for listed branchiopods (fairy shrimp) of three seasonally ponded features within the Master Drainage Plan (MDP) Line E Project (Project) located in the City of San Jacinto, Riverside County.

GLA biologists Stephanie Cashin (TE-20280D-0) and Chris Waterston (ESPER-2380694) conducted the wet season surveys, assisted by GLA field staff David Smith and Velvet Park, with the objective of determining the presence or absence of federally-listed Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and vernal pool fairy shrimp (*Branchinecta lynchi*).

No large branchiopods, including listed species, were detected within these features.

I. SITE LOCATION AND DESCRIPTION

The Project site is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within Sections 19, 30, and unsectioned portions of Township 4 South, and Range 1 West and Section 24 of Township 4 South, and Range 2 West of the Lakeview, California USGS 7.5-minute quadrangle map [Exhibit 2 – Vicinity Map].

The Study Area includes two portions of the MDP Line E Project (Project) alignment in the northwest and southeast. The proposed Project alignment will extend through the San Jacinto Commerce Center Specific Plan (SJCCSP) property, formerly named the Villages at San Jacinto

Project, which GLA has surveyed separately. The Project is generally bounded by Ramona Expressway and agricultural fields to the north, the San Jacinto Reservoir, agricultural fields, and the SJCCSP property to the east and south, agricultural fields, dairy farms, and Warren Road to the west. Universal Transverse Mercator (UTM) coordinates approximately corresponding to the Study Area are 499535 mE and 3741019 mN.

The wet season survey area consists of road ruts, riparian areas, and agricultural fields. The road ruts were unvegetated. The agricultural fields were either bare and tilled or planted with watermelon. Feature E-1 was partially vegetated with weedy species including non-native species including fivehorn smotherweed (*Bassia hyssopifolia*), perennial pepperweed (*Lepidium latifolium*), red brome (*Bromus madritensis* ssp. *rubens*), foxtail barley (*Hordeum murinum*), , Russian thistle (*Salsola tragus*), and alkali mallow (*Malvella leprosa*)

Exhibit 3 depicts the wet season fairy shrimp survey area.

II. METHODOLOGY

GLA provided a written notification to commence wet season surveys to the U.S. Fish and Wildlife Service (USFWS), Carlsbad Field Office on November 9, 2023. Rain initiated hydrological monitoring on November 20, 2023. Storms in late December 2023 and early January 2024 initiated mapping of features. Sampling of Features E-2 and E-3 began on January 5, 2024. Feature E-1 began to sustain ponding after storms between January 19 – 23, 2024, with sampling beginning January 26, 2024. Features E-2 and E-3 dried and re-ponded several times and were completely dry on April 12, 2024. Feature E-1 remained ponded past 120 days with the last visit on May 22, 2024.

In accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (Survey Guidelines) dated November 13, 2017[1], site visits were conducted within 24 hours of rain events to determine whether features contained a minimum of three centimeters (cm) of ponding. Under typical conditions, sampling commences within seven days of initial ponding. Sampling continued weekly until the feature was dry or had been inundated continuously for 120 days. If dried features were re-inundated, sampling would begin again as above. Sampling for the presence of fairy shrimp was performed using a dip net within representative portions of the depression bottom, edges, and vertical water column when there was adequate ponding. Specimens were placed into vials, with unique depression information, containing 95% ethanol solution. Specimens were identified through microscopy and using the “Key to California Fairy

[1] USFWS. *Survey Guidelines for the Listed Large Branchiopods*, Revised: November 13, 2017.

Shrimps" found in Eriksen and Belk (1999, Revised 2016).[2] Datasheets are attached as Appendix A.

III. RESULTS

A total of three features ponded and were sampled during the wet season within the Study area. No fairy shrimp, including listed species, were detected. Table 1 includes the wet season fairy shrimp survey results. Exhibit 4 depicts the wet season survey results map. Representative site photographs are depicted in Exhibit 5.

Table 1 Wet Season Fairy Shrimp Survey Results

Pool ID	Fairy Shrimp Present	SURFACE AREA MAX (MxM)	DEPTH MAX (cm)	11N	
				Easting	Northing
E-1	No	170x165	50	497815.82	3742124.27
E-2	No	2x1	7	499464.94	3740100.66
E-3	No	3.5x3	4	499691.02	3740089.77

[2] *Eriksen, C. and D. Belk. 1999. Fairy Shrimps of California's Puddles, Pools, and Playas. Mad River Press, Inc. Eureka, California.*

I certify that the information in this survey report and the attached exhibits fully and accurately represent my work. If you have any questions regarding this report, please contact us via email at scashin@wetlandpermitting.com or at cwaterston@wetlandpermitting.com.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.

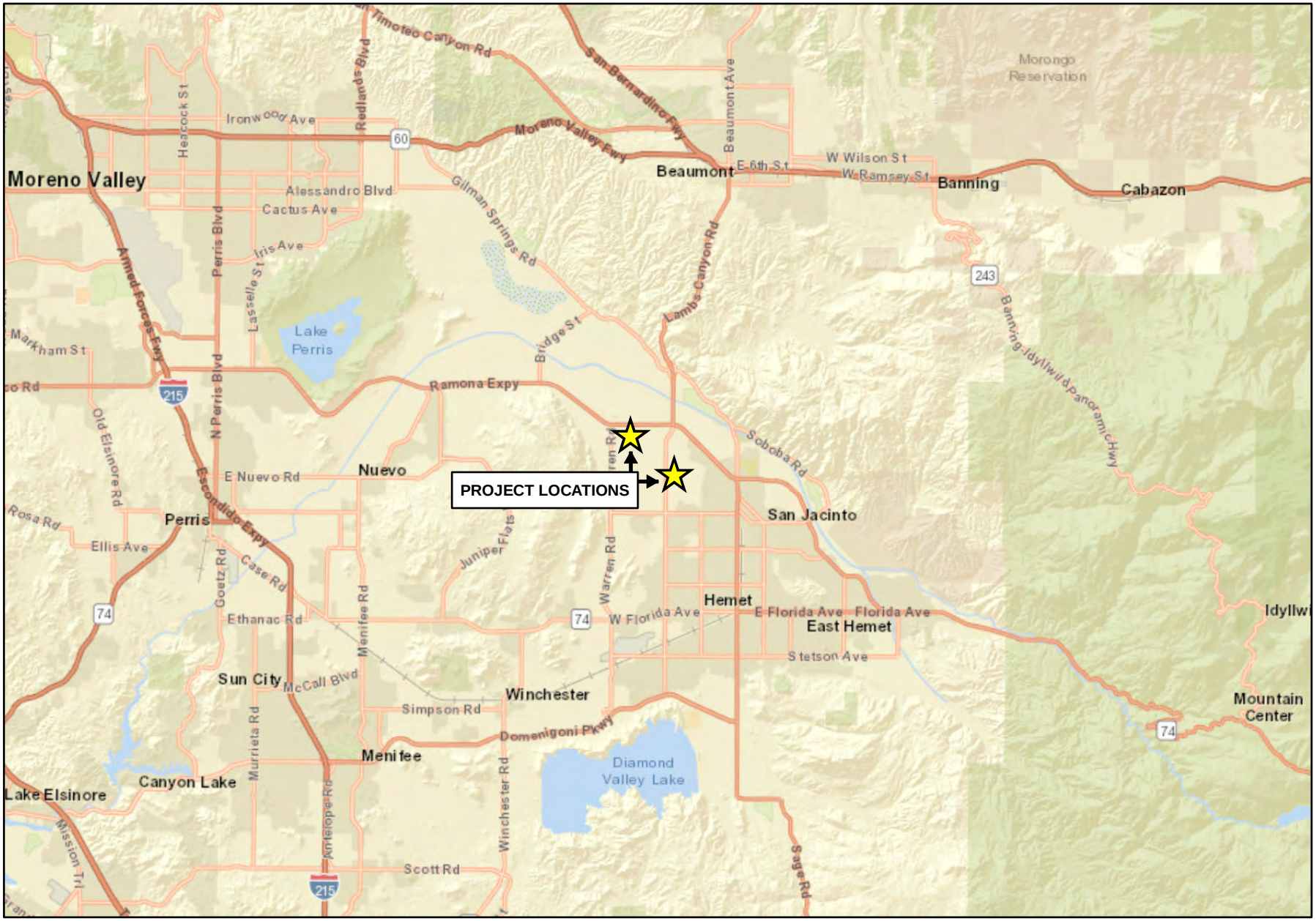


Stephanie Cashin
Biologist (TE-20280D-0/PER11730977-1)



Chris Waterston
Biologist (ESPER-2380694)

s:0640-86a.WetSeason.rpt.docx



Source: ESRI World Street Map

N

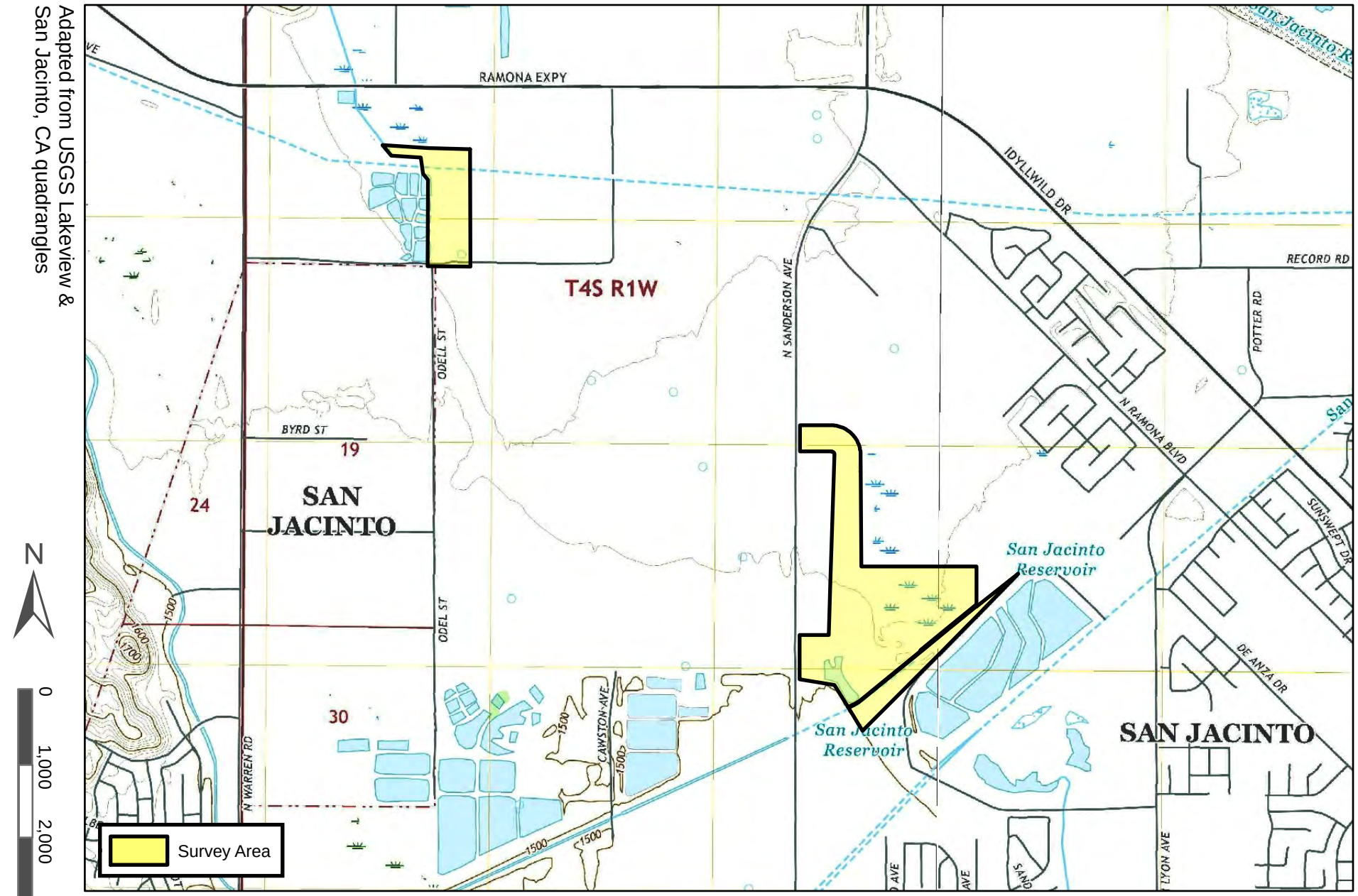
0 2 4 8 Miles

MDP LINE E PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Lakeview & San Jacinto, CA quadrangles

N

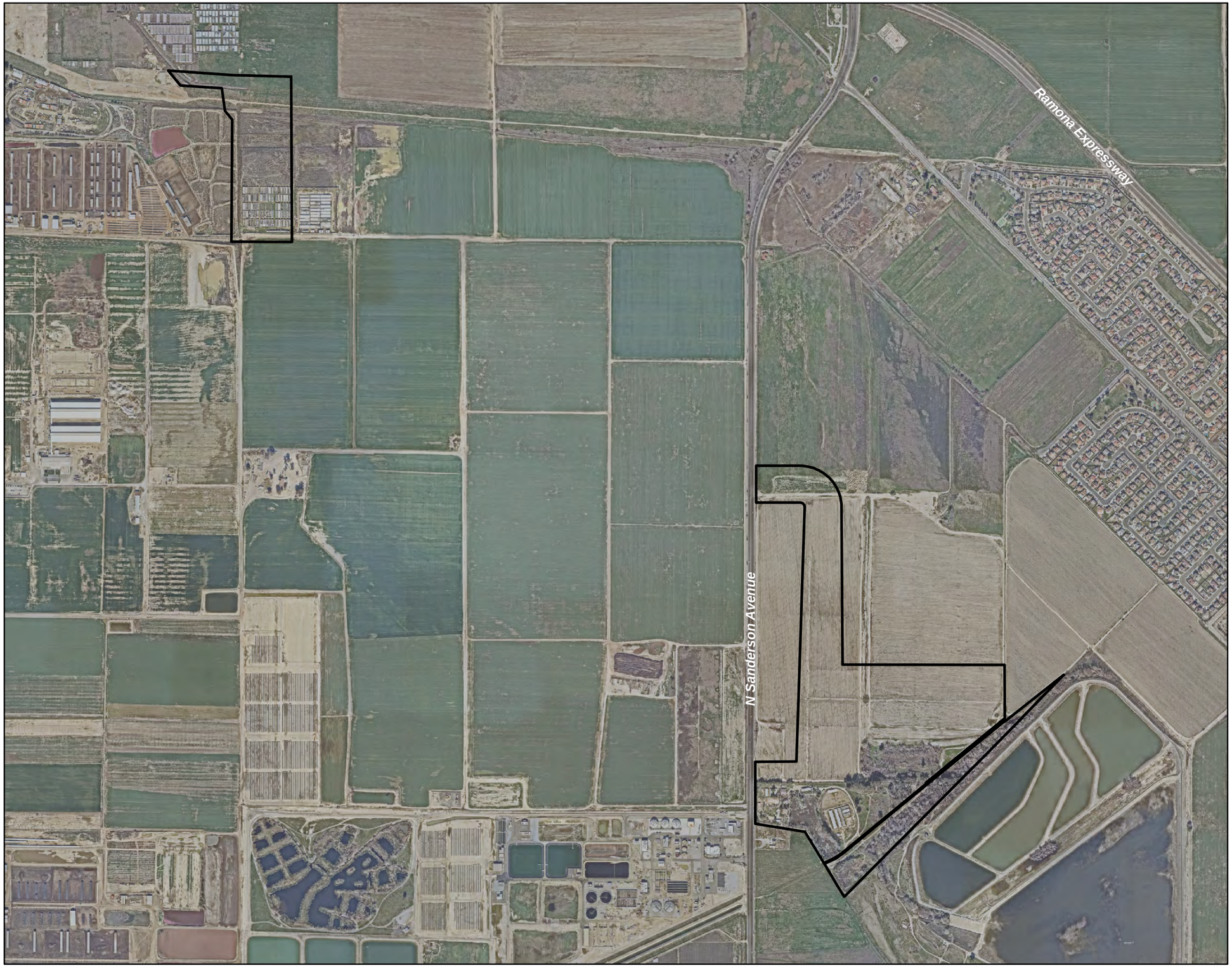
0 1,000 2,000 4,000 Feet

MDP LINE E PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Fairy Shrimp Survey Area

N

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 28, 2024

MDP LINE E PROJECT

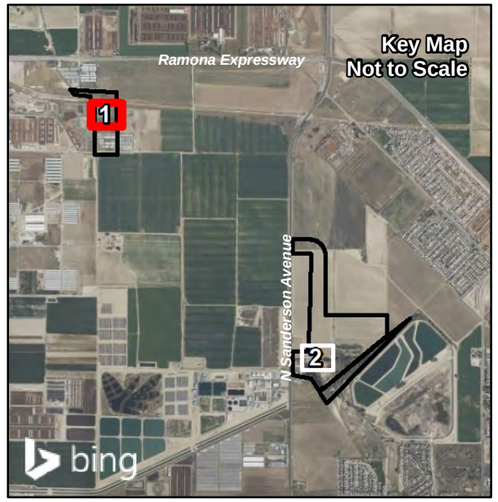
Fairy Shrimp Survey Area Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\0363-THE REST\0640-86MDPE\GIS\FairyShrimpGIS\0640-86_FSSurveyArea.mxd





Fairy Shrimp Survey Area

Ponded Feature

N

0 35 70 140

Feet

1 inch = 70 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 24, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 1

X:\0363-THE REST\0640-86MDPE\GIS\FairyShrimpGIS\0640-86_FSSurveyResults.mxd





Key Map
Not to Scale

Fairy Shrimp Survey Area

Ponded Feature

N

0 35 70 140

Feet

1 inch = 70 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 16, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 2

X:\0363-THE REST\0640-86MDPE\GIS\FairyShrimpGIS\0640-86_FSSurveyResults.mxd



Photograph 1: View facing approximately east depicting a portion of the general study area near the northern portion of the alignment. (497743 E, 3741967 N UTM Zone 11N, March 11, 2024, SC)



Photograph 2 View facing approximately west depicting a grass dominated field in the general study area near the central portion of the alignment. (499632 E, 3741053 N UTM Zone 11N, March 11, 2024, SC)

MDP LINE E PROJECT
Wet Season Fairy Shrimp Survey
Site Photographs



Photograph 3: View facing approximately east depicting an agricultural field within the study area near the southern portion of the alignment. (499740 E, 3740302 N UTM Zone 11N, March 11, 2024, SC)



Photograph 4: View facing approximately east depicting feature E-1. (497815.82 E, 3742124.27 N UTM Zone 11N, March 11, 2024, SC)

MDP LINE E PROJECT
Wet Season Fairy Shrimp Survey
Site Photographs



Photograph 5: View of feature E-1 facing approximately east. (497815.82 E, 3742124.27 N UTM Zone 11N, March 11, 2024, SC)



Photograph 6: View facing approximately northwest depicting feature E-2. (499464.94 E, 3740100.66 N UTM Zone 11N, March 15, 2024, DS)

GLENN LUKOS ASSOCIATES

MDP LINE E PROJECT
Wet Season Fairy Shrimp Survey

Site Photographs

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 01/05/2024 | Time: | Weather Conditions: overcast

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27																		dry
E-2	499464.94 3740100.66	3.9	1.6		7	2x1													road rut
E-3	499691.02 3740089.77	3.9	1.6		4	3.5x2													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 01/12/2024 | Time: | Weather Conditions: clear

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27																		dry
E-2	499464.94 3740100.66	2.2	1.3		6	1x1													road rut
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 01/18/2024 | Time: | Weather Conditions: clear

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27																		dry
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 01/26/2024 | Time: | Weather Conditions: foggy

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	12.3	11.7		16	100x84													ag field
E-2	499464.94 3740100.66	12.3	12.6		7	2x1													road rut
E-3	499691.02 3740089.77	12.3	12.6		4	3.5x2													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 02/02/2024 | Time: | Weather Conditions:

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	11.7	10.8		16	100x84													ag field
E-2	499464.94 3740100.66	11.7	10.8		3	1.5x0.75													road rut
E-3	499691.02 3740089.77	11.7	10.8		2	3x1													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 02/08/2024 | Time: | Weather Conditions: overcast, 0-1mph rained yesterday

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	6.7	3.3		50	170x165					x				x				ag field
E-2	499464.94 3740100.66	6.7	3.3		7	2x1													road rut
E-3	499691.02 3740089.77	6.7	3.3		4	3.5x2													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 02/15/2024 | Time: | Weather Conditions: part cloud, 0-1mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	11.5	8		50	170x165					x			x	x		x		ag field
E-2	499464.94 3740100.66	11.5	8		4	1x1													road rut
E-3	499691.02 3740089.77	11.5	8		2	2.5x1													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 02/22/2024 | Time: | Weather Conditions: clear, 0-1mph recently rained 3days

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	13.5	10.5		50	170x165					x			x	x		x		ag field
E-2	499464.94 3740100.66	13.5	10.5		7	2x1													road rut
E-3	499691.02 3740089.77	13.5	11.1		4	3.5x3													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 02/28/2024 | Time: | Weather Conditions: clear, 0-1mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	13.3	9.2		50	170x165					x			x	70x165				ag field
E-2	499464.94 3740100.66	13.3	10.5		7	2x1													road rut
E-3	499691.02 3740089.77	13.3	10.5		4	3x3													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 03/07/2024 | Time: | Weather Conditions: part cloudy, 0-1mph, rained recently

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	18.3	16.7		50	170x165					x			x	x		x		ag field
E-2	499464.94 3740100.66	18.3	17.7		2	1x1													road rut
E-3	499691.02 3740089.77	18.3	17.7		3	3x3													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 03/15/2024 | Time: | Weather Conditions: part cloudy, 0-1mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	14	12.7		50	170x165					x			x	x				ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77	14	13.7		3	3x3													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 03/20/2024 | Time: | Weather Conditions: clear, 0-2mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	10	11.3		45	160x150					x			x	x		x		ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 03/28/2024 | Time: | Weather Conditions: clear, 0-2mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	18.5	16		40	110x150					x			x	x		x		ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 04/04/2024 | Time: | Weather Conditions: part cloud, 0-2mph, rained over weekend

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	16.1	13.3		45	160x150					x			x					ag field
E-2	499464.94 3740100.66	16.1	14.4		3	1x1													road rut
E-3	499691.02 3740089.77	16.1	14.4		2	2x3													road rut

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 04/12/2024 | Time: | Weather Conditions: part cloud to clear, 2-3mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	16.7	14.4		45	160x150					x			x					ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 04/18/2024 | Time: | Weather Conditions: overcast, 0-2mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	14.5	12.5		45	160x150					x			x					ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 04/22/2024 | Time: | Weather Conditions: clear, 0-1mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	16.1	14.5		40	120x96					x			x					ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 04/29/2024 | Time: | Weather Conditions: clear, 0-1mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	26.7	21.1		35	120x96					x			x	x				ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 05/09/2024 | Time: | Weather Conditions: overcast, 1-2mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	13.3	15		35	120x96					x			x	x				ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 05/17/2024 | Time: | Weather Conditions: overcast, 1-2mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	20	18.4		30	120x96					x			x	x				ag field
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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Site or Project Name: **MDP Line E Project**	County: Riverside	Quad: Lakeview and San Jacinto	Township: 4S	Range: 1W	Section:

SURVEYOR/Permit Number: Stephanie Cashin (TE20280D-0/PER11730977-1), Chris Waterston (ESPER2380694)

Date: 05/22/2024 | Time: | Weather Conditions: clear, 0-2mph

Feature ID#	UTM (Northing, Easting, Datum)	Temp (˚C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
E-1	497815.82 3742124.27	21.1	20		30	120x96					x			x	x				ag field; 120 days
E-2	499464.94 3740100.66																		dry
E-3	499691.02 3740089.77																		dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

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Appendix G

2024 Dry Season Fairy Shrimp Report

GLENN LUKOS ASSOCIATES
Regulatory Services

September 10, 2025

Mr. Jess Sattler
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Dry Season Survey Results for Listed Branchiopods Conducted for the Master Drainage Plan (MDP) Line E Project, an Approximately 14,000 Linear-Foot Drainage Alignment, City of San Jacinto, Riverside County, California

Dear Mr. Sattler:

This letter report documents the results of a dry season survey conducted by Glenn Lukos Associates, Inc. (GLA) for three depressional features at the Master Drainage Plan (MDP) Line E Project (Project), an Approximately 14,000 Linear-Foot Drainage Alignment located in the City of San Jacinto, Riverside County, California. GLA notified the U.S. Fish and Wildlife Service (USFWS) of the intent to perform the dry season surveys on September 3, 2024, with an email approval received on September 10, 2025. Dry season soil collection was conducted on September 20, 2024.

GLA biologist Chris Waterston (ESPER-2380694) performed the soil collection from the features, with assistance from GLA biologist Stephanie Cashin (PER11730977-1) and from GLA trainee Velvet Park (under supervision). Frank Wegscheider (TE-038716-4) processed the soil samples to determine cyst presence/absence.

I. SITE LOCATION AND DESCRIPTION

The Project site is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within Sections 19, 30, and unsectioned portions of Township 4 South, and Range 1 West and Section 24 of Township 4 South, and Range 2 West of the Lakeview, California USGS 7.5-minute quadrangle map [Exhibit 2 – Vicinity Map]. The Study Area includes two portions of the MDP Line E Project alignment in the northwest and southeast. The proposed Project alignment will extend through the San Jacinto Commerce Center Specific Plan (SJCCSP) property, formerly named the Villages at San Jacinto Project, which GLA has

surveyed separately. The Project is generally bounded by Ramona Expressway and agricultural fields to the north, the San Jacinto Reservoir, agricultural fields, and the SJCCSP property to the east and south, agricultural fields, dairy farms, and Warren Road to the west. Universal Transverse Mercator (UTM) coordinates approximately corresponding to the Study Area are 499535 mE and 3741019 mN [Exhibit 3 – Fairy Shrimp Survey Area Map].

II. DESCRIPTION OF THE DEPRESSIONAL FEATURES

A total of three ponded features were included for dry season soil sampling. The features were characterized as unvegetated or vegetated. Unvegetated features included road ruts. The vegetated feature included an agricultural field basin.

Unvegetated (Road Ruts, Dirt Parking Areas, and Agricultural Fields)

Of the three features included in dry season soil sampling, two features were described as road ruts (E-2 and E-3) which were unvegetated.

Vegetated (Agricultural and Roadside Ditches and Basins)

Of the three features included in dry season soil sampling, one feature can be described as an agricultural basin (Pool E-1) that supported at least some vegetation. The basin included weedy annual species including five-hook bassia (*Bassia hyssopifolia*), stinknet (*Oncosiphon piluliferum*), Russian thistle (*Salsola tragus*), lamb's quarters (*Chenopodium album*), cheeseweed (*Malva parviflora*), black mustard (*Brassica nigra*), and annual brome grasses (*Bromus sp.*).

III. METHODOLOGY

A. Soil Collection

Soil sample collection and processing followed the USFWS *Survey Guidelines for the Listed Large Branchiopods*, November 13, 2017 (USFWS 2017). Soil sample collection was conducted by GLA biologist Chris Waterston with assistance from Stephanie Cashin; and GLA biologist Velvet Park (under supervision) on September 20, 2024.

The number of samples collected for the ponded features is summarized in Table 1 below, which follows the Table 1 - Soil Sample Summary in the USFWS 2017 Survey Guidelines. Soil sub-sampling locations were distributed in a grid pattern to cover the entire feature with targeted

collection in the lowest topographic areas that would potentially exhibit past aquatic invertebrate accumulation.

Soil samples of approximately 100 milliliters each were removed at each sub-sample location using a hand trowel and were combined into a labeled bag for each feature with the collection date, location, feature ID, name of collector, and stored for future processing. Samples were stored in a dry location out of direct sunlight until shipped for processing.

Table 1 – Soil Sample Summary

Feature Size		Number of Samples Collected per Pool	Number of Pools of Each Feature Size Class
Square Meters	Approx. Acreage		
< 2.5	0.0005	As appropriate	0
2.5–24	0.005	10	2
25–235	0.05	25	0
236–2300	0.5	50	0
2300–23,225	5.0	100	1
Total Pools Sampled			3

B. Soil Processing

Soil analyses were conducted by USFWS-approved branchiopod biologist Frank Wegscheider. Soil samples were placed into a one-gallon plastic container and allowed to pre-soak in water. The resulting slurry was slowly poured into a graded set of stacked U.S. standard 8-inch soil sieves (710, 300, and 150 micron), while concurrently being gently washed with flowing water. Water was directed through the samples for a time period sufficient to wash all of the resting eggs (cysts) into the 150-micron sieve. Soil remaining in the 150-micron and 300-micron sieves was used for analysis. The Project site lies outside of the currently documented range of the federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*), which is endemic to California's Central Valley (Rogers, 2001); therefore, it was not necessary to examine the 300-micron samples. Nonetheless, the 300-micron samples were examined for the presence of Cladoceran *Ephippia*. To facilitate the analyses, the 150-micron samples were transferred to a 150 ml beaker, whereupon the organic components were thrice-decanted. The remaining organic contents were then examined under a Celestron dissecting microscope at 10-30X for the presence of Anostracan cysts.

IV. RESULTS OF DRY SEASON SURVEY

A total of three features were sampled during the 2024 dry season surveys. No cysts of the genus *Branchinecta or Streptocephalus*, including listed species, were identified from the three features. No cyst culturing was necessary as no cysts were detected during processing. No listed species were detected. Table 2 includes the results of 2024 dry season fairy shrimp soil analysis. Exhibit 4 depicts the results of the 2024 dry season soil analysis.

Table 2 – Dry Season Fairy Shrimp Results Summary

Pool ID	*BRANCHINECTA CYSTS* DETECTED 2024	*B. LINDAHLI* CULTURED 2024	ZONE 11N		FEATURE TYPE
			EASTING	NORTHING	
E-1	No	n/a	497815.82	3742124.27	basin
E-2	No	n/a	499464.94	3740100.66	road rut
E-3	No	n/a	499691.02	3740089.77	road rut

I certify that the information in this survey report and the attached exhibits fully and accurately represent my work.

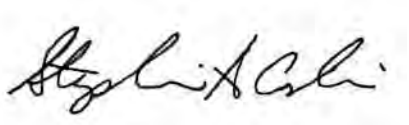
If you have any questions regarding this report, please contact me via email at cwaterston@wetlandpermitting.com.

Sincerely,

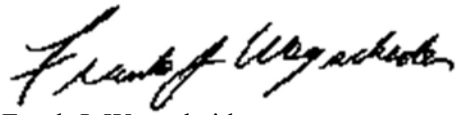
GLENN LUKOS ASSOCIATES, INC.



Chris Waterston
Biologist (ESPER-2380694)

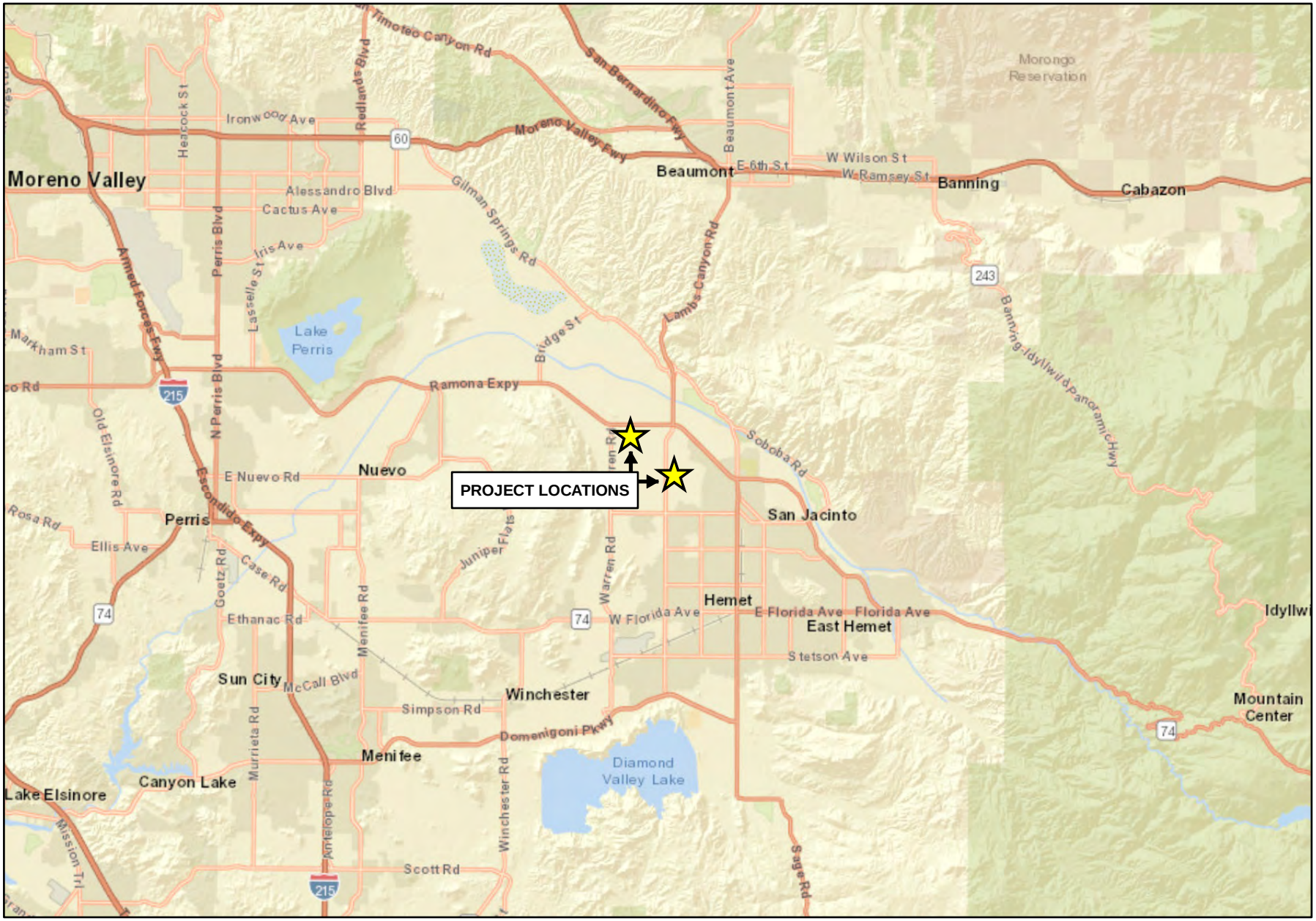


Stephanie Cashin
Biologist (PER11730977-1)



Frank J. Wegscheider
Biologist (TE-038716-4)

P:0640-86a.FairyShrimp_dry.rpt



Source: ESRI World Street Map

N

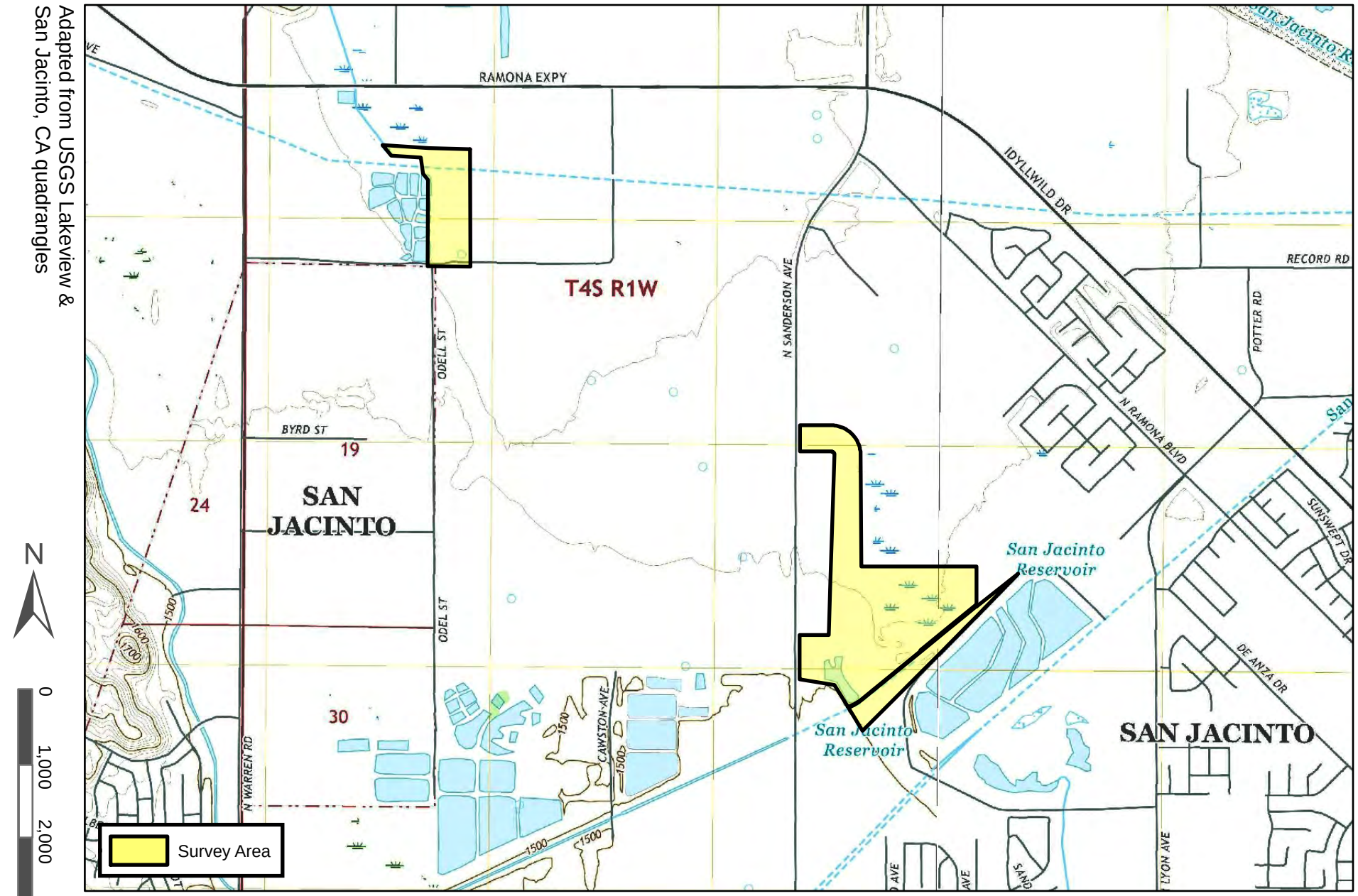
0 2 4 8 Miles

MDP LINE E PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Lakeview & San Jacinto, CA quadrangles

N

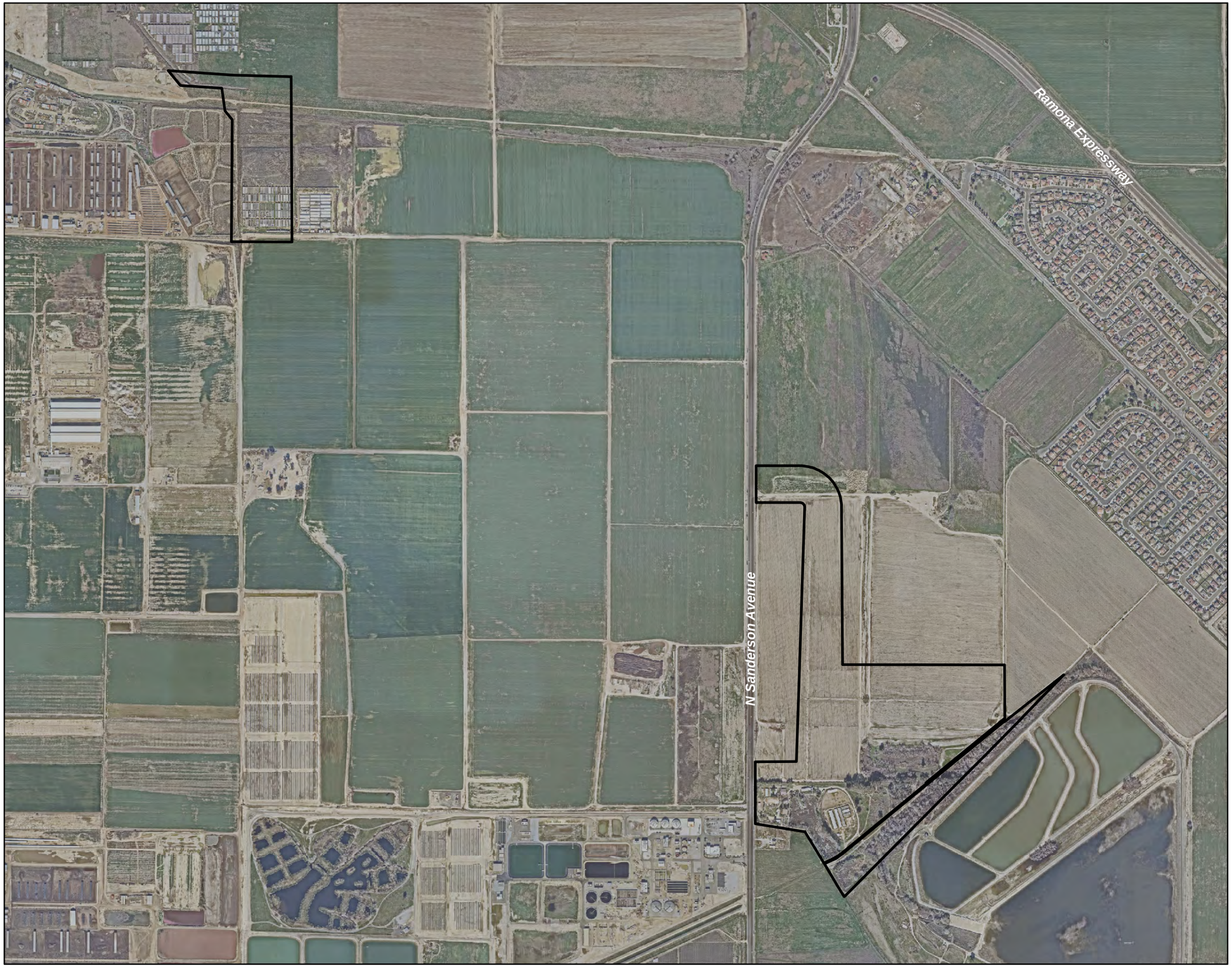
0 1,000 2,000 4,000 Feet

MDP LINE E PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Fairy Shrimp Survey Area

N

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 28, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Area Map

GLENN LUKOS ASSOCIATES

Exhibit 3

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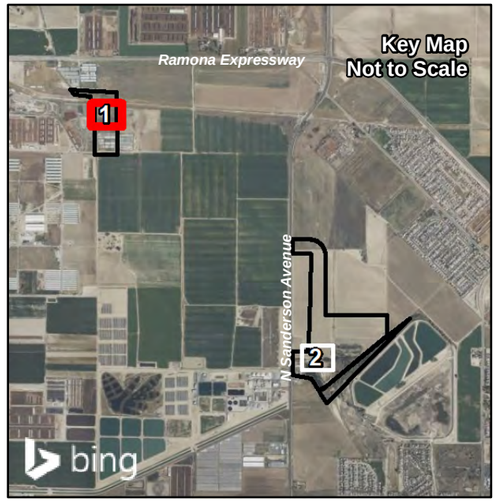

Fairy Shrimp Survey Area

Ponded Feature

N

0 35 70 140

Feet

1 inch = 70 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 24, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 1

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Key Map
Not to Scale

Fairy Shrimp Survey Area

Ponded Feature

N

0 35 70 140

Feet

1 inch = 70 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: September 16, 2024

MDP LINE E PROJECT

Fairy Shrimp Survey Results Map

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 2

X:\0363-THE REST\0640-86MDPE\GIS\FairyShrimpGIS\0640-86_FSSurveyResults.mxd

Appendix H

Southwestern Willow Flycatcher Survey Report

GLENN LUKOS ASSOCIATES
Regulatory Services

August 17, 2024

Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Submittal Report for Southwestern Willow Flycatcher Surveys for the MDP Line E Project, Located in the City of San Jacinto, Riverside County, California.

Dear Ms. Love:

This letter report summarizes the methodology and findings of presence/absence surveys for the federally listed endangered southwestern willow flycatcher (***Empidonax traillii extimus***) ("SWFL") conducted by Glenn Lukos Associates, Inc. (GLA) within the above referenced property located in the City of San Jacinto, Riverside County, California.

SWFL surveys were conducted from May 20 through July 3, 2024, in all areas of suitable habitat in accordance with U.S. Fish and Wildlife Service (USFWS) guidelines. The SWFL was not detected during the focused surveys. In addition, three least Bell's vireo (***Vireo bellii pusillus***) "LBV" territories were detected onsite during the focused surveys.

1.0 INTRODUCTION

Southwestern Willow Flycatcher (SWFL)

The SWFL is a small, migratory songbird, which inhabits riparian habitats throughout southern California and is one of four subspecies of willow flycatcher (WIFL) currently recognized. It was officially designated as a state-endangered species on January 2, 1991, and federally designated as endangered on March 29, 1995. The SWFL measures about 5.75 inches (15 cm) in length and weighs only about 0.4 ounces (12 g). Overall, it is roughly the size of a small sparrow. Both sexes look alike. Its appearance is overall greenish or brownish gray above, with a white throat that contrasts with a pale olive breast. The belly is pale yellow. Two white wing bars are visible, but the eye ring is faint or absent. The upper mandible is dark and the lower mandible light (USGS). It closely resembles the other races of willow flycatcher, and several other species of the ***Empidonax*** genus, particularly the closely related Alder flycatcher (***Empidonax alnorum***).

The SWFL breeds in relatively dense riparian habitats in all or parts of seven southwestern states, from near sea level to over 2,000 m (6,100 ft). More specifically, the SWFL breeds in riparian habitats along rivers, streams, or other wetlands, where relatively dense growths of trees and shrubs are established, near or adjacent to surface water or underlain by saturated soil (McCabe 1991). Common tree and shrub species comprising nesting habitat include willow (***Salix*** sp.), boxelder (***Acer negundo***), tamarisk (***Tamarix ramosissima***), and Russian olive (***Eleagnus angustifolia***) (USFWS 2002).

Habitat characteristics such as plant species composition, size and shape of habitat patch, canopy structure, vegetation height, and vegetation density vary across the subspecies range. However, regardless of the plant species composition or height, occupied sites usually consist of dense vegetation in the patch interior, or an aggregate of dense patches interspersed with openings. In most cases this dense vegetation occurs within the first 3-4 m (10-13 ft) above ground. These dense patches are often interspersed with small openings, open water or marsh, or shorter/sparser vegetation creating a mosaic that is not uniformly dense (USFWS 2002). The SWFL winters in Mexico and Central America and northern South America (Phillips 1948, Gorsiki 1969, McCabe 1991, Koronkiewicz et al. 1998, Unitt 1999).

2.0 SITE LOCATION AND DESCRIPTION

The Project site is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within Sections 19, 30, and unsectioned portions of Township 4 South, and Range 1 West and Section 24 of Township 4 South, and Range 2 West of the Lakeview, California USGS 7.5-minute quadrangle map [Exhibit 2 – Vicinity Map]. Exhibit 3 identifies the general study area for the Project. Specifically, the Universal Transverse Mercator (UTM) coordinates corresponding to the site are 499923.20 mE and 3740091.36 mN.

Dominant species within the survey area included the following species: black willow (***Salix gooddingii***) with sandbar willow (***Salix exigua***), Fremont's cottonwood (***Populus fremontii***), arroyo willow (***Salix lasiolepis***), mulefat (***Baccharis salicifolia***), western sycamore (***Platanus racemosa***), and gum trees (***Eucalyptus*** sp). Dominant understory species on site includes broadleaved pepperweed (***Lepedium latifolium***) and yerba mansa (***Anemopsis californica***). Other species occurring within or adjacent to the riparian habitat includes salt cedar (***Tamarix ramosissima***), giant reed (***Arundo donax***), castor bean (***Ricinus communis***), shortpod mustard (***Hirschfeldia incana***), branching phacelia (***Phacelia ramosissima***), southern bush monkeyflower (***Diplacus longiflorus***), rough cocklebur (***Xanthium strumarium***), and Spanish sunflower (***Pulicaria paludosa***).

3.0 METHODOLOGY

Surveys for the SWFL were conducted in accordance with the 2010 U.S. Fish and Wildlife Service (USFWS) guidelines[1], which stipulate that five surveys (divided into three survey periods) shall be conducted in all areas of suitable habitat. One survey was conducted during the first survey period (May 15 to May 31). Two surveys were conducted during the second survey period (June 1 to June 24), and two surveys were conducted during the third survey period (June 25 to July 17). GLA biologist Jeff Ahrens (TE 052159-6) conducted SWFL surveys on May 20, June 11, June 21, June 27, and July 3, 2024. Mr. Ahrens was accompanied by GLA biologist Chris Waterston (non-permitted) on June 27, 2024.

All surveys were conducted during the morning hours and were completed before 10:45 A.M. No surveys were conducted during extreme weather conditions (i.e., winds exceeding 15 miles per hour, rain, or temperatures in excess of 95ºF). All areas of suitable habitat were surveyed on foot by walking slowly and methodically. Taped vocalizations primarily using the WIFL's main contact call "fitz-bew" were used to elicit responses from WIFLs that might be present on site. The detection of WIFLs on site was based on both sight and call.

Weather conditions during the SWFL surveys was conducive to a high level of bird activity. Temperatures ranged from approximately 52 degrees Fahrenheit to 90 degrees Fahrenheit. Wind speeds ranged from 1-5 miles per hour during the surveys. Table 1 summarizes the survey dates and weather information for each survey date.

Table 1. Summary of SWFL Survey Dates and Weather Conditions

Date	Survey	Start/End Time	Surveyor	Temp ºF, (start/end)	Wind Speed (MPH) (start/end)	% Cloud Cover (start/end)
5/20/24	SWFL	0555/1030	JA	52/62	2-4/3-5	100/100
6/11/24	SWFL	0600/1030	JA	80/90	3-5/2-4	20/20
6/21/24	SWFL	0550/1045	JA	61/84	1-3/2-3	0/0
6/27/24	SWFL	0600/1030	JA/CW	63/78	2-3/2-5	0/0
7/03/24	SWFL	0605/1030	JA	68/88	2-4/2-5	10/10

JA = Jeff Ahrens, CW (non-permitted)

[1] ***A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher***, prepared by the USGS.

4.0 RESULTS

The SWFL was not detected on site during the focused surveys. GLA biologists detected three least Bell's vireo (***Vireo bellii pusillus;*** LBV) territories on site during the focused surveys. Based on observed behavior, all three LBV territories appeared to be paired and nesting. The brown-headed cowbird (***Molothrus ater***) was detected on site and is a known nest parasite of the LBV and other riparian bird species.

Bird commonly observed during the focused surveys included the following: song sparrow (***Melospiza melodia***), mourning dove (***Zenaida macroura***), bushtit (***Psaltriparus minimus***), Nuttall's woodpecker (***Picoides nuttallii***), Anna's hummingbird (***Calypte anna***), common yellowthroat (***Geothlypis trichas***), house finch (***Carpodacus mexicanus***), lesser goldfinch (***Spinus psaltria***), black phoebe (***Sayornis nigricans***), Allen's hummingbird (***Selasphorus sasin***), northern mockingbird (***Mimus polyglottos***) and house wren (***Troglodytes aedon***). An avian compendium is included in Appendix A.

Data sheets and an avian compendium listing all avian species detected during the focused surveys is included at the end of this report. Exhibits 3 and 4 depict the survey area and LBV locations on an aerial map and topographic map, respectively.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

If you have any questions, please contact me at jahrens@wetlandpermitting.com or (949) 340-2521.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.

Jeff Ahrens

TE-052159-6	August 17, 2024
Jeff Ahrens Biologist	Permit #	Date

5.0 REFERENCES

Gorski, L. J. 1969. Traill's Flycatchers of the "fitz-bew" songform wintering in Panama. Auk 86:745-747.

Hubbard, J.P. 1999. A critique of Wang Yong and Finch's field identifications of Willow Flycatcher subspecies in New Mexico. Wilson Bulletin 111(4): 585-588.

Koronkiewicz, T., M.K. Sogge, and C.A. Drost. 1998. A preliminary survey for wintering willow flycatchers in Costa Rica. USFS Forest and Rangeland Ecosystem Science Center, Colorado Plateau Field Station, Northern Arizona University, Flagstaff. 47 pp.

McCabe, R. A. 1991. The little green bird: ecology of the willow flycatcher. Palmer publications, Inc., Amherst, Wisconsin. 171 pp.

Phillips, A. R. 1948. Geographic variation in ***Empidonax traillii***. Auk 65:507-514.

Unitt, P. 1987. ***Empidonax traillii extimus***: an endangered subspecies. Western Birds 18: 137-162.

Unitt, P. 1999. Winter Range and discriminant function analysis of the Willow Flycatcher. Final report submitted to the Bureau of Reclamation Phoenix Area Office (Federal Grant No. 98-FG-32-0200), Phoenix, AZ.

U.S.G.S. 2010. ***A natural history summary and survey protocol for the southwestern willow flycatcher***. U.S. Department of the Interior. U.S. Geological Survey. 38 pp.

_____. 2000. Southwestern Willow Flycatcher Protocol Revision 2000. 3 pp.

_____. 2002. Final Recovery Plan Southwestern Willow Flycatcher (***Empidonax traillii extimus***). 229 pp.

_____. 2010. Southwestern Willow Flycatcher Protocol Revision 2010.

APPENDIX A

AVIAN COMPENDIUM

The avian compendium lists bird species identified on the Site.

* = non-native species

ACCIPITERIDAE	**Hawks, Old World Vultures and Harriers**
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Circus cyaneus	northern harrier
AEGITHALIDAE	**Bushtit**
Psaltriparus minimus	bushtit
ALAUDIDAE	**Larks**
Eremophila alpestris	horned lark
ANATIDAE	**Ducks, Geese, and Swans**
Anas platyrhynchos	mallard
APODIDAE	**Swifts**
Aeronautes saxatalis	white-throated swift
ARDEIDAE	**Herons, Egrets and Bitterns**
Ardea alba	great egret
Bubulcus ibis	cattle egret
Butorides virescens	green heron
Egretta thula	snowy egret
Nycticorax nycticorax	black-crowned night heron
CARDINALIDAE	**Cardinals, Grosbeaks, and Buntings**
Pheucticus melanocephalus	black-headed grosbeak
CATHARTIDAE	**New World Vultures**
Cathartes aura	turkey vulture
CHARADRIIDAE	**Plovers**
Charadrius vociferus	killdeer
COLUMBIDAE	**Pigeons and Dove**
* ***Columbia livia***	rock dove
* ***Streptopelia decaocto***	Eurasian collared dove
Zenaida macroura	mourning dove

CORVIDAE	**Jays, Magpies and Crows**
Aphelocoma californica	California scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
EMBERIZIDAE	**Emberizines**
Melospiza lincolnii	Lincoln's sparrow
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Passerculus sandwichensis	savannah sparrow
Pipilo maculatus	spotted towhee
FRINGILLIDAE	**Finches**
Carduelis psaltria	lesser goldfinch
Carpodacus mexicanus	house finch
Spinus lawrencei	Lawrence's goldfinch
Spinus tristis	American goldfinch
HIRUNDINIDAE	**Swallows and Martins**
Hirundo rustica	barn swallow
Petrochelidon pyrrhonota	cliff swallow
Tachycineta bicolor	tree swallow
Tachycineta thalassina	violet-green swallow
ICTERIDAE	**Blackbirds**
Agelaius phoeniceus	red-winged blackbird
Icterus bullockii	Bullock's oriole
Icterus cucullatus	hooded oriole
Molothrus ater	brown-headed cowbird
Sturnella neglecta	western meadowlark
MIMIDAE	**Mockingbirds and Thrashers**
Mimus polyglottos	northern mockingbird
PARULIDAE	**Wood Warblers and Relatives**
Geothlypis trichas	common yellowthroat
Icteria virens	yellow-breasted chat
Setophaga petechial	yellow warbler
Vermivora celata	orange-crowned warbler
PICIDAE	**Woodpeckers**
Colaptes auratus	northern flicker
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker

RALLIDAE	**Rails**
Fulica americana	American coot
Porzana carolina	sora
Rallus limicola	Virginia rail
RECURVIROSTRIDAE	**Stilts and Avocets**
Himantopus mexicanus	black-necked stilt
STRIGIDAE	**True Owls**
Bubo virginianus	great-horned owl
STURNIDAE	**Starlings**
* ***Sturnus vulgaris***	European starling
TROCHILIDAE	**Hummingbirds**
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
TROGLODYTIDAE	**Wrens**
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
TURDIDAE	**Thrushes**
Sialia mexicana	western bluebird
TYRANNIDAE	**Tyrant Flycatchers**
Empidonax difficilis	western flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus vociferans	Cassin's kingbird
TYTONIDAE	**Barn Owls**
Tyto alba	barn owl
VIREONIDAE	**Vireos**
Vireo bellii pusillus	least Bell's vireo
Vireo huttoni	Hutton's vireo

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name MDP Line E Project State CA County Riverside
USGS Quad Name Lakeview & San Jacinto Elevation 454 (meters)
Creek, River, Wetland, or Lake Name Riparian Habitat adjacent to San Jacinto Reservoir
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? *Yes* X *No* ___

Survey Coordinates: Start: E 499488.83 N 3740054.06 UTM Datum 83 (See instructions)
Stop: E 500356.33 N 3740436.41 UTM Zone 11
If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.
*** Fill in additional site information on back of this page ****

Survey # / Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N / If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) J. Ahrens	Date 5/20/24 Start 0555 Stop 1100 Total hrs 5hr, 5m	—	—	—	—	—				
Survey # 2 Observer(s) J. Ahrens	Date 6/11/24 Start 0600 Stop 1030 Total hrs 4hr, 30m	—	—	—	—	—				
Survey # 3 Observer(s) J. Ahrens	Date 6/12/24 Start 0550 Stop 1045 Total hrs 4hr, 50m	—	—	—	—	—				
Survey # 4 Observer(s) J. Ahrens	Date 6/27/24 Start 0600 Stop 1030 Total hrs 4hr, 30m	—	—	—	—	—				
Survey # 5 Observer(s) J. Ahrens	Date 7/31/24 Start 0605 Stop 1030 Total hrs 4hr, 25m	—	—	—	—	—				

Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. 23hr, 20m Total Survey Hrs	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.
	—	—	—	—	

Reporting Individual Jeff Ahrens Date Report Completed Aug 17, 2024
US Fish and Wildlife Service Permit # 052159-6 State Wildlife Agency Permit # 19339 0007

***Submit** form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.*

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Jeff Ahrens Phone # (949) 322-9990
Affiliation Glenn Lukos Associates E-mail wildlife-biologist@yahoo.com
Site Name MDP Line E project Date Report Completed Aug 17, 2024

Did you verify that this site name is consistent with that used in previous years? Yes X No ____ Not Applicable ___
If site name is different, what name(s) was used in the past?____
If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes X No ___ If no, summarize below.

Management Authority for Survey Area : Federal___ Municipal/County X State ___ Tribal ___ Private X
Name of Management Entity or Owner (e.g., Tonto National Forest) Eastern Municipal water District, Golden ocean Reality LLC, California Equine Retirement Foundation, Inc.
Length of area surveyed: ~1,250 (meters)

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

X Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)

____ Mixed native and exotic plants (mostly native, 50 - 90% native)

____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.
Salix goddingii, Salix exigua, Populus fremontii

Average height of canopy (Do not include a range): 10.7 (meters)

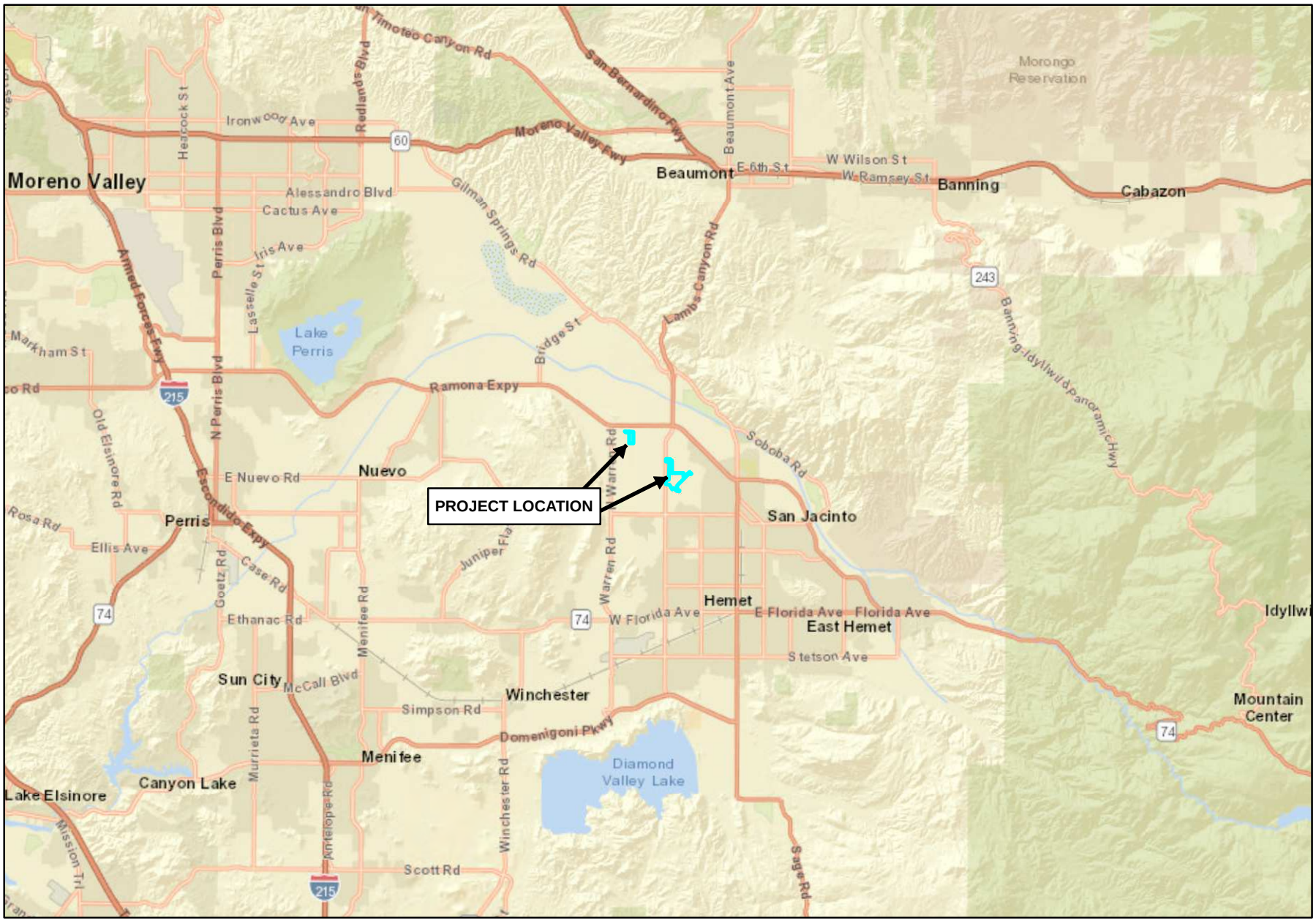
Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections.
Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL nests detected.
Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM N	UTM E	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary



Source: ESRI World Street Map

N

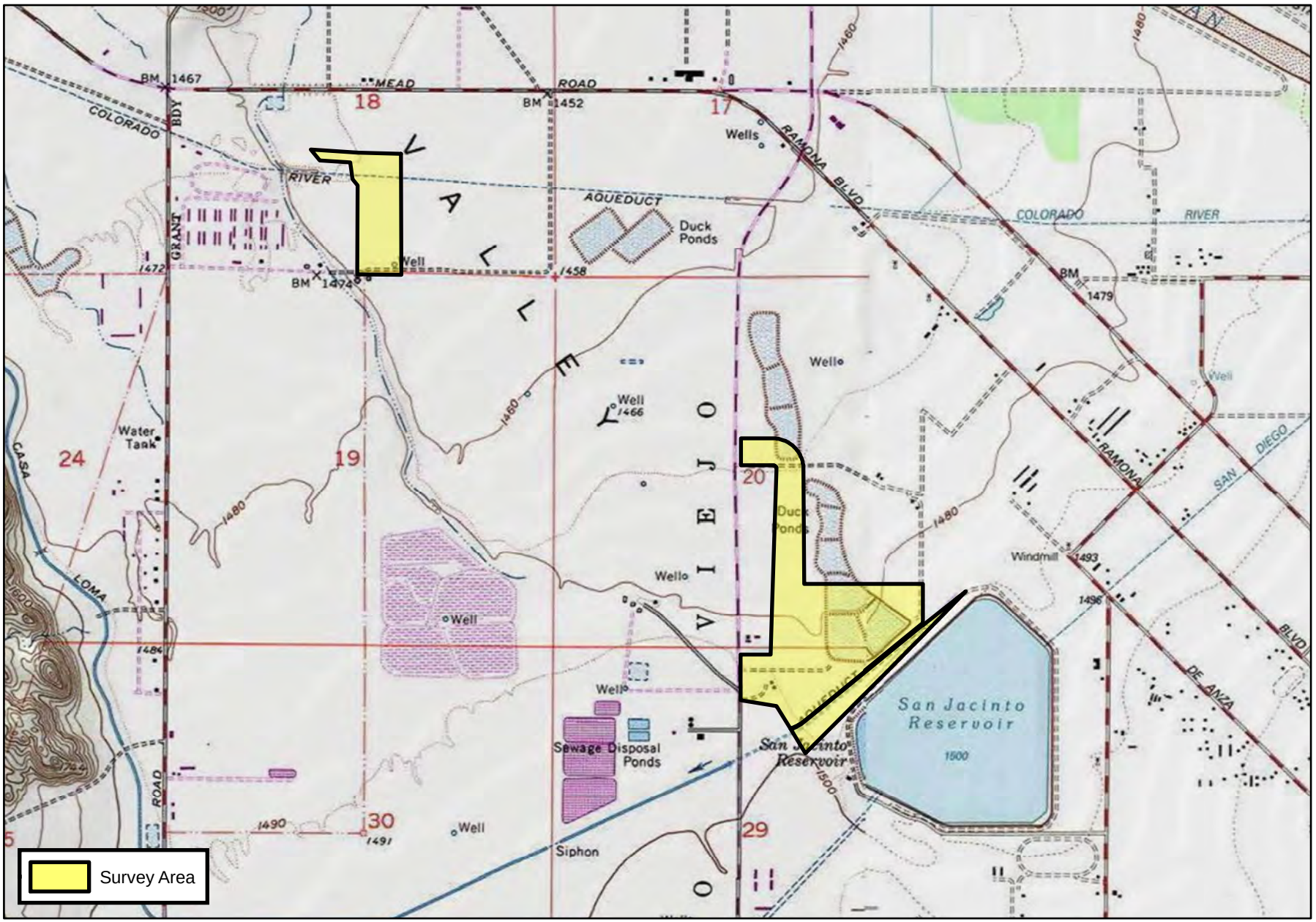
0 2 4 8 Miles

MDP LINE E PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Lakeview & San Jacinto, CA quadrangles

N

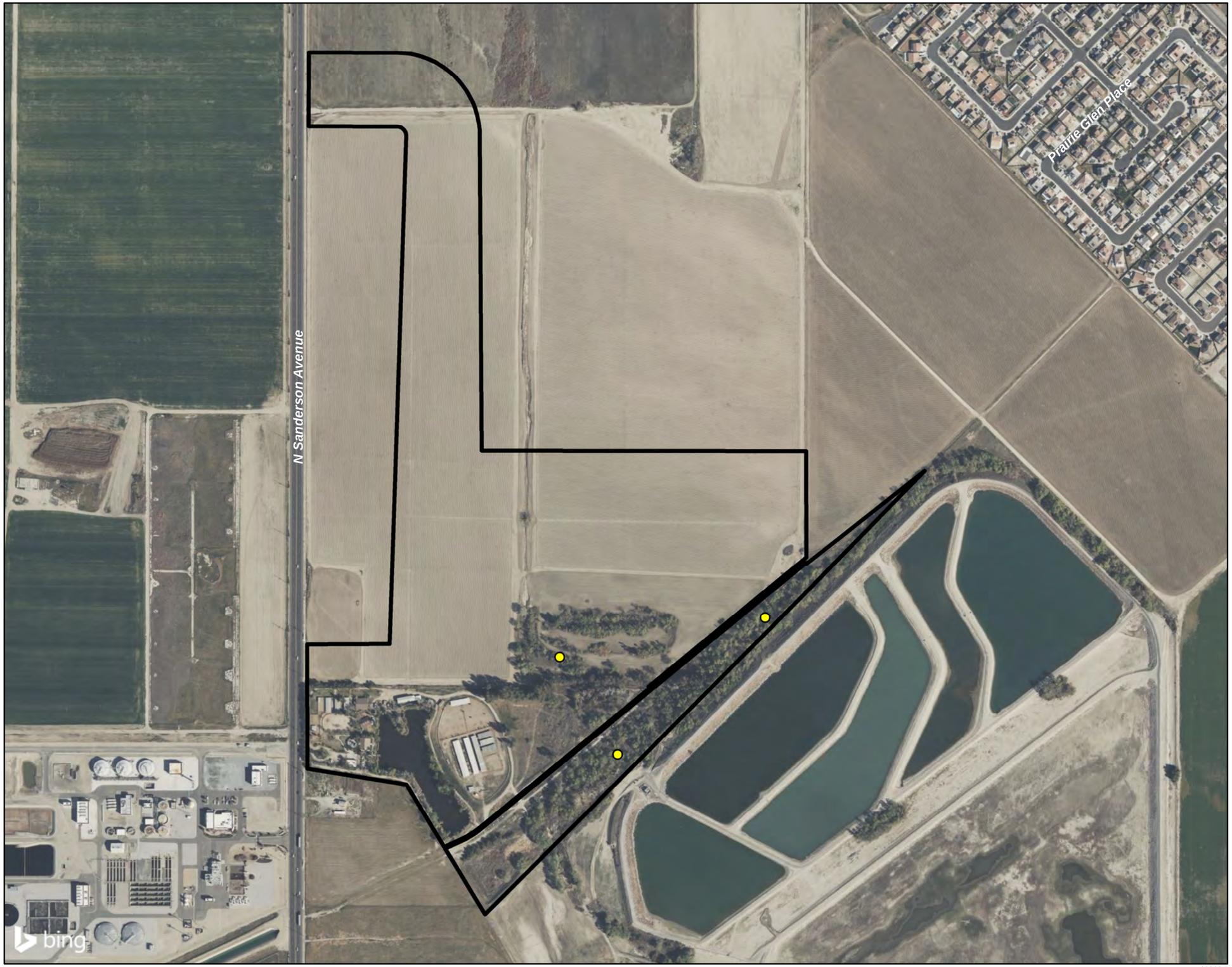
0 1,000 2,000 4,000 Feet

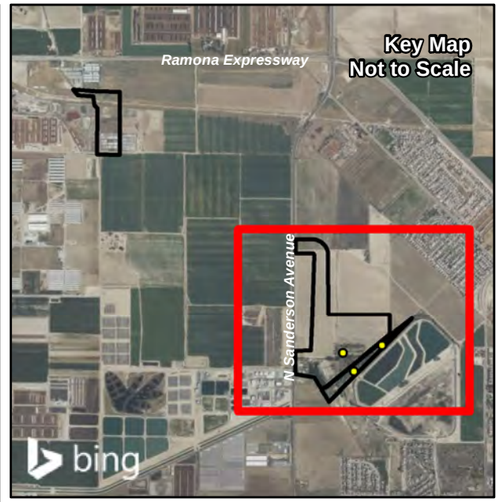
MDP LINE E PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2





Survey Area

LBV Territory

N

0 250 500 1,000

Feet

1 inch = 500 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 6, 2024

MDP LINE E PROJECT

SWFL Survey Area/LBV Location Map

GLENN LUKOS ASSOCIATES

Exhibit 3

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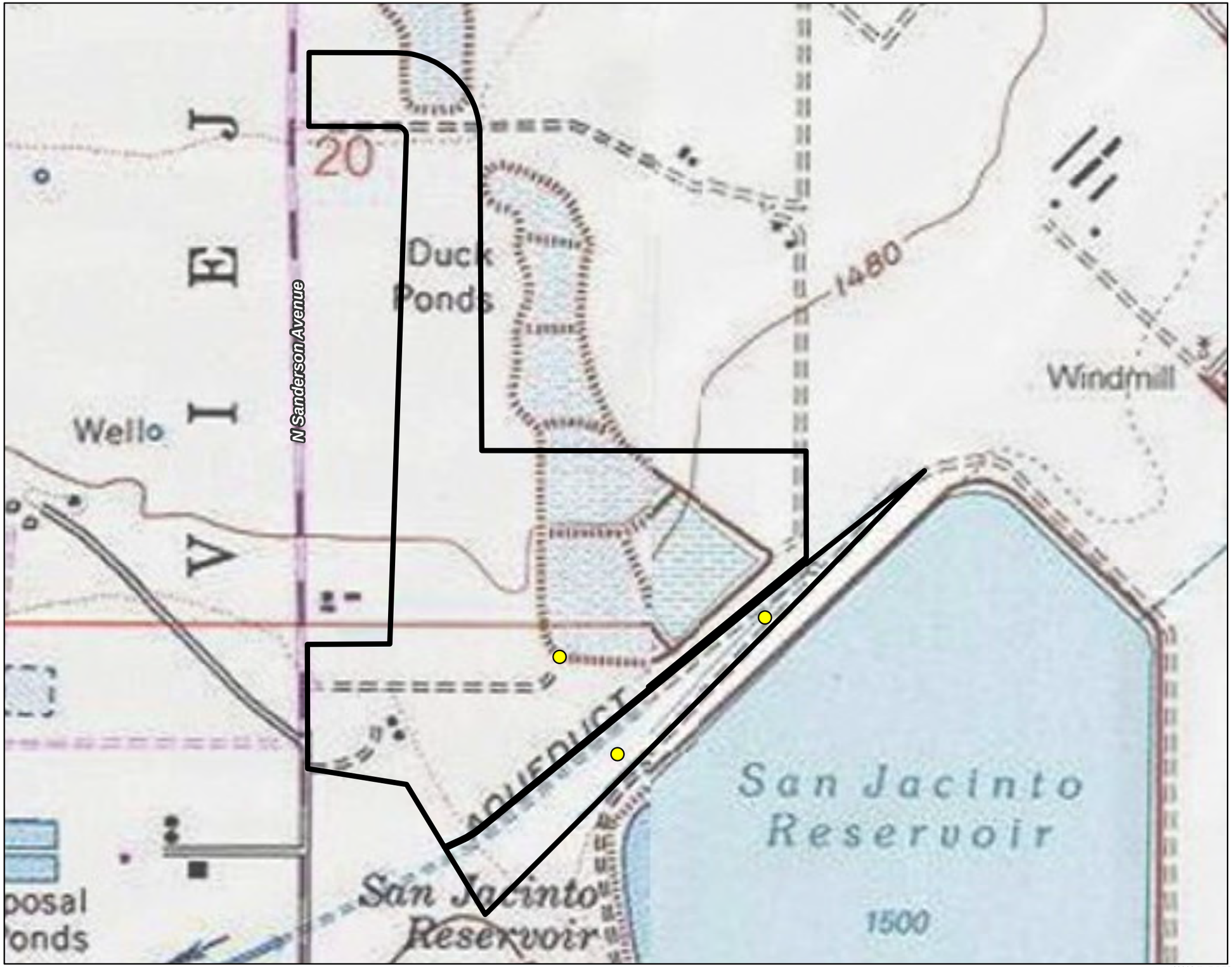

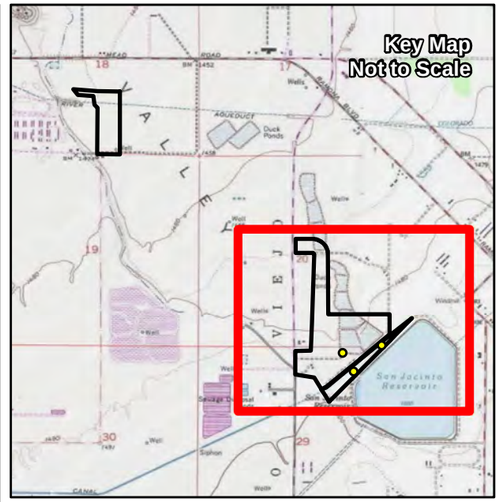

Survey Area

LBV Territory

N

0 250 500 1,000

Feet

1 inch = 500 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 6, 2024

MDP LINE E PROJECT

SWFL Survey Area/LBV Location Map w/ Topo

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\0363-THE REST\0640-86MDPE\GIS\BirdsGIS\0640-86_SWFLSurveyArea_LBVLocations_wTopo.mxd

Appendix D.2.1
DBESP Approval Email

From:	Machuca, Breanna@Wildlife
To:	White, Kevin; Stephanie Standerfer
Cc:	Carol Thompson; Britney Schultz; Leslie Levy; Harry Sandoval; Thiede, James H; Karin Cleary-Rose; Wildlife R6 MSHCP; Beck, Carly@Wildlife
Subject:	RE: Line E DEBSP
Date:	Monday, April 27, 2026 9:57:55 AM
Attachments:	image001.png

Good morning,

The U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife, hereafter referred to jointly as the Wildlife Agencies, have reviewed the revised Determination of Biologically Equivalent or Superior Preservation (DBESP) for the San Jacinto Valley Master Drainage Plan Line E Project (Project), which we received from the City of San Jacinto on February 23, 2026 with our review and comment period ending on 4/24/2026.

The Wildlife Agencies appreciate the efforts in addressing our comments and providing a comparison of functions and values presented in the revised DBESP. We have reviewed the revised DBESP (dated January 2026), and we agree that the Project's assessment of the onsite impacts (4.03 acre of permanent impacts associated with Ditches A, B, D, E, F, and Drainage A area) to riparian/riverine resources and the associated mitigation strategy would be biologically equivalent or superior to a complete preservation alternative.

Please condition the Project to provide a Habitat and Mitigation and Monitoring Plan (HMMP) to the Wildlife Agencies for review and approval for the restoration of 8.06 acres riparian/riverine mitigation area at least 60 days prior to the initiation of project activities.

We have no further comments to submit to the City of San Jacinto on the DBESP. This concludes our review of the revised DBESP for the San Jacinto Valley Master Drainage Plan Line E Project.

Sincerely,

Breanna Machuca
Senior Environmental Scientist (Specialist)
Inland Deserts Region (6)
3602 Inland Empire, Suite C-220
Ontario, CA 91714

and

James Thiede
Senior Biologist
United States Fish & Wildlife Service
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, CA 92262

From: White, Kevin <kwhite@sanjacintoca.gov>
Sent: Monday, February 23, 2026 5:41 PM
To: Thiede, James H <james_thiede@fws.gov>; Cleary-Rose, Karin <Karin_Cleary-Rose@fws.gov>; Machuca, Breanna@Wildlife <Breanna.Machuca@Wildlife.ca.gov>; Fulgencio, Enola@Wildlife <Enola.Fulgencio@Wildlife.ca.gov>
Cc: Carol Thompson <cthompson@rctc.org>; Britney Schultz <bschultz@dudek.com>; Leslie Levy <llevy@rctc.org>; Stephanie Standerfer <stephanie.standerfer@webbassociates.com>
Subject: Line E DEBSP

WARNING: This message is from an external source. Verify the sender and exercise caution when clicking links or opening attachments.

Good Evening: Below is a link to the revised DBESP for the Line E project, which was prepared in response to the attached comment letter. The Line E project is a separate project from the San Jacinto Commerce Center Specific Plan, and the city requests a standalone DBESP review on the Line E DBESP.

Line E DBESP_Updated_01.20.2026.pdf

Please let me know if there is an issue with accessing the documents or if you have any questions or concerns.

Thanks

Kevin White
Planning Manager
City of San Jacinto
595 S. San Jacinto Avenue
San Jacinto, CA 92583

P: 951.487-7330 EXT 306
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City of San Jacinto Office Hours:
Monday – Thursday, 8 am – 5 pm
*Closed all Fridays and Holidays

GLENN LUKOS ASSOCIATES
Regulatory Services

August 14, 2025

Stephanie Standerfer
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

SUBJECT: Results of Focused Surveys for Crotch's Bumble Bee Conducted for the MDP Line E Project, an Approximately 14,000 Linear-Foot Alignment in the City of San Jacinto, Riverside County, California

Dear Ms. Standerfer:

This letter report documents the results of focused Crotch's bumble bee (*Bombus crotchii*; CBB) surveys conducted by Glenn Lukos Associates (GLA) for the MDP Line E Project. The CBB surveys were conducted in accordance with CDFW's 2023 *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. The CBB was not detected onsite.

1.0 SITE LOCATION

The MDP Line E Project (Project site) is located in the City of San Jacinto, Riverside County, California [Exhibit 1 – Regional Map] within unsectioned portions of Township 4 South, and Range 1 West of the Lakeview and San Jacinto, California USGS 7.5-minute quadrangle maps [Exhibit 2 – Vicinity Map]. The Project site is generally bounded by the San Jacinto Reservoir to the south, North Sanderson Avenue to the east and west, and Ramona Expressway to the north. Exhibit 3 identifies the Project site. Specifically, the Universal Transverse Mercator (UTM) coordinates corresponding to the site are 499923.20 mE and 3740091.36 mN.

2.0 EXISTING CONDITIONS

The Project site is flat and predominantly supports active agricultural fields that are rotated regulary, and therefore the lands are dominated by plants associated with crop areas as well as

non-native vegetation associated with disturbed/ruderal areas. At the time of the survey some fields were fallow and some fields were planted with watermelon (*Citrullus lanatus*).

The 120.33-acre Project site consists of 94.41 acres of agricultural fields, 11.92 acres of annual brome grasslands, 10.43 acres of disturbed and developed areas, 0.03 acre of eucalyptus groves, and 3.54 acres of perennial pepperweed-prickly lettuce patches. Exhibit 3 provides an aerial image of the site, including the property boundary, which represents the CBB Survey Area. Site photographs depicting the Project site are included in Exhibit 4.

3.0 METHODOLOGY

GLA biologists Jeff Ahrens, Stephanie Cashin and Ian Rhodes performed focused foraging surveys for the CBB in suitable habitat areas of the Project during the 2025 survey period. All three biologists are familiar with bumble bee natural history, bumble bee species identification and have detected the CBB on numerous sites throughout southern California. In addition, Ms. Cashin (S-202690004-20273-001) holds a Scientific Collecting Permit (SCP) and a Section 2081(a) permit authorizing capture and release of CESA Candidate and/or TVPICP List bumble bees, including CBB.

Surveys generally followed the methods described by CDFW (2023) in *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*, which is not a mandated survey protocol, but instead "is intended to assist CDFW staff, project proponents, and consultants in developing, proposing, and evaluating survey protocols and surveys on a project- and site-specific basis." The *Survey Considerations* provides an overview of and incorporates the methodology of established protocols (e.g. the USFWS rusty patched bumble bee protocol [USFWS 2019]), while allowing for modifications to the number and type of surveys based on factors including the size of a Project site, the vegetation alliances and the phenology of the floral resources present within those alliances, and the patchiness of suitable habitat. The *Survey Considerations* state that survey efforts should include multiple survey visits, with the timing of the visits determined on a project-by-project basis based on seasonality and when CBB utilization will most likely occur. The timing of the surveys may vary depending on the location, elevation, seasonal rainfall, average ambient air temperatures, and local seasonal weather conditions.

To increase probability of detecting foraging bumble bees, survey efforts at the Project site were conducted during peak bloom periods that encompass the queen flight season (February through March) as well as the Colony Active Period (April through August) when the queen, daughters, and males are generally active. Surveys were spaced at least two to four weeks apart throughout

the queen flight season and Colony Active Period to take advantage of the different blooming periods of floral resources.

The Project site supports both annual and perennial floral resources with the potential for utilization by CBB. The annual floral resources onsite (that CBB are known to use) consisted of common fiddleneck (*Amsinckia intermedia)*, which was located primarily east of North Sanderson Avenue and along the edges of agricultural areas within the western portion of the site. Other annual species including smooth tarplant (*Centromedia pungens* ssp.), which have not been documented to be utilized by CBB were also surveyed. Perennial floral resources onsite with potential to be utilized by CBB was limited to alfalfa (*Medicago sativa*). Alfalfa is generally considered to be a perennial plant as it can live for more than two years, but at the Project site, alfalfa is generally grown as a short-season annual row crop that is rotated. Alfalfa within the Project site occurred west of North Sanderson Avenue. In addition to alfalfa, a small patch of branching phacelia (*Phacelia ramosissima*) was detected immediately offsite along the southeasternmost portion of the Project site within riparian habitat and was visually monitored when it was flowering as CBB is known to forage on it. GLA biologists surveyed the Project site in March, April, May, and June to capture the peak blooming periods of both annual and perennial floral resources.

Because of the patchy distribution of floral resources at the Project site, the location of which exhibited spatial and temporal variation depending on the particular species in bloom at any given time, each survey visit consisted of large meandering transects incorporating patches of floral resources across the landscape. During these transects, the surveyor spent approximately one person-hour of visual survey effort per three acres of suitable blooming habitat, which comprised multiple separate patches of suitable habitat totaling up to three acres rather than a single three-acre patch. In addition to floral resources, rodent burrows and other suitable features with potential to be used for nesting were examined for evidence of nesting activity including high levels of bee movements from the suspected nest location. The survey continued at a pace of approximately three acres of suitable habitat/blooming floral resources per survey hour as long as weather conditions were favorable for *Bombus* activity. Minimal time was spent in lesser quality habitat. All *Bombus* observations and floral resources used were recorded using GPS.

Photo vouchers of *Bombus* species were obtained by photographing bumble bees in situ from multiple angles with a professional level telephoto zoom lens and a camera body with a sensor capable of producing highly detailed images to ensure sufficient detail of identifying characteristics. Pursuant to the survey guidelines, the surveys were conducted between an hour after sunrise up until two hours before sunset, during times when weather conditions during the surveys are conducive to a high level of bee activity with temperatures generally 52-90 degrees Fahrenheit and wind less than seven miles per hour. Table 1 summarizes the CBB survey visits. The results of the CBB surveys are documented in Section 3.0 of this report.

Table 1. Summary of Survey Dates and Weather

Survey Date	Biologist(s)	Start/End Time	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Cloud Cover (%)
03/28/25	JA/IR	0830/1300	52/62	4-7/3-6	100/100
04/18/25	SC/IR	0730/1230	52/55	2/4	100/100
05/07/25	JA	0900/1300	62/73	2-5/2-3	100/50
06/03/25	JA	1000/1600	70/78	2-4/2-5	0/80
06/12/25	JA/SC	1330/1800	90/74	5-7/5-7	0/0
06/25/25	JA/SC	1245/1750	85/84	3-7/4-6	0/0
JA = Jeff Ahrens, SC = Stephanie Cashin, IR = Ian Rhodes					

3.0 RESULTS

No bumble bee species, including the CBB were detected at the Project site. One bumble bee species, the California bumble bee (*Bombus fervidus californicus*) was observed during the June 12, 2025 survey using the branching phacelia offsite. Table 2 summarizes the survey results during all six focused surveys. General site photographs of the Project site are included in Exhibit 4.

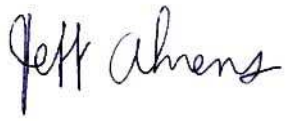
Table 2. Summary of Survey Results for Crotch's Bumble Bee Surveys

Survey Date	Biologist	*Bombus* or Other Species Observed	Floral Resources Associated with *Bombus* Observations
03/28/25	JA/IR	None observed	—
04/18/25	SC/IR	None observed	—
05/07/25	JA	None observed	—
06/03/25	JA	None observed	—
06/12/25	JA/SC	None observed	—
06/25/25	JA/SC	None observed	—

If you have any questions, please call me at (949) 340-2521.

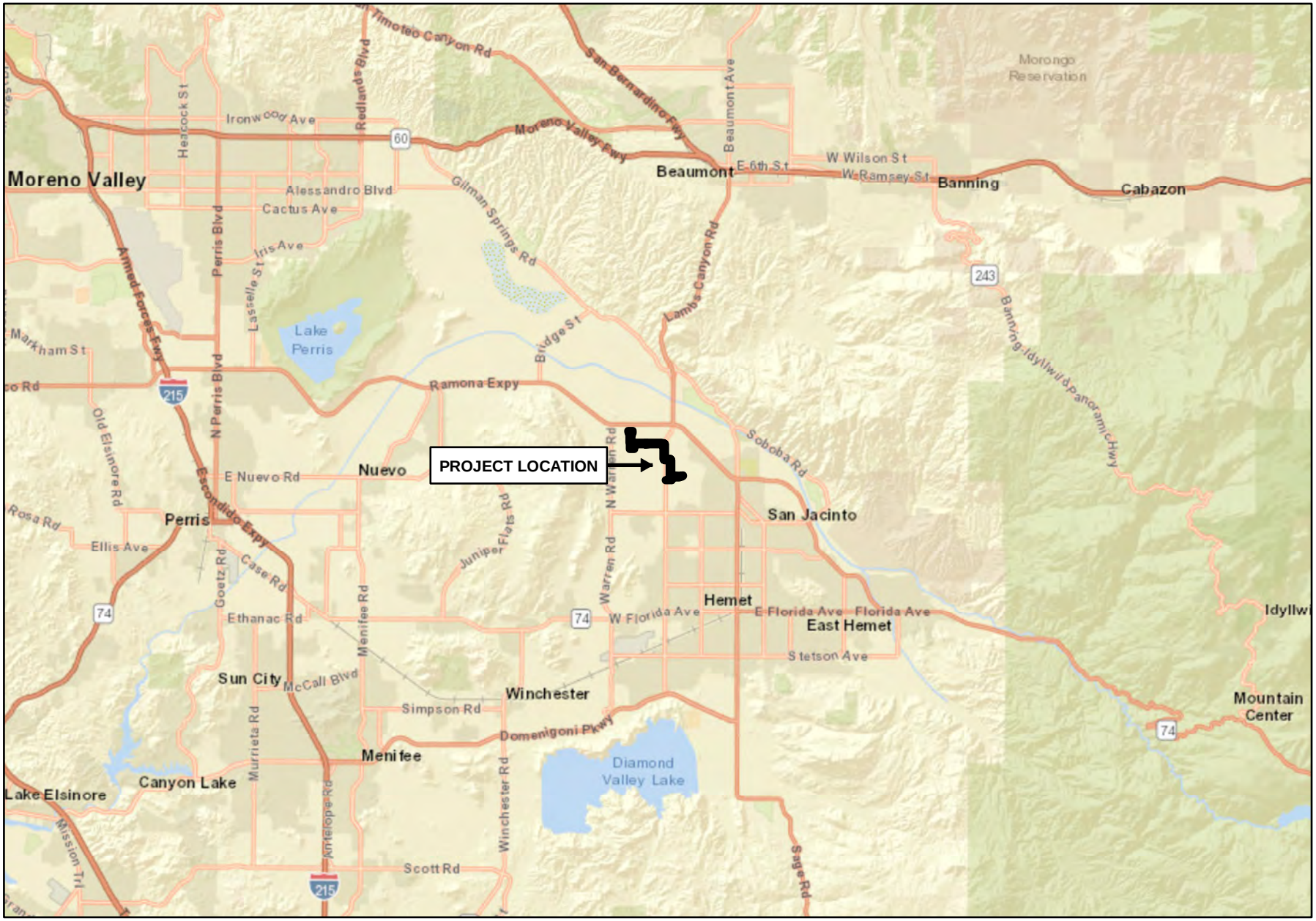
Sincerely,

GLENN LUKOS ASSOCIATES, INC.



Jeff Ahrens
Senior Biologist

p:0640-86a.CBB survey results (2025)



Source: ESRI World Street Map

N

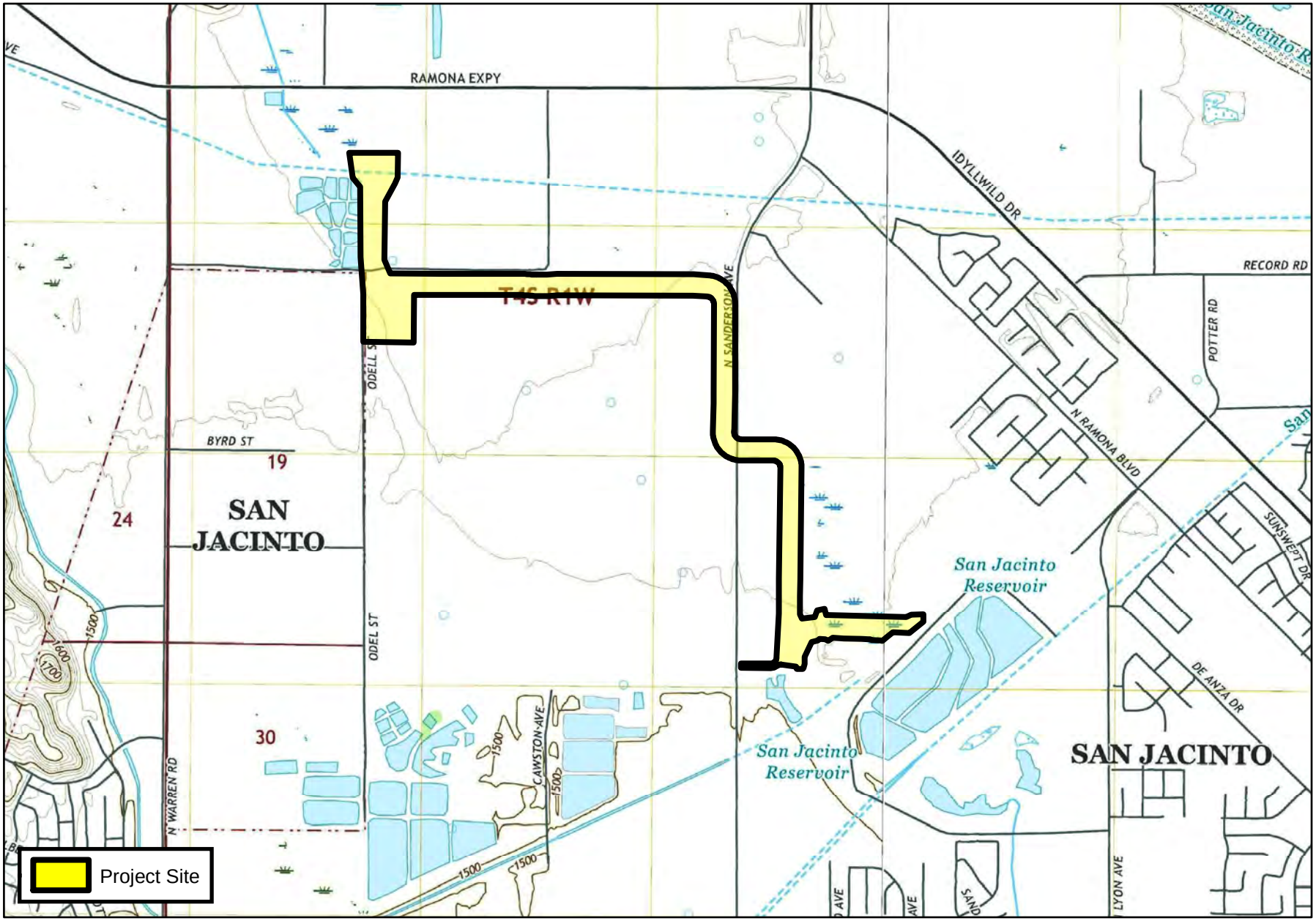
0 2 4 8 Miles

MDP LINE E PROJECT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Lakeview & San Jacinto, CA quadrangles

N

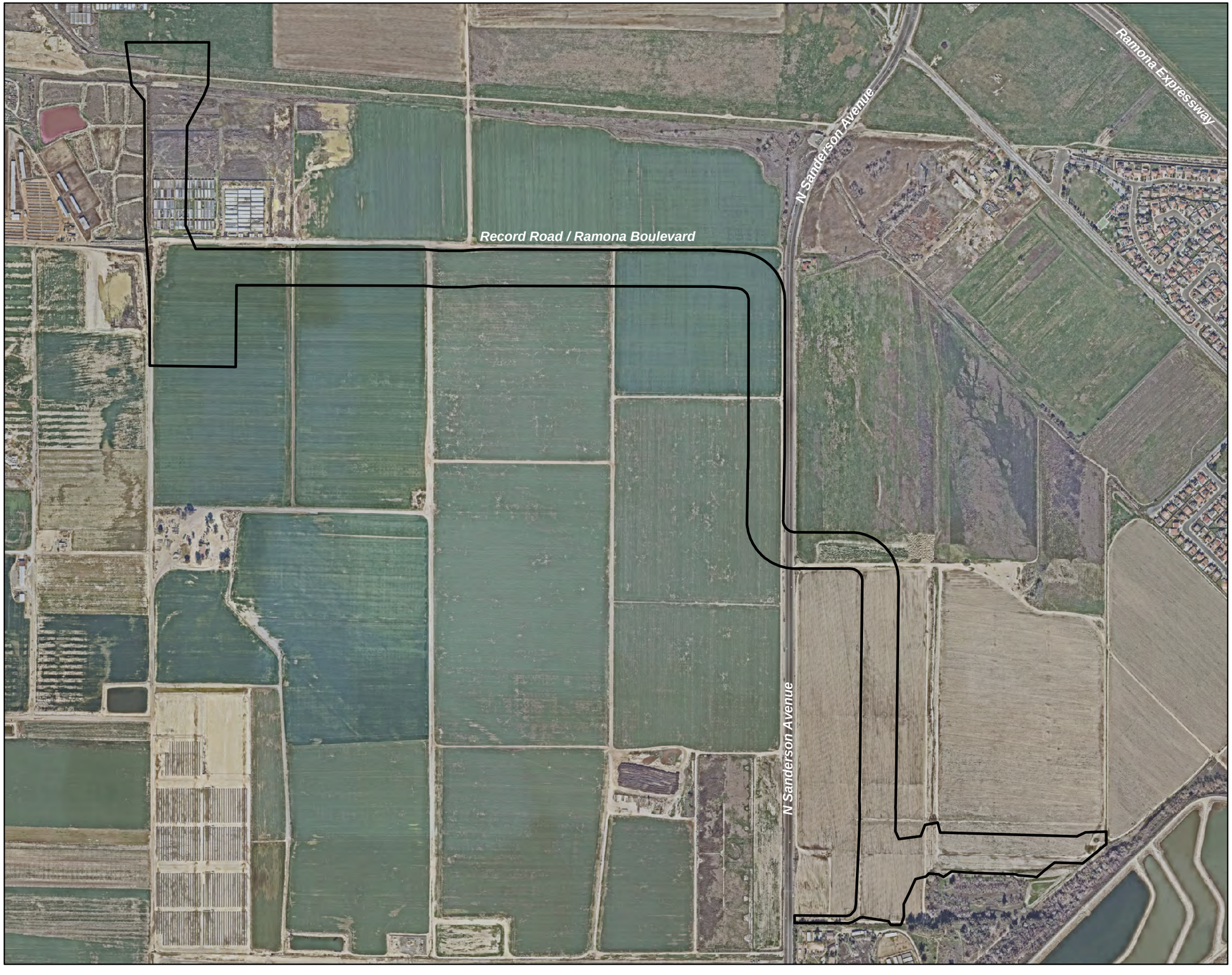
0 1,000 2,000 4,000 Feet

MDP LINE E PROJECT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project Site

N

0 400 800 1,600

Feet

1 inch = 800 feet

Aerial Source: Nearmap (January 2024)
Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: August 7, 2025

MDP LINE E PROJECT

Aerial Map

GLENN LUKOS ASSOCIATES

Exhibit 3

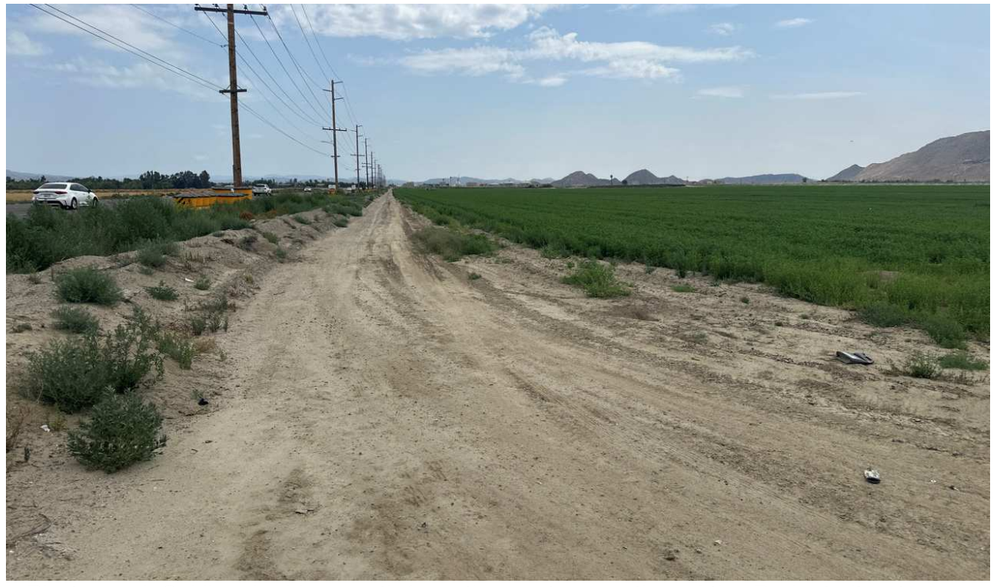
X:\0363-THE REST\0640-86MDPE\GIS\0640-86+84_Aerial.mxd



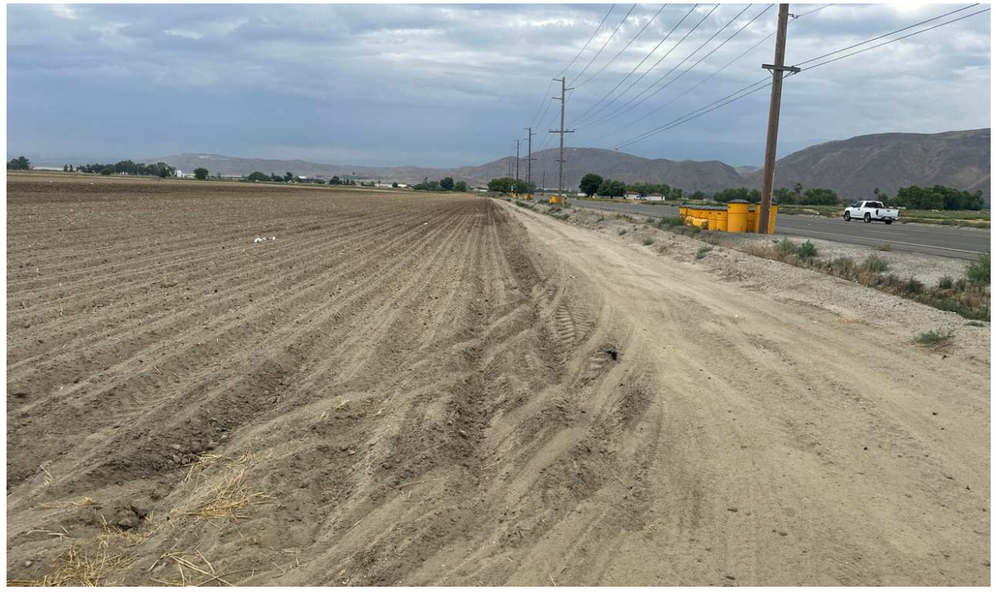
Photograph 1: View looking west from the southeasternmost portion of the Project site at an active watermelon field.



Photograph 2: View looking northwest towards north Sanderson Avenue at a fallow agricultural field.

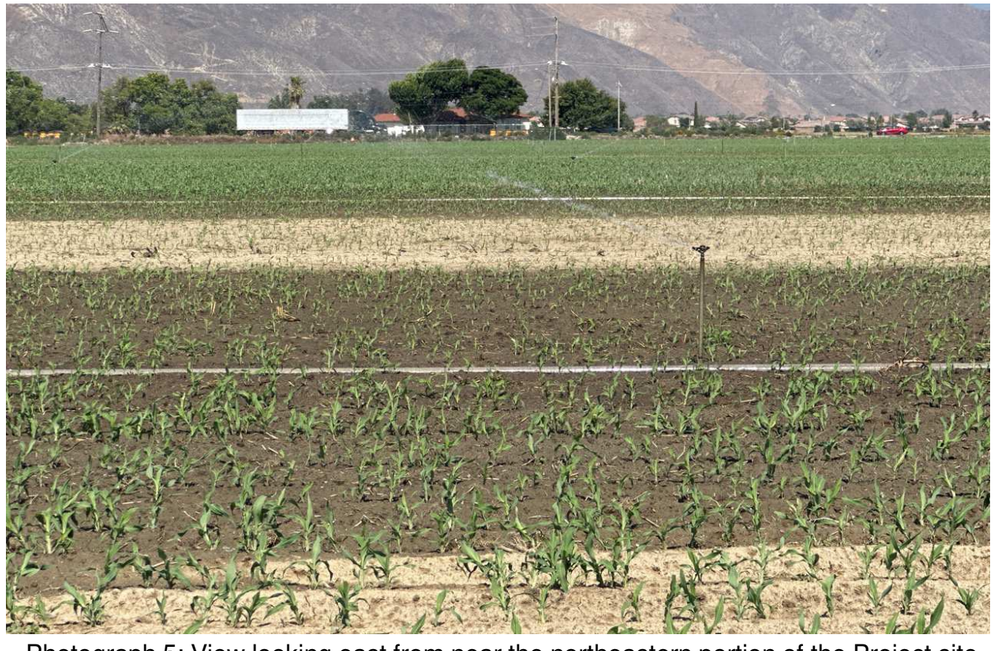


Photograph 3: View looking south from the eastern portion of the Project site at an active alfalfa field (right) and Sanderson Avenue (left).



Photograph 4: View looking north from the eastern portion of the Project site. Sanderson Avenue can be seen on the right.

MDP LINE E PROJECT
Site Photographs



Photograph 5: View looking east from near the northeastern portion of the Project site at an active maize field.



Photograph 6: View looking southeast near the northcentral portion of the Project site at a recently harvested alfalfa field.



Photograph 7: View looking west from an unnamed agricultural access road at an active maize field.



Photograph 8: View looking south from the western terminus of Record Road at an active maize field.

MDP LINE E PROJECT
Site Photographs



Photograph 9: View looking east at a maize field along Record Road.



Photograph 10: View looking north at a former green house facility.



Photograph 11: View looking south from an unnamed dirt access road near the northernmost portion of the Project site.



Photograph 12: View looking north from near the northernmost portion of the Project site towards Ramona Expressway from an unnamed dirt access road.

MDP LINE E PROJECT
Site Photographs

Cultural Resource Study for the San Jacinto Master Drainage Plan Line E City of San Jacinto, Riverside County, California

Jessica Cochrane

DRAFT

Prepared By

Applied EarthWorks, Inc.
3550 E. Florida Avenue, Suite H
Hemet, CA 92544-4937

Prepared For
Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506

January 2024
draft

USGS Lakeview and San Jacinto 7.5′ topographic quadrangles,
Sects. 18, 19, 20, 29 T4S R1W and the San Jacinto Viejo land grant, SBBM
Level of Investigation: CEQA Phase I
Keywords: City of San Jacinto; ~1,920 acres surveyed

MANAGEMENT SUMMARY

The City of San Jacinto (City) proposes the construction of a three-mile-long corridor for the San Jacinto Master Drainage Plan Line E Project (Project). The Project involves development within Assessor's Parcel Numbers 430-100-009, -012, -015, and -018; 430-130-043, -044, -073, -075, and -079; 436-010-002, -003, and -004; 436-030-001; and 436-170-001, -008, and -016 (approximately 1,920 acres), south of Ramona Expressway and east of Sanderson Avenue, in the city of San Jacinto, Riverside County, California. Under contract to the Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) conducted a cultural resource study of the Project in accordance with the California Environmental Quality Act (CEQA). The City is the lead agency for compliance with CEQA.

This report summarizes the methods and results of the cultural resource study, including a records search and literature review, communication with Native American Tribal representatives, and an archaeological survey of the Project area. The purpose of the study was to determine the potential for the proposed Project to impact historical resources eligible for or listed in the California Register of Historical Resources (CRHR).

The literature and records search at the Eastern Information Center of the California Historical Resources Information System indicated eight cultural resources have been documented within a 0.5-mile radius of the Project area. One of these previously identified cultural resources, a segment of the Colorado River Aqueduct, is located within the Project area.

Results of the Native American Heritage Commission (NAHC) Sacred Lands File search were negative for Native American cultural resources within the Project area. Per the NAHC's request, Æ contacted 15 Native American individuals and organizations to elicit information on Native American resources within the Project area and received responses from representatives of seven tribes—Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians.

Æ archaeologist Andrew DeLeon completed an intensive pedestrian archaeological survey of the Project area on November 29, 2023. DeLeon revisited the location of the single subterranean cultural resource mapped within the Project area during the survey. No other cultural resources were identified within the Project area.

Although the Project area is disturbed and soil sensitivity appears low, the cultural resources identified adjacent to the Project area suggest some potential for subsurface archaeological deposits. In addition, it is Æ's experience in this region that buried deposits can be found near the San Jacinto River. Therefore, Æ recommends archaeological monitoring during surface grubbing or clearing and initial grading within the Project area.

Field notes documenting the current study are on file at Æ's Hemet office. A copy of this report will also be submitted to the Eastern Information Center.

DRAFT

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A Native American Communication

DRAFT

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1
INTRODUCTION

The City of San Jacinto proposes the design and construction of a three-mile-long corridor for the San Jacinto Master Drainage Plan Line E Project (Project). The Project involves development within Assessor's Parcel Numbers 430-100-009, -012, -015, and -018; 430-130-043, -044, -073, -075, and -079; 436-010-002, -003, and -004; 436-030-001; and 436-170-001, -008, and -016 (approximately 1,920 acres), south of Ramona Expressway and east of Sanderson Avenue, in the city of San Jacinto, Riverside County, California. Under contract to the Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) conducted a cultural resource study of the Project in accordance with the California Environmental Quality Act (CEQA). The City is the lead agency for compliance with CEQA.

Æ Principal Investigator M. Colleen Hamilton (M.A., Registered Professional Archaeologist [RPA] 12588) was responsible for overall quality control for the Project. Æ Senior Archaeologist Joan George (B.S., Registered Archaeologist 28093) served as project manager. The report was compiled and written by Jessica Cochran (B.A.). Fieldwork was conducted by Æ Associate Archaeologist Andrew DeLeon (M.A., RPA 17087).

1.1 PROJECT LOCATION AND DESCRIPTION

The Project is within the western portion of the city of San Jacinto in Riverside County (Figure 1-1). Specifically, the Project is mapped within Sections 19, 20, and 29, Township 4 South, Range 1 West of the San Bernardino Baseline and Meridian, and the San Jacinto Viejo land grant as shown on the U.S. Geological Survey (USGS) Lakeview and San Jacinto, California 7.5-minute topographic quadrangle maps (Figure 1-2). The elevation is approximately 1,467 feet above mean sea level.

The Project involves the design and construction of Line E as part of the San Jacinto Valley Master Drainage Plan (MDP), which aims to provide flood protection to the San Jacinto Commerce Center Specific Plan. The Project consists of a three-mile storm-drain channel that starts at the outlet channel of a joint flood control and confluence basin and ends at the existing Metropolitan Water District of Southern California (MWD) aqueduct right-of-way. A three-mile earthen channel with inclined side slopes at 4:1 and 20-foot-wide access roads on both sides will be constructed for stormwater to flow from south to north. Seven reinforced concrete box culverts, one of which will intersect Sanderson Avenue, will be installed. Berms will replace channelization at the southern end, while a concrete trapezoidal channel with inclined side slopes at 1.5:1 and up to 10 feet high will be built at the northern end. A bridge-type structure will be used to cross an existing MWD buried pipeline, Casa Loma Siphon No.1, to prevent adding loads to the existing pipeline. The maximum depth of ground disturbance during Project construction is not expected to exceed 20 feet.

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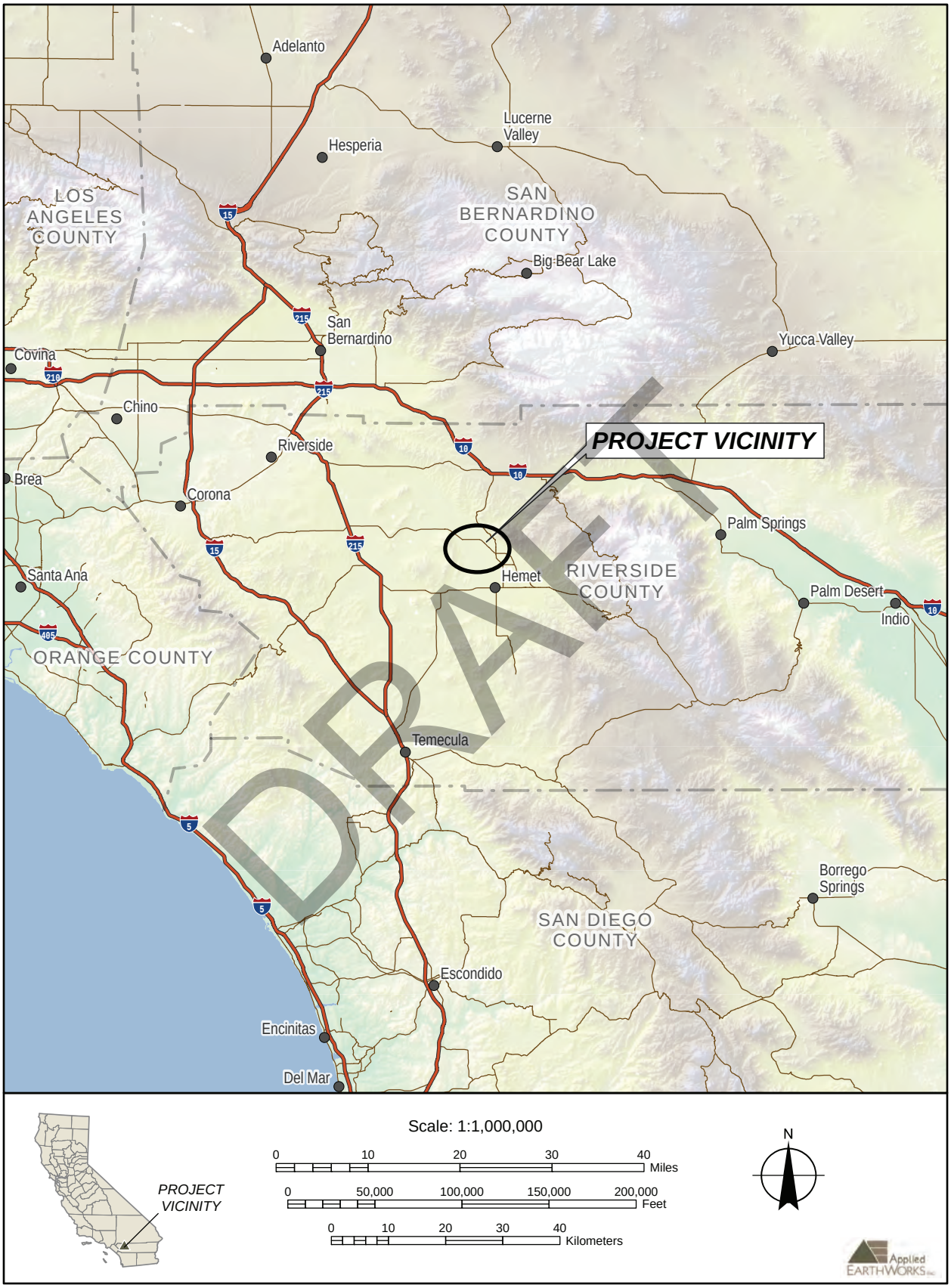

Figure 1-1 Project vicinity in Riverside County, California.

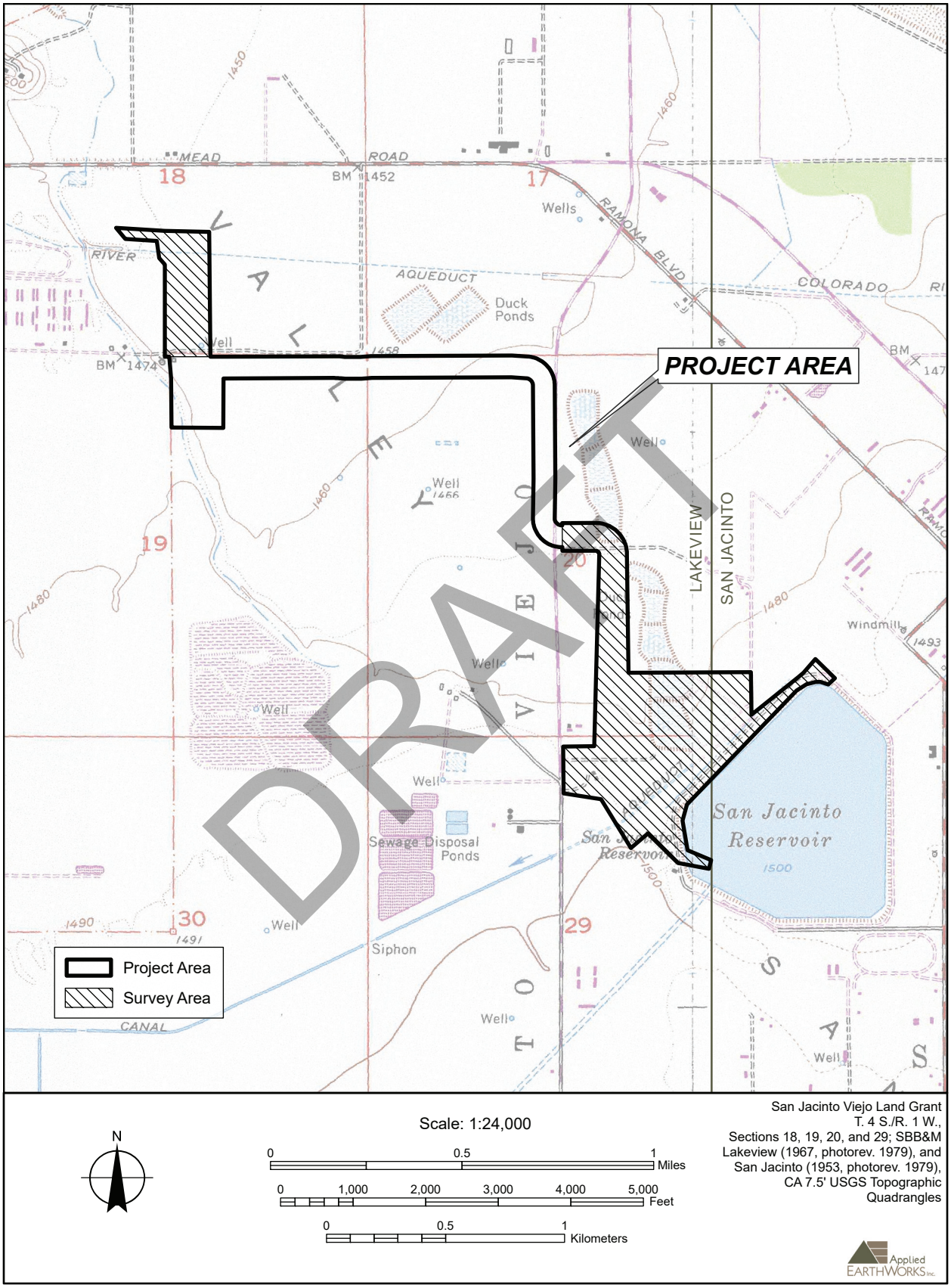

Figure 1-2 Project location on USGS Lakeview and San Jacinto 7.5-minute topographic quadrangles.

1.2 REGULATORY CONTEXT

1.2.1 California Environmental Quality Act

The Project requires discretionary approval from the City and is therefore subject to the requirements of CEQA. The CEQA Statute and Guidelines directs lead agencies to determine whether a project will have a significant impact on historical resources. A cultural resource considered "historically significant" is considered a "historical resource," if it is over 50 years of age, is included in a local register of historical resources, or is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR) under any one of the following criteria (California Code of Regulations [CCR], Title 14, Section 15064.5):

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Compliance with CEQA's cultural resource provisions typically involves several steps. Briefly, archival research and field surveys are needed, and identified cultural resources are inventoried and evaluated in prescribed ways. Prehistoric and historic archaeological sites as well as standing structures, buildings, and objects deemed historically significant and sufficiently intact (i.e., historical resources) must be considered in project planning and development.

A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment (14 CCR 15064.5[b]) and the lead agency is responsible for identifying potentially feasible measures to mitigate significant adverse changes in the significance of a historical resource (14 CCR 15064.5[b]4).

1.3 REPORT ORGANIZATION

This report documents the results of a cultural resource study of the proposed Project area. Chapter 1 describes the Project and its location, defines the scope of the cultural resource study, and states the regulatory context. Chapter 2 summarizes the natural and cultural setting of the Project area and surrounding region. Chapter 3 presents the results of the archaeological literature and records search. Chapter 4 summarizes the Sacred Lands File search with the Native American Heritage Commission (NAHC) and Native American communications. The field survey methods and results are discussed in Chapter 5. Cultural resource management recommendations are provided in Chapter 6, and bibliographic references are cited in Chapter 7. Results of the Sacred Lands File search and correspondence with Native American groups are included as Appendix A.

DRAFT

2
SETTING

This chapter describes the prehistoric, ethnographic, and historic cultural setting of the Project area to provide a context for understanding the nature and significance of cultural resources identified within the region. Prehistorically, ethnographically, and historically, the nature and distribution of human activities in the region have been affected by such factors as topography and the availability of water and natural resources. Therefore, prior to a discussion of the cultural setting, the environmental setting of the area is summarized below.

2.1 ENVIRONMENTAL SETTING

The Project is in western Riverside County within the greater San Jacinto Valley. This area is in the Southern California batholith, a massive geological intrusion of granite that is part of the Peninsular Range formed in the late Cretaceous and uplifted in the early Tertiary. This mountain range extends from the San Gabriel Mountains to southern Baja Mexico. The physiography of the province is characterized by three northwest-trending mountainous regions composed of stable crustal blocks, separated by active fault zones, including (from east to west) the San Jacinto Mountains, the Perris Block, and the Santa Ana Mountains (Morton et al. 2006). The San Jacinto and Elsinore fault zones separate the three regions. The Project area is within the Perris Block, which consists of bedrock highlands and isolated hills separated by alluvium-filled valleys.

The primary drainage in the San Jacinto Valley is the San Jacinto River, the headwaters of which are in the San Jacinto Mountains; a portion of this river flows through the Project area and in the past, would have meandered across or near the Project area. The river flows northwesterly through the San Jacinto Valley and then west and southwest until it empties into Lake Elsinore, a sink in the Elsinore fault zone. Levees built between 1919 and 1939 altered the course of the river, shifting it as much as a mile south of its historic course. Prior to historic hydrological modifications, the San Jacinto River flowed perennially only in the eastern portion of the valley; during the wet season, however, the river flowed farther than today, collecting in the northern part of the valley (about 5 miles northwest of the Project) in an elongate depression forming a shallow, ephemeral lake now known as Mystic Lake (Morton 1977; Whitney 1982). Overflow from the lake drained to the southwest, eventually reaching Lake Elsinore. Because the lake existed before 1895, which predates groundwater withdrawal in the valley, Morton (1977) inferred that the depression is of tectonic origin.

Soils in the Project area, as mapped by the U.S. Department of Agriculture Natural Resources Conservation Service, include four soil series. The Chino and Grangeville soils are Mollisols, Dello soils are Entisols, and Traver soils are Alfisols. Mollisols are a taxonomic order of soils that consist mostly of minerals with a fertile surface horizon found extensively in the North American plains. Entisols are a taxonomic order of soils that consist mostly of minerals and are not in place long enough to form diagnostic horizons. Alfisols are soils that typically retain water

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well for 3 months of the year during warm seasons, which fosters sufficient plant growth (Soil Survey Staff 1999b).

Chino soils are poorly drained silt loams and silty clay loams that formed in alluvium derived from granitic rocks (Soil Survey Staff 2020). Dello soils are very deep and poorly drained soils that formed in alluvium from granitic rock (Soil Survey Staff 1990). Grangeville soils are very deep and poorly drained soils that formed in moderately coarse-textured alluvium from granitic rock (Soil Survey Staff 1999a). Traver soils are moderately well to poorly drained soils that formed in alluvium derived from granitic bedrock (Soil Survey Staff 2003).

Considering the presence of each soil series and the disturbed nature of the Project area, the archaeological sensitivity is low. While the Chino soil contains well-defined A and C horizons, the integrity of the deposits is questionable because of agricultural disturbances. The Dello, Grangeville, and Traver soils are less defined. Furthermore, none of the soil series contains buried A (Ab) horizons that typically indicate the potential for buried archaeological deposits.

2.2 PREHISTORIC SETTING

The prehistory of inland Southern California is less thoroughly understood than in the adjacent desert and coastal regions. This is partially a result of historic circumstances, such as ease of access, the location of universities, and public versus private land ownership, and partly due to the nature of archaeological research in these interior valleys and mountains of Southern California (Goldberg and Arnold 1988). In the absence of absolute chronological indicators for inland sites, researchers generally employ typological cross-dating from either coastal or desert sequences, often as the sole means for assigning age to archaeological sites within the interior valleys, including the Project area.

Two large reservoir projects, Perris Reservoir (O'Connell et al. 1974) and Eastside Reservoir Project (ESRP) (Goldberg et al. 2001), generated large data sets to provide a basis for resolving some of these regional problems. It is difficult to extrapolate the geographic extent of the prehistoric cultural patterns discerned from excavations at these two reservoirs, which are 12 miles apart in central western Riverside County. The ESRP is approximately 7 miles south of the Project, and it is almost certain that prehistoric patterns are like those discerned for the ESRP studies.

This discussion of the Project's prehistoric cultural setting is drawn from the cultural sequence developed for the ESRP. This chronology was based first on artifact cross-dating, and then refined with radiocarbon and obsidian hydration dates (Onken and Horne 2001; Robinson 1998, 2001); however, the ESRP chronology draws heavily on a cultural sequence defined by Warren (1984) for Southern California, which is based largely on archaeological work conducted in the Colorado and Mojave deserts. Because Warren's chronology used period names that suggest links to the Mojave, these were replaced in the ESRP chronology by value-neutral terms. Because no sites dating to the Paleoindian Period (circa 12,000–9500 before present [B.P.]) have been documented within the region, the discussion below begins with the Early Archaic Period.

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2.2.1 Early Archaic Period (circa 9500–7000 B.P.)

During this period, the environment of the interior deserts was more favorable for human occupation than the cismontane valleys of Southern California, where the Project is located. Populations in the interior valleys would have been tethered to the few reliable, drought-resistant water sources such as Lake Elsinore, Mystic Lake, and possibly the Cajalco Basin. In general, small, highly mobile groups traveled widely, using highly portable tool kits to procure and process critical resources, with brief and anticipated intervals of seasonal sedentism near predictable water locations. Due to isolated locations where the conditions for occupation were met, Early Archaic Period sites are rare compared to later periods of prehistory (Goldberg et al. 2001; Grenda 1997; Horne and McDougall 2008; McDougall 1995).

2.2.2 Middle Archaic Period (circa 7000–4000 B.P.)

A gradual transition from wet pluvial conditions to arid desert conditions during the Early Holocene marks the transition to the Middle Archaic Period. Middle Archaic Period sites in Southern California include two in the ESRP, one at Lake Elsinore, the Stahl Site in Owens Valley, desert sites in Death Valley, Salt Springs, and at Pinto Basin in Joshua Tree National Park. Middle Archaic Period sites are associated with the margins of pluvial lakes and with now-extinct springs. Pinto-series projectile points, a type of basally notched or bifurcate base dart point, are the most distinctive artifact type of this period (Justice 2002). Other artifacts found at Middle Archaic Period sites include leaf-shaped bifacial knives, split cobble choppers and scrapers, scraper-planes, and small milling slabs and manos. With a few exceptions in the ESRP area and the Stahl Site, most sites of this age are small surface deposits of lithic artifacts, suggestive of temporary and perhaps seasonal occupation by small groups of people.

2.2.3 Late Archaic Period (circa 4000–1500 B.P.)

The Late Archaic Period was one of cultural intensification coinciding with the Little Pluvial, a period when increased moisture allowed for more extensive occupation of the region. Sedentism likely increased during this period, with large occupation sites located adjacent to permanent water sources such as perennial springs and streams. Projectile points diagnostic of this period include Humboldt, Gypsum, and Elko-series dart points (Warren 1984), although Rose Spring arrow points appeared late within this period in the deserts. The mortar and pestle, used for processing acorns and hard seeds, also first appeared. A warming and drying trend began around 2100 B.P., leading to intensification of use of certain resources (Goldberg et al. 2001).

2.2.4 Saratoga Springs Period (circa 1500–750 B.P.)

Occupants of the region continued to adapt to the arid environment in the deserts (Warren 1984). Lake Cahuilla likely refilled the Coachella Valley around 1450 B.P. and was the focus of exploitation of fish and wetland resources. Occupation around large local water sources declined as these dried, however, and people became tethered to springs (Goldberg et al. 2001). Cultural trends continued from the Late Archaic Period, as Saratoga Springs projectile points, also associated with early use of the bow and arrow, appeared. The sparse assemblages found within the region obscure the timing of local adoption of the bow and arrow (Goldberg et al. 2001). Shoshonean language speakers likely moved into Southern California at this time. Brown and Buff Ware pottery first appeared on the lower Colorado River at about 1200 B.P. and started to

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diffuse across the California deserts by about 1100 B.P. (Moratto 1984). The warmer and drier Medieval Warm Period set in throughout the Southwest by about 1060 B.P. (Stine 1994; Warren 1984) and led to the withdrawal of Native American populations from marginal desert areas.

2.2.5 Late Prehistoric Period (circa 750–410 B.P.)

A period of lower temperatures and increased precipitation known as the Little Ice Age resulted in increased resource productivity in the region and subsequent population increase. Cottonwood Triangular points appear in inland assemblages and Obsidian Butte glass became much more common (Goldberg et al. 2001). Lake Cahuilla began to recede (Waters 1983), and the large Patayan populations occupying its shores moved westward to areas such as Anza Borrego, Coyote Canyon, the Upper Coachella Valley, the Little San Bernardino Mountains, and the San Jacinto Plain (Wilke 1976). The final recession of Lake Cahuilla, which had occurred by approximately 400 B.P., resulted in a population shift away from the lakebed into the Peninsular Ranges to the west and the Colorado River regions to the east.

2.2.6 Protohistoric Period (circa 410–180 B.P.)

Sedentism intensified during the Protohistoric Period. Increased hunting with bow and arrow and widespread exploitation of acorns, other hard nuts, and berries (indicated by the abundance of mortars and pestles) provided reliable and storable food resources. Reliable food sources likely prompted the establishment of small, completely sedentary villages with resource catchment areas around them (True 1966, 1970). Ceramic technology first appeared in the region around 350 B.P. Cottonwood Triangular points were supplemented by Desert Side-notched points. This period ended in 1769 A.D. when Spanish settlement began in Upper California.

2.3 ETHNOGRAPHIC SETTING

This description of the ethnographic setting is based on information passed down from tribal elders; found in published academic works in the areas of anthropology, history, and ethnohistory; and provided in recorded ethnographic and linguistic accounts (cf., Kroeber 1925; Smith and Freers 1994; Strong 1929; Vane 2000). The Project lies within the ancestral cultural territory of the Luiseño Native American cultural group, and more specifically, within the traditional territory of the Soboba Band of Luiseño Indians. However, the area also may have been occupied by the Cahuilla Native American cultural group due to population shifts in the historic era (Bean 1978). Both tribes speak a language of the Takic branch of the Shoshonean family, part of the larger Uto-Aztecan language stock.

Luiseño territory in ethnographic times encompassed a stretch of the California coast and included most of the drainage of the San Luis Rey and Santa Margarita rivers. Inland, Luiseño territory extended south from Santiago Peak, including the Elsinore and Temecula valleys, and extended farther south to Mount Palomar and the San Jose Valley, then west to the coast at Agua Hedionda Creek. The coastal territory of the Luiseño extended north to near San Mateo Creek in Orange County (Bean 1978). Elders of the Pechanga Band of Luiseño Indians add that the Temecula/Pechanga people had usage/gathering rights to an area extending from Rawson Canyon on the east to Lake Mathews (modern) on the northwest, down Temescal Canyon to Temecula, eastward to Aguanga, and then along the crest of the Cahuilla Range back to Rawson Canyon.

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Ethnographically, Cahuilla territory spanned from the summit of the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, a portion of the Colorado Desert west of Orocopia Mountain to the east, the San Jacinto Plain as far as Riverside, and the eastern slopes of Palomar Mountain to the west (Bean 1978).

2.3.1 Ethnographic Lifeways of the Soboba Band of Luiseño Native Americans and the Cahuilla Native Americans

Prior to the Mission Period (before circa 1769), each Luiseño village was organized as a clan tribelet: a group of people patrilineally related who owned an area in common and who were politically and economically autonomous from neighboring groups. The entire social structure is obscure. It does not appear that they were organized into exogamous moieties such as were the Cahuilla (Strong 1929:291).

The Cahuilla had nonpolitical, nonterritorial moieties that governed marriage patterns as well as patrilineal clans and lineages. The words for these moieties mean "Coyote" and "Wildcat." In turn, the political-ritual-corporate units (clans) were composed of 3–10 lineages, distinctly different, named, and claiming a common genitor, with one lineage recognized as the founding lineage (Bean 1978; Bean and Vane 2001). Clans owned a large territory in which each lineage owned a village site and specific resource areas. Clan lineages cooperated in large communal subsistence activities (including animal drives, hunts, controlled burns) and in performing rituals.

The Luiseño and Cahuilla were, for the most part, hunters, collectors, and harvesters. Clans were apt to own land in valleys, foothill, and mountain areas, providing them with the resources of many different ecological niches. Individual lineages or families owned specific resource areas within the clan territory. Although any given village had access to only some of the necessary resources, briskly flourishing systems of trade and exchange gave them access to neighboring and distant resources. Rules that forbade marriage to anyone related within five generations or belonging to the same moiety ensured that everyone had relatives living in many ecozones; this was an important arrangement because relatives were invited to ceremonies. The ceremonial exchange of gifts at such events provided a way for drought-stricken groups to get food in return for treasure goods.

The Luiseño and Cahuilla, like other California Indians, understand the universe in terms of power, which they believed to be sentient and willful. In their view, power is the principal causative agent for all phenomena. Unusual natural phenomena are viewed as especially sacred, serving as the repositories of concentrations of power. Mountain tops are held sacred, as are unusual rock formations, springs, and streams. Rock art sites are sacred, having been the sites of ceremonies. Burial and cremation sites are also sacred, as are many other places of residual power. In addition, various birds, but especially eagles, condors, hawks, and other birds of prey and their symbolic representations, are revered as sacred beings of great power and were sometimes killed ritually and mourned in mortuary ceremonies similar to those for human elites. For this reason, bird cremation sites are also sacred.

Because of these strong beliefs, rituals were (and continue to be) a constant factor in the life of Native American individuals. Some rituals were scheduled and routine (e.g., birth, puberty, death, mourning, and the eagle ritual and first rites), while others, such as the deer ceremony,

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bird dance, enemy songs, and rain ritual, were sporadic and situationally performed (Bean 1978; Bean and Vane 2001:VII.A-3-10).

2.4 HISTORIC SETTING

The Spanish occupation of Alta California and the founding of the San Diego de Alcalá mission in San Diego occurred in 1769, resulting in compilation of written records. The following historic context of California was taken primarily from Clark and Smallwood (2015). Exploration of the California coast in the sixteenth and seventeenth centuries was the basis for the Spanish claim to the region. In the eighteenth century, Spain recognized that to strengthen its claim, it would have to settle Alta California to preclude encroachment by the Russians and British traders from the north. Therefore, in the latter half of the eighteenth century, Spain and the Franciscan Order founded a series of 3 presidios, or military camps, and 21 missions along the California coast, beginning at San Diego in 1769. The Spanish also carried out exploratory expeditions into the interior regions, including the Mojave Desert, to identify travel routes to the coast and to establish interior settlements.

With the signing of the Treaty of Guadalupe-Hidalgo on February 2, 1848, California had formally become an American territory, and 2 years later, on September 9, 1850, California became the thirty-first state in the Union. Between those 2 years came a large influx of eastern immigrants seeking their fortunes. The catalyst for this influx was James Marshall's 1848 discovery of gold at Sutter's Mill (Starr 2005), and the population and wealth in the early statehood years were concentrated in the northern part of the state. Ranching was the main occupation in the southern counties, providing meat and supplies to the north. The floods and drought of the 1860s brought that era to a close, and the completion of the transcontinental railroad in 1869 opened California to agricultural settlement.

Southern California was promoted as an ideal agricultural area, with fertile soil and a mild climate. Reports on California painted beautiful pictures that appealed to both Americans and Europeans alike. There were three land booms tied to railroad expansion: (1) after the transcontinental railroad was completed, enabling easy travel to California; (2) in the late 1870s after the Southern Pacific Railroad was completed; and (3) in 1886–1888, when the Santa Fe Railway transcontinental line was completed. Competition between these lines incited a rate war, and both tourists and potential settlers took advantage of the low fares to come to California (Lech 2004:222).

2.4.1 Local History

As the railroads spurred land development, local population increased, and a successful movement to form a new county followed. In 1893, Riverside County was formed from parts of San Diego and San Bernardino counties, with the city of Riverside as the county seat. San Jacinto was originally part of San Diego County.

As early as 1867, the Estudillo family began to sell off some of their land grant in the San Jacinto Valley to new arrivals (Brigandi 2001). By 1868, a school district was needed to educate numerous children. Around the same time, Procco Akimo (a Russian immigrant) opened the first local store, around which grew the first settlement named San Jacinto. In May 1870, a new mail

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route established between San Bernardino and San Diego passed through the valley (Brigandi 2001).

In 1883, San Jacinto was laid out on 160 acres owned by the San Jacinto Land Association. By 1886, San Jacinto had a population of 250 and the town boasted a two-story schoolhouse, a large hotel, and a downtown commercial block. Bacon & Ashenfelter (the largest construction firm) advertised the services of architects, contractors, and builders, with plans and specifications furnished, as well as brick contractors. There were four masons and plasterers in town, two brickyards, and a planing mill. No saloons were allowed in the town (Lech 2004). The leading families built fashionable houses, the most prominent of which was that of Francisco Estudillo. H. C. Ashenfelter ("Harry") went into real estate, among other concerns; he was also a mine owner, with interests in the community of Strawberry (now Idyllwild). Lech (2004) provided the following information from an article in the *San Jacinto Weekly Register* published on March 17, 1889:

> We all know Harry, as he has been identified with the business interests of San Jacinto ever since it started and from time to time has been connected with a number of very important business transactions which have been stepping stones toward the present and prospective future of our thriving little town.

The railroad arrived in town on the same day San Jacinto became incorporated as a city: April 9, 1888. To take advantage of the railroad for agricultural shipping, Francisco Estudillo built a large brick warehouse northeast of the depot, where space was available to local farmers (Brigandi 2001). He also built a livery stable in town, and on February 9, 1893, the *San Jacinto Register* acknowledged that he had done "his full share in aiding the growth of the town" (Brigandi 2001:12). The town grew and prospered from its role as a railroad terminus, as the station was used to transport agricultural products from the valley and lumber from the San Jacinto Mountains.

All sorts of agricultural endeavors were encouraged in the 1880s. As wells were drilled on ranches west of town, more land was put into alfalfa. Notices of new arrivals and land transfers were published in the newspaper, as was every new house and business built.

The San Jacinto Valley has been important in the production of agricultural products in Southern California for more than the last 100 years. As reliable sources of water became available during this period, farms were founded, and settlers raised a variety of crops and tended domestic animals. In this rural landscape, traditional farm buildings were constructed, occupied, and used to store agricultural products and to house livestock. As some of the farming enterprises declined, the buildings were torn down or allowed to deteriorate, leaving only traces of their physical remains. Landscape features, such as apricot orchards that once dominated the countryside, have been removed. Further loss has resulted from increasing suburban construction in the last 25 years, and this trend continued to accelerate. Nonetheless, the valley is still largely rural, with remnant farms intermixed with modern housing developments. Although some farms and rural homesteads still flourish, others have been converted to business enterprises or have disappeared completely.

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3
CULTURAL LITERATURE AND RECORDS SEARCH

On March 8, 2023, prior to the field survey of the Project area, Æ engaged the Eastern Information Center (EIC), the branch of the California Historical Resource Information System housed at the University of California, Riverside, to complete a literature and records search. The objective of this records search was to determine whether any prehistoric or historic cultural resources had been recorded previously within the Project area and a 0.5-mile search radius of the proposed Project.

3.1 RECORDS SEARCH RESULTS

Results of the records search indicated 43 cultural resource studies have been conducted previously within the 0.5-mile search radius (Table 3-1). Eighteen of the previous studies involved a portion of the Project area. As a result, approximately 40 percent of the Project area has been studied previously.

Table 3-1
Previous Cultural Resource Studies in the 0.5-Mile Search Radius

EIC Reference	Author(s)	Date	Title
RI-01573	Bowles, Larry L., and Jean Salpas	1978	An Archaeological Assessment of Parcel 11978
RI-02040	Yohe, Robert M. II	1986	An Archaeological Assessment of the Eastern Municipal Water District's Proposed Reclaimed Water Transmission Line, San Jacinto Area of Riverside County, California
RI-03693	Foster, John M., James J. Schmidt, Carmen A. Weber, Gwendolyn R. Romani, and Roberta S. Greenwood	1991	Cultural Resource Investigation: Inland Feeder Project, Metropolitan Water District of Southern California
RI-03791a	Drover, Christopher	1991	A Cultural Resources Assessment of the 800 Acre Sunrise Ranch, Lakeview and San Jacinto USGS Quad, Riverside County
RI-04404a	Jones and Stokes Associates, Inc.	2000	Final Cultural Resources Inventory Report for the Williams Communications, Inc., Fiber Optic Cable System Installation Project, Riverside to San Diego, California Vol I-IV.
RI-04468a	Padon, Beth	2002	Archaeological Survey of 38-Acre Parcel, San Jacinto Valley, Riverside County, California
RI-04856a	Dice, Michael, and Leslie Nay Irish	2001	A Phase I Archaeological Survey of the De Anza Temporary Lift Station Project, City of San Jacinto, California
RI-05098	Applied Earth Works, Inc	2003	Cultural Resources Survey of 106 Acres S&D Dairy Project
RI-05104	Applied Earth Works, Inc	2003	Cultural Resources Survey of Tentative Tract 31037, San Jacinto, California

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Table 3-1 (continued)
Previous Cultural Resource Studies in the 0.5-Mile Search Radius

EIC Reference	Author(s)	Date	Title
RI-05161a	Moslak, Ken, and John Cook	2004	Cultural Resources Study of the Proposed Villages of San Jacinto Project, San Jacinto, Riverside County, California
RI-05414	Love, Bruce, Bai Tom Tang, and Daniel Ballester	2001	Historical/Archaeological Resources Survey Report, Eastern Municipal Water District Ramona Expressway Pipeline, Near the Community of Lakeview, Riverside County, California
RI-05772	Jones & Stokes	2004	Phase I Cultural Resources Study for the North San Jacinto Sewer Project, City of San Jacinto, Riverside County, California
RI-06467a	Tang, Bai, Michael Hogan, Josh Smallwood, Daniel Ballester, and Terri Jacquemain	2005	Historical/Archaeological Resources Survey Report, Tentative Tract Map 33579, City of San Jacinto, Riverside County, Ca
RI-06478	Tang, Bai, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	2005	Historical/Archaeological Resources Survey Report, San Jacinto MDP Detention Basin, in the City of San Jacinto, Riverside County, California
RI-06590	Bai Tang, Michael Hogan, and Thomas J. Melzer	2006	Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 33141, City of San Jacinto, Riverside County, California
RI-06591	Tang, Bai, Michael Hogan, Adrian Sanchez Moreno, and Daniel Ballester	2005	Historical/Archaeological Resources Survey Report, Tentative Tract Map No. 31555, City of San Jacinto, Riverside County, California
RI-06743a	Austerman, Virginia	2006	Cultural Resources Assessment: Valle Reseda Project, City of San Jacinto, Riverside County, California
RI-06771	Robbins-Wade, Mary	2006	Cultural Resources Inventory, San Jacinto Ranch, San Jacinto, Riverside County, California
RI-06819a	McKenna, Jeanette A.	2006	A Phase I Cultural Resources Survey of the Proposed Valle Reseda, L.P. Project Area, Located in the San Jacinto Area of Riverside County, California
RI-06884	Hunt, Kevin, and Alex Wesson	2005	Cultural Resources Survey for the Ramona Expressway Widening Project: Sanderson Avenue to Bridge Street, San Jacinto, Riverside County, California
RI-06907	Shaver, Noelle C.S.	2007	A Phase I Historical Resources Study for the 70-Acre Shelbran Development Project, City of San Jacinto, Riverside County, California
RI-07121	Hoover, Anna M	2006	An Archaeological and Paleontological Mitigation, Monitoring Report for the North San Jacinto Water Supply Project, (State Clearing House #2003051022) Located in the City of San Jacinto, Riverside Co
RI-07122	MacHott, Richard J.	2007	Addendum to Historical /Archaeological Resource Survey San Jacinto River Levee Project.
RI-07197	Duke, Curt	2002	Cultural Resource Assessment: AT&T Wireless Services, Facility No. D454B, Riverside County, California

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Table 3-1 (continued)
Previous Cultural Resource Studies in the 0.5-Mile Search Radius

EIC Reference	Author(s)	Date	Title
RI-07343a	Garnsey, Michael J., and Susan M. Hector	2007	Cultural Resources Study of the San Jacinto Project, City of San Jacinto, Riverside County, California
RI-07415a	Patterson, Joshua D. and Tsunoda, Koji	2007	Archaeological Survey Report for Southern California Edison Company Deteriorated Pole Replacement Project for a Total of Six Poles on Winery 12 kV (Pole #222333S), Chawa 12 kV (Pole #218260S), Easter
RI-07532	Nixon, Rachael	2007	Phase I Cultural Resource Assessment, San Jacinto, Riverside County, California
RI-07670	Smallwood, Josh, Harry M. Quinn, Daniel Ballester, and John J. Eddy	2007	Identification and Evaluation of Historic Properties San Jacinto Valley Regional Water District Reclamation Facility Expansion Project 700 N Sanderson Avenue, City of San Jacinto, Riverside County, California
RI-07671	Shaver, Noelle C.S.	2007	A Phase I Historical Resources Study for the McCleish 17.2 Acre Commercial Development Project, City of San Jacinto, Riverside County, California
RI-07988	Smallwood, Josh, and Daniel Ballester	2009	Addendum to: Identification and Evaluation of Historic Properties: San Jacinto River Levee Project, in and near the City of San Jacinto, Riverside County, California
RI-08160a	Hogan, Michael, and Bai Tang	2008	Historical/Archaeological Resources Survey Report San Jacinto Master Drainage Plan in and near the City of San Jacinto Riverside County, California
RI-08350a	Encarnacion, Deidre, Daniel Ballester, and Laura H. Shaker	2009	Historical / Archaeological Resources Survey Report: EMWD Citrus In-Lieu Northern Alignment Reach 1, City of San Jacinto, Riverside County, California.
RI-08427	White, Laurie S.	2001	Letter Report: Records Search Results for Nextel Communications Facility CA6750D (Sanderson), City of San Jacinto, Riverside County, California.
RI-08495a	George, Joan, Vanessa Mirro, and Elizabeth Dennison	2010	Supplemental Cultural Resources Survey Report: Cultural Resources in Southern San Jacinto Valley: Realign State Route 79 between Domenigoni Parkway and Gilman Springs Road in the Cities of Hemet and S
RI-09138	Sylvia, Barbara	2002	Negative Archaeological Survey Report for the Colorado River Aqueduct
RI-09227	Tang, Bai, Daniel Ballester, and Nina Gallardo	2011	Identification and Evaluation of Historic Properties Report San Jacinto River Levee Project (Stage 4)
RI-09689a	Delu, Antonina M., John J. Eddy, and Gabrielle Duff	2014	First Supplemental Historic Property Survey Report Realign State Route 79 between Domenigoni Parkway and Gilman Springs Road in the Cities of Hemet and San Jacinto and the County of Riverside, Riverside
RI-09690a	Delu, Antonina M., and Gabrielle Duff	2021	First Supplemental Archaeological Survey Report Realign State Route 79 between Domenigoni Parkway and Gilman Springs Road in the Cities of Hemet and San Jacinto and the County of Riverside, Riverside
RI-10199a	Fulton, Phil	2014	Discovery and Monitoring Plan for the Mid County Parkway

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Table 3-1 (continued)
Previous Cultural Resource Studies in the 0.5-Mile Search Radius

EIC Reference	Author(s)	Date	Title
RI-10462a	Miller, Andrew D.	2018	Historic Property Survey Report for the Sanderson Avenue Safety Improvements Project, City of San Jacinto, Riverside County, California HSJPL 5075(021)
RI-10463a	Miller, Andrew D	2018	Archaeological Survey Report for the Sanderson Avenue Safety Improvements Project, City of San Jacinto, Riverside County, California HSIPL 5075(021)
RI-10695	Perez, Don C.	2015	Cultural Resources Survey Blaze / Ensite #22117 (284939)
RI-10868	Tutshulte, Lucas	2022	Cultural Resources Records Search and Literature Reviews Results Letter Report for the TS Farms San Jacinto Outdoor Cultivation Project

a - Study overlaps the Project area.

The records search resulted in the identification of a total of eight previously recorded cultural resources within the 0.5-mile search radius. Six of the resources are archaeological: three prehistoric isolated artifacts, one historic refuse scatter, and two irrigation wells. In addition, two built-environment resources were identified within the 0.5-mile search radius (Table 3-2). One of the cultural resources, the Colorado River Aqueduct, is documented within the Project area. This resource is described in further detail below.

Table 3-2
Previously Recorded Cultural Resources in the 0.5-Mile Search Radius

Primary No.	Trinomial	Description
Isolated Prehistoric Artifacts		
33-029422	—	One granitic mano
33-029423	—	One granitic mano
33-029424	—	One granitic mano
Historic Resources		
33-016638	CA-RIV-008719	Refuse scatter
33-016639	CA-RIV-008720	Irrigation well
33-016640	CA-RIV-008721	Irrigation well
Built-Environment Resources		
33-011265[a]	CA-RIV-006726H	Segments of the Colorado River Aqueduct
33-014964	—	1920 Single-family residence

a - Resource within the Project area.

3.1.1 CA-RIV-6726H/33-011265—Colorado River Aqueduct

Originally recorded by Goodman and Neves (2000), CA-RIV-6726H consists of the Colorado River Aqueduct and its various segments, constructed in the early 1930s. The aqueduct begins at the Whitsett Intake Pumping Plant in Lake Havasu California and extends approximately

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242 miles to its terminus at Lake Mathews. The Colorado River Aqueduct has been recommended as eligible for listing in the National Register of Historic Places (NRHP) under Criteria A, C, and D (Beedle 2008:5). Furthermore, a portion of the aqueduct was determined eligible for the NRHP with concurrence from the State Historic Preservation Officer.

3.2 HISTORIC MAP REVIEW

A series of historic maps were consulted to assess land use and development in the study area. Several USGS topographic quadrangle maps were consulted: 1901 Elsinore 1:125,000, 1901 Southern California 1:125,000, 1942 Perris 1:62,500, 1953 and 1967 Lakeview 1:24,000.

Two historic roads that appear to be aligned with modern-day Ramona Expressway and Warren Road are visible on the 1901 Elsinore map north of the Project and continue to be displayed on the latest examined maps. The 1953 Lakeview map shows a segment of the Colorado River Aqueduct in the northwestern portion of the Project, along with a component of the Colorado River Aqueduct and three structures within the agricultural fields in the southeastern Project area. The structures also appear in aerial photographs from 1966 to 1978, available online (historicaerials.com/viewer). The three structures on the southeastern corner of the Project area are no longer visible in imagery from 1985 and were likely demolished. All the maps exhibit the Colorado River Aqueduct tunnel north and south of the Project area. No other buildings, structures, or features of interest are shown in the Project area on any of the historic maps or photographs examined.

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4
NATIVE AMERICAN COMMUNICATION

Æ contacted the Native American Heritage Commission (NAHC) on March 8, 2023, for a review of their Sacred Lands File to determine if any known Native American cultural properties (e.g., traditional use or gathering areas, or places of religious or sacred activity) are present within or adjacent to the Project area. The NAHC responded on March 15, 2023, stating the Sacred Lands File search was completed with negative results. The NAHC requested that Æ contact Native American individuals and organizations to elicit information regarding cultural resource issues related to the proposed Project, if any.

Upon review of the Native American contact list, Æ narrowed the list to 15 individuals and organizations traditionally and culturally affiliated with the geographic area of the Project. Æ sent out Project scoping letters via email and U.S. Postal Service on December 8, 2023, describing the Project and asking these individuals and organizations for their input. Copies of the letters, the list of contacts, and received responses are included in Appendix A. Æ sent follow-up email correspondence on December 22, 2023, to the organizations who had not responded to the initial request on December 8, 2023.

Individuals/organizations contacted include:

- Reid Milanovich, Chairperson for the Agua Caliente Band of Cahuilla Indians
- Amanda Vance, Chairperson of the Augustine Band of Cahuilla Indians
- Doug Welmas, Chairperson of the Cabazon Band of Mission Indians
- Daniel Salgado, Chairperson of the Cahuilla Band of Indians
- Ray Chapparosa, Chairman of the Los Coyotes Band of Cahuilla and Cupeño Indians
- Robert Martin, Chairperson for the Morongo Band of Mission Indians
- Shasta Gaughen, Tribal Historic Preservation Officer for the Pala Band of Mission Indians
- Mark Macarro, Chairperson for the Pechanga Band of Indians
- Manfred Scott, Acting Chairperson for the Quechan Tribe of the Fort Yuma Reservation
- Joseph Hamilton, Chairperson of the Ramona Band of Cahuilla
- Bo Mazzetti, Chairperson for the Rincon Band of Luiseño Indians

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- Jessica Mauck, Director of Cultural Resources for the San Manuel Band of Mission Indians
- Lovina Redner, Tribal Chair of the Santa Rosa Band of Cahuilla Indians
- Isaiah Vivanco, Chairperson for the Soboba Band of Luiseño Indians
- Cultural Committee of the Torres-Martinez Desert Cahuilla Indians

As of January 12, 2024, Æ has received seven responses.

- Because the Project falls within the Agua Caliente Band of Cahuilla Indians' Traditional Use Area, the Tribe requested a copy of the records search, survey reports, and site records from the EIC, copies of any cultural resource documentation generated from the current Project, and shapefiles of the Project area.
- The Augustine Band of Cahuilla Indians are unaware of any cultural resources that would be affected by the Project but wish to be contacted immediately if any resources are discovered during development.
- The Cahuilla Band of Indians are unaware of any cultural resources that would be affected by the Project but wish to be contacted immediately if any resources are discovered during development. However, since this Project is within the Cahuilla Band's traditional land use area, they request to participate in monitoring once construction starts.
- The Pechanga Band of Indians requested consultation on the Project because part of the Project area is within a Traditional Cultural Property and nearly adjacent to a second Traditional Cultural Property. Therefore, the Tribe requests notification of Project start, copies of all applicable reports, government-to-government consultation with the lead agency, and monitoring by a Riverside County qualified archaeologist and Pechanga Tribal Monitor.
- The Rincon Band of Luiseño Indians has no additional information to provide, but they recommend that Æ directly contact the Soboba of Luiseño Indians as they are closer to the Project and may have pertinent information.
- The San Manuel Band of Mission Indians stated that the Project is located outside of Serrano's ancestral territory and, therefore, San Manuel will not be requesting to receive consulting party status with the lead agency or to participate in the scoping, development, or review of documents created under legal and regulatory mandates.
- The Soboba Band of Luiseño Indians stated that Project Line E is located within an area of high concern for Tribal Cultural Resources. Substantial information will be provided to the lead agency during consultation.

Complete responses from each contact are attached in Appendix A.

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5
METHODS AND RESULTS

This chapter details the methods and results of the intensive pedestrian survey of the Project area. Portions of the Project were previously surveyed during initial phases of the Project. Approximately 20 percent of the Project area was inaccessible during the current survey due mainly to dense tree and weed growth in various areas (Figure 5-1). The intensive survey was completed by Æ archaeologist Andrew DeLeon on November 29, 2023.

5.1 SURVEY METHODS

DeLeon began surveying on the northwestern portion of the Project area and proceeded south. The survey was conducted in 15-meter transects oriented east–west, moving westward through the Project area. While surveying, DeLeon photographed the Project area at various locations to document its current condition. Any newly identified resources were to be photographed and mapped with an Arrow 100 global navigation satellite system receiving unit and iPad. DeLeon also visited the locations of the previously recorded cultural resource mapped within the Project area.

5.2 SURVEY RESULTS

The entire Project area is heavily disturbed, with the northwestern and southeastern portions being the most affected. In the northwestern portion, DeLeon encountered challenges due to heavy weed growth and loose dogs near the greenhouses on the western side, which prevented survey of the open field areas south of the Colorado River Aqueduct (CRA, 33-011265/ CA-RIV-6726H). However, DeLeon was able to conduct transects with 15-meter spacing north of the CRA. The northwestern portion of the Project area appeared to be disturbed entirely, primarily due to active facilities and agriculture. The ground visibility was poor, with only two percent visibility due to extensive grass coverage (Figure 5-2). The surface soil was a soft gray silt loam.

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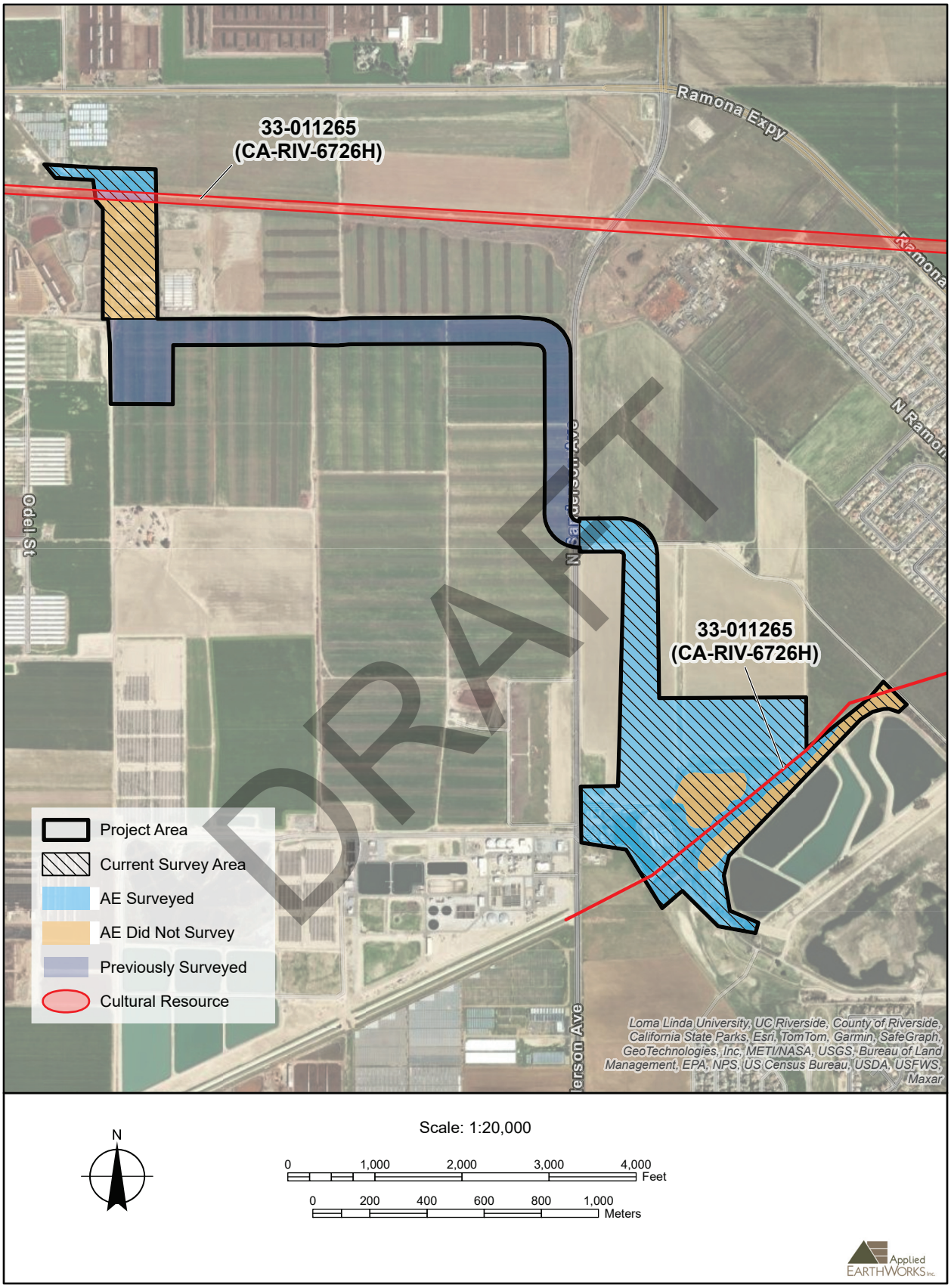

Figure 5-1 Cultural resources and survey coverage within the Project area.



Figure 5-2 Northwestern corner, facing south.

Almost all the area was disturbed in the southeastern portion of the Project, mainly due to active agriculture and occupied homestead property (Figure 5-3). The agricultural fields were visible on satellite imagery, indicating the extent of the disturbance. However, the southern half of the southeastern Project area contained densely forested areas of mainly eucalyptus, cottonwood, willow, palo verde trees, and Russian thistle, which made surveying on foot difficult. Considering the inconsistent terrain, DeLeon focused on surveying open areas clear of dense vegetation. Only the southernmost extension of the southeastern Project area was accessible for on-foot surveying.

5.2.1 Previously Documented Resources

Upon completion of the survey, Æ confirmed the Colorado River Aqueduct (CA-RIV-6726H/ 33-011265) crosses through the Project area underground at two locations. This resource is outside the Project area's vertical limits and, therefore, will not be impacted by construction of the Project.

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Figure 5-3 Overview from southwestern corner of homestead, facing northeast.

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6
MANAGEMENT RECOMMENDATIONS

Æ did not encounter any previously unrecorded cultural resources within the Project area during the intensive pedestrian survey. However, the previously recorded cultural resource within the Project area was revisited—segments of the Colorado River Aqueduct (33-011265/ CA-RIV-6726H). The Colorado River Aqueduct crosses the Project area underground. This resource is outside the Project's vertical limits and, therefore, will not be impacted by the construction of the Project.

The entire Project area is highly disturbed on the surface by agricultural activity, road development, and addition of modern structures. Geological data indicate no Ab (buried) horizons for soil series mapped within the Project area. Although the Chino soil series contains well developed A and C horizons, the integrity of those deposits is questionable due to modern agricultural activities. Although the Project area is disturbed from agricultural activity and soil sensitivity appears low, previous prehistoric isolated finds and historic archaeological sites identified by the records search in the buffer for the current Project indicate a potential for subsurface deposits. In addition, it is Æ's experience in this region that buried deposits can be found near the San Jacinto River. Therefore, Æ recommends archaeological monitoring during surface grubbing or clearing and initial grading within the Project area.

It should be noted that the Project falls within the traditional land use area of the Agua Caliente Band of Cahuilla Indians. The Augustine Band of Cahuilla Indians and the Cahuilla Band of Indians are unaware of any cultural resources that would be affected by the Project but request to be notified immediately if any resources are discovered during development. However, since this Project is within the Cahuilla Band's traditional land use, they requested to participate in monitoring once construction begins. The Pechanga Band of Indians requested consultation on the Project, as part of the Project area is within a Traditional Cultural Property. The Rincon Band of Luiseño Indians has no additional information to provide, but they recommend that Æ directly contact Soboba of Luiseño Indians as they are closer to the Project and may have pertinent information. The San Manuel Band of Mission Indians will not participate as the Project is located outside of Serrano ancestral territory. The Soboba Band of Luiseño Indians stated that Project Line E is within an area of high concern for Tribal Cultural Resources. No further comments were received from the tribes after follow-up communication.

Finally, if the Project area is expanded to include areas not covered by this survey or other recent cultural resource studies, additional cultural resource studies may be required.

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7
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1976 *Late Prehistoric Human Ecology at Lake Cahuilla, Coachella Valley, California*. Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

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APPENDIX A

Native American Communication

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LIST OF NATIVE AMERICAN CONTACTS AND RECORD OF RESPONSES

Name	Date & Time of Calls	Responses
Reid Milanovich Chairperson Agua Caliente Band of Cahuilla Indians	December 8, 2023 December 14, 2023	Scoping letter sent via email. Response received from Cultural Resource Analyst Xitlaly Madrigal. The Project is located within the Tribe's Traditional Use Area and therefore the Tribe requests copies of any cultural resource documentation (report, site records) generated from the current Project, a copy of the records search, with associated survey reports and site records from the information center. The Tribe also requests the presence of a cultural resource monitor(s) during any ground disturbing activities, including any archaeological testing or surveys.
Amanda Vance Chairperson Augustine Band of Cahuilla Indians	December 8, 2023 December 11, 2023	Scoping letter sent via email. Response received from Jacobia Kirksey, Tribal Operations Specialist, on 12/11/2023. The Tribe is not aware of any cultural resources that may be affected by the Project but wishes to be contacted immediately if any cultural resources are discovered during construction.
Doug Welmas Chairperson Cabazon Band of Mission Indians	December 8, 2023 December 22, 2023	Scoping letter sent via email. Follow-up sent via email. No response received.
Daniel Salgado Chairperson Cahuilla Band of Indians	December 8, 2023 December 11, 2023	Scoping letter sent via email. Response received from Anthony Madrigal, THPO, and Lorrie Gregory, the Cultural Resource Coordinator, on 12/11/2023. The Tribe is not aware of any cultural resources that may be affected by the Project. However, since this Project is within Cahuilla's traditional land use, they request to participate in monitoring once construction is completed. And that we send over any associated cultural materials for review and to be contacted immediately.
Ray Chapparosa Chairperson Los Coyotes Band of Cahuilla and Cupeno Indians	December 8, 2023 December 22, 2023	Scoping letter sent via post. Follow-up phone call made to the contact number listed for Ray Chapparosa on the NAHC contact list. A voicemail was left briefly describing the Project and contact number, should the Tribe have any comments.

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Name	Date & Time of Calls	Responses
Robert Martin Chairperson Morongo Band of Mission Indians	December 8, 2023 December 22, 2023	Scoping letter sent via email. Follow-up sent via email. No response received.
Shasta Gaughen Tribal Historic Preservation Office Pala Band of Mission Indians	December 8, 2023 December 22, 2023	Scoping letter sent via email. Follow-up sent via email. No response received.
Mark Macarro Chairperson Pechanga Band of Indians	December 8, 2023 December 11, 2023	Scoping letter sent via email. Response received from Paul Macarro, the Cultural Coordinator on 12/11/2023. The Tribe wishes to consult on the Project since part of the Project area is situated within a Traditional Cultural Property and closely adjacent to a second Traditional Cultural Property. Therefore, the Tribe requests notification of Project start, copies of all applicable reports, government to government consultation with the Lead Agency, and monitoring by a Riverside County qualified archaeologist and Pechanga Tribal Monitor.
Manfred Scott Acting Chairperson Quechan Tribe of the Fort Yuma Reservation	December 8, 2023 December 22, 2023	Scoping letter sent via email. Follow-up sent via email. No response received.
Joseph Hamilton Chairperson Ramona Band of Cahuilla	December 8, 2023 December 22, 2023	Scoping letter sent via email. Follow-up sent via email. No response received.
Bo Mazzetti Chairperson Rincon Band of Luiseno Indians	December 8, 2023 December 22, 2023 January 4, 2024	Scoping letter sent via email. Response received from Shuuluk Linton on 01/04/2024. At this time, the tribe has no additional information to provide. They recommend that Æ directly contact Soboba of Luiseño Indians as they are closer to the project and may have pertinent information.
Jessica Mauck Director of Cultural Resources San Manuel Band of Mission Indians	December 8, 2023 December 11, 2023	Scoping letter sent via email. Response received from Alexandra Mc Cleary on 12/11/2023. The Project is located outside of Serrano's ancestral territory and, as such, San Manuel will not be requested to receive consulting party status with the lead agency or to participate in the scoping, development, or review of documents created under legal and regulatory mandates.
Lovina Redner Tribal Chair Santa Rosa Band of Cahuilla Indians	December 8, 2023 December 22, 2023	Scoping letter sent via email. Follow-up sent via email. No response received

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Name	Date & Time of Calls	Responses
Isaiah Vivanco Chairperson Soboba Band of Luiseño Indians	December 8, 2023 December 11, 2023	Scoping letter sent via email. Response received from Joseph Ontiveros on 12/11/2023. The Project Line E Project is located within an area of high concern for Tribal Cultural Resources. Substantial information will be provided to the lead agency during consultation.
Cultural Committee Torres-Martinez Desert Cahuilla Indians	December 8, 2023 December 22, 2023	Scoping letter sent via email. No Response received. Follow-up sent via email. No response received

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NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Raymond C.
Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 15, 2023

Andrew DeLeon
Applied EarthWorks, Inc.

Via Email to: adeleon@appliedearthworks.com

Re: San Jacinto Master Drainage Plan Project, Riverside County

Dear Mr. DeLeon:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

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Native American Heritage Commission
Native American Contact List
Riverside County
3/15/2023

Agua Caliente Band of Cahuilla Indians
Reid Milanovich, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919
laviles@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
84-001 Avenue 54 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Ray Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5110
Fax: (951) 755-5177
abrierty@morongo-nsn.gov

Morongo Band of Mission Indians
Ann Brierty, THPO
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5259
Fax: (951) 572-6004
abrierty@morongo-nsn.gov

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd. — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com

Pechanga Band of Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov

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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed San Jacinto Master Drainage Plan Project, Riverside County.

Pechanga Band of Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

Ramona Band of Cahuilla
John Gomez, Environmental Coordinator
P. O. Box 391670 Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramona-nsn.gov

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

Rincon Band of Luiseno Indians
Bo Mazzetti, Chairperson
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Jessica.Mauck@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Cahuilla
San Jacinto, CA, 92581 Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92581 Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

DRAFT

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed San Jacinto Master Drainage Plan Project, Riverside County.

Torres-Martinez Desert Cahuilla Indians
Cultural Committee,
P.O. Box 1160
Thermal, CA, 92274
Phone: (760) 397 - 0300
Fax: (760) 397-8146
Cultural-Committee@torresmartinez-nsn.gov

Cahuilla

DRAFT

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Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020
www.appliedearthworks.com

December 8, 2023

Amanda Vance
Chairperson
Augustine Band of Cahuilla Mission Indians
84-001 Avenue 54
Coachella, CA, 92236

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Amanda Vance:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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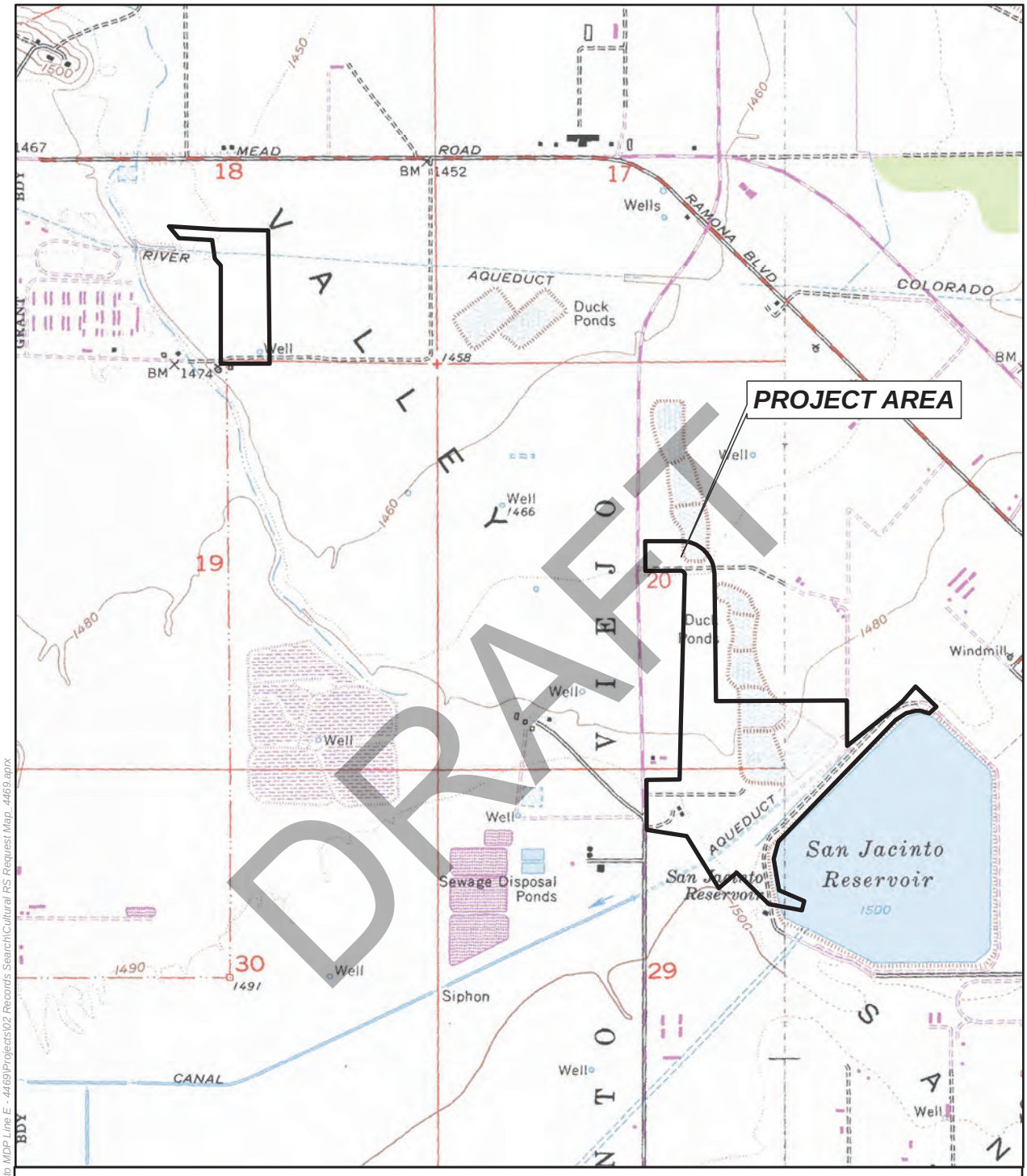
Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

DRAFT



Project location map for the *San Jacinto MDP Line E Project - AE4469*.

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December 8, 2023

Bo Mazzetti
Chairperson
Rincon Band of Luiseno Indians
One Government Center Lane
Valley Center, CA, 92082

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Bo Mazzetti:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

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December 8, 2023

Daniel Salgado
Chairperson
Cahuilla Band of Indians
52701 CA Highway 371
Anza, CA, 92539

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Daniel Salgado:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

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December 8, 2023

Doug Welmas
Chairperson
Cabazon Band of Mission Indians
84-245 Indio Springs Parkway
Indio, CA, 92203

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Doug Welmas:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

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December 8, 2023

Isaiah Vivanco
Chairperson
Soboba Band of Luiseno Indians
P. O. Box 487
San Jacinto, CA, 92581

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Isaiah Vivanco:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

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December 8, 2023

Jessica Mauck
Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA, 92346

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Director Jessica Mauck:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Associate Archaeologist
Applied EarthWorks, Inc.

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December 8, 2023

Joseph Hamilton
Chairperson
Ramona Band of Cahuilla
P.O. Box 391670
Anza, CA, 92539

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Joseph Hamilton:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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December 8, 2023

Lovina Redner
Tribal Chair
Santa Rosa Band of Cahuilla Indians
P.O. Box 391820
Anza, CA, 92539

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Tribal Chair Lovina Redner:

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Applied EarthWorks, Inc.

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December 8, 2023

Manfred Scott
Acting Chairperson
Quechan Tribe of the Fort Yuma Reservation
P.O. Box 1899
Yuma, AZ, 85366

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Manfred Scott:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Applied EarthWorks, Inc.

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December 8, 2023

Mark Macarro
Chairperson
Pechanga Band of Indians
P.O. Box 1477
Temecula, CA, 92593

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Mark Macarro:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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December 8, 2023

Ray Chapparosa
Chairperson
Los Coyotes Band of Cahuilla and Cupeño Indians
P.O. Box 189
Warner Springs, CA, 92086-0189

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Ray Chapparosa:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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As part of the cultural resource assessment of the Project area, Æ requested a search of the *Sacred Lands File* by the Native American Heritage Commission (NAHC) on March 8, 2023. The NAHC responded on March 15, 2023, noting that *Sacred Lands File* search was completed with negative results. Should your records show that cultural properties exist within or near the Project area shown on the enclosed map, or if you have any concerns regarding Native American issues related to the overall Project, please contact me at (951) 766-2000 or via letter expressing your concerns. You may also e-mail me at adeleon@appliedearthworks.com. If I do not hear from you within the next two weeks, I will contact you with a follow-up email or phone call.

Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

DRAFT

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020
www.appliedearthworks.com

December 8, 2023

Reid Milanovich
Chairperson
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA, 92264

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Reid Milanovich:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

DRAFT

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020
www.appliedearthworks.com

December 8, 2023

Robert Martin
Chairperson
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA, 92220

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Chairperson Robert Martin:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

DRAFT

Applied EARTHWORKS Inc.

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O: (951) 766-2000 | F: (951) 766-0020
www.appliedearthworks.com

December 8, 2023

Shasta Gaughen
Tribal Historic Preservation Officer
Pala Band of Mission Indians
PMB 50, 35008 Pala Temecula Rd.
Pala, CA, 92059

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear THPO Shasta Gaughen:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

DRAFT

Applied EARTHWORKS Inc.

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www.appliedearthworks.com

December 8, 2023

Cultural Committee
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA, 92274

Re: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Dear Cultural Committee:

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California (Project). The Project involves construction of a 3-mile-long storm drain channel (Line E) which is an implement of the overall San Jacinto Master Drainage Plan. The Project is subject to the California Environmental Quality Act (CEQA) with the City of San Jacinto as the lead CEQA agency. The Project is located within Sections 18, 20, and 29 of Township 4 South, Range 1 West as indicated on the attached map. Specifically, the Project area is located south of Ramona Expressway and east of Sanderson Avenue.

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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

DRAFT

AGUA CALIENTE BAND OF CAHUILLA INDIANS
TRIBAL HISTORIC PRESERVATION

03-028-2023-003

December 14, 2023

[VIA EMAIL TO:adeleon@appliedearthworks.com]
Applied Earthworks
Mr. Andrew DeLeon
3550 E. Florida Ave., Suite H
Hemet, California 92544-4937

Re: San Jacinto Master Drainage Plan - Line E

Dear Mr. Andrew DeLeon,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the San Jacinto Master Drainage Plan Line E project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*A copy of the records search with associated survey reports and site records from the information center.

*The presence of an approved Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer.

DRAFT

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760) 423-3485. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Xitlaly Madrigal
Cultural Resources Analyst
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

AUGUSTINE BAND OF CAHUILLA INDIANS
84-481 Avenue 54, Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Augustine

Date: 12/11/2023

Dear: Andrew DeLeon
Associate Archaeologist
Applied EarthWorks, Inc.

SUBJECT: Cultural Resource Assessment for the San Jacinto Master Drainage Plan Line E Project, City of San Jacinto, Riverside County, California

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources have resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time, we are unaware of specific cultural resources that may be affected by the proposed project, however, in the event, you should discover any cultural resources during the development of this project please contact our office immediately for further evaluation.

Very truly yours,
Jacobia Kirksey
Jacobia Kirksey, Tribal Operations Specialist
Augustine Band of Cahuilla Indians

DRAFT

From: Lorrie Gregory
To: adeleon@appliedearthworks.com
Cc: BobbyRay Esparza
Subject: San Jacinto Master Drainage Plan Line E Project
Date: Monday, December 11, 2023 2:41:07 PM

Good afternoon,

Thank you for contacting the Cahuilla band of Indians concerning the Master Drainage Plan Line E Project, in San Jacinto Ca. We have no known cultural resources in the project area. However, since this project is within Cahuilla Traditional land use, we request that you send over any cultural materials associated with the project for review. Hope to hear from you soon!

Respectfully,

Lorrie Gregory
Cultural Resource Coordinator
Cahuilla Band of Indians
Phone: 1 (760) 315-6839
Email: lgregory@cahuilla-nsn.gov

DRAFT

Andrew DeLeon

From: anthony madrigal <anthonymad2002@gmail.com> on behalf of anthony madrigal
Sent: Monday, December 11, 2023 2:27 PM
To: adeleon@appliedearthworks.com; BobbyRay Esparza
Subject: San Jacinto Master Drainage Plan

Flag Status: Flagged

Thank you for the cultural information on the San Jacinto Master Drainage Plan.The Cahuilla Band desires to consult on the project. Please provide us with any other cultural materials in regard to the project and please keep us informed of the status of the project. The Cahuilla Band also desires to participate in monitoring once construction is completed.

Thank you

Anthony Madrigal
Cahuilla THPO

--
CONFIDENTIALITY NOTICE: The contents of this **email** message and any attachments are intended solely for the addressee(s) and may contain **confidential** and/or privileged information and may be legally protected from disclosure.

Anthony Madrigal Sr.

DRAFT

PECHANGA CULTURAL RESOURCES

Pechanga Band of Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 770-6300 • Fax (951) 506-9491

Chairperson:
Neal Ibanez

Vice Chairperson:
Bridgett Barcello

Committee Members:
Darlene Miranda
Richard B. Scearce, III
Robert Villalobos
Shevon Torres
Juan Rodriguez

Direcctor:
Gary DuBois

Coordinator:
Paul Macarro

Cultural Analyst:
Tuba Ebru Ozdil

December 11, 2023

VIA E-Mail and USPS
Andrew DeLeon, M.A., RPA
Associate Archaeologist
Applied EarthWorks, Inc.
adeleon@appliedearthworks.com

RE: Request for Information for the San Jacinto Master Drainage Plan-Line E Project, City of San Jacinto, Riverside County, California

Dear Mr. DeLeon,

The Pechanga Band of Indians ("the Tribe") appreciates your request for information regarding the above referenced Project. After reviewing the provided maps and our internal documents we have determined that the Project area is not within Reservation land's, although it is located in the heart of Our Ancestral Territory. At this time, we are interested in participating in this Project based upon Our 'Ayélkwish/Traditional Knowledge of the area and because of its placement entirely within 2 distinct Ancestral Placenames (in the northern/southern APE's). Additionally, we have 2 Sacred Lands Filing's for Traditional Cultural Properties located 1.28 miles west-northwest and at 1.43 miles due west from this proposed-Project. There are in upwards of 60 Ancestral/historical archaeological sites and over 40, GPS-recorded Ancestral-features located 62 yards-to-1mile away from this Projects'-APE's. 1966-to-present day historic aerial records depict properties that have retained their farming, ranch, or water-project activities. The Tribe maintains—a majority of this Project's native soils remain intact below the plow-zone. The San Jacinto River once connected a dozen villages along its span in our Ancestral Territory. A National Hydrography Dataset (NHD)-blueline feeder for the San Jacinto courses between 115 yards-to-.67 of a mile from the Projects' APE's. As evidenced by the upwards of 40 Ancestral features nearby, this region's waterways provided perennial water-sources for nearby Ancestral Clans. The nearness of this long-term blueline and the San Jacinto River to the Project, is *very concerning* to the Tribe. Given a combination of Our Culture's burial practices and a close proximity to long-term water sources often, increases potential impacts to our Ancestor's sacred sites. Because of this Project's nearness to known Ancestral human-remains and ceremonial sites, in view of this Project's placement *directly within* a Placename and nearby to 2 Traditional Cultural Properties, bearing in mind the adjacent NHD-waterway, considering the close proximity of 60 previously recorded sites and numerous features, and because of longstanding project experience within this Project's vicinity the Tribe therefore, is interested in participating in this Project. Pechanga believes that the possibility of recovering sensitive subsurface resources during ground-disturbing activities for this Project is extremely high.

DRAFT

The Tribe is dedicated to providing comprehensive cultural information to you and your firm for inclusion in the archaeological study as well as to the Lead Agency for CEQA review. At this time, the Tribe requests the following so we may continue the consultation process and to provide adequate and appropriate recommendations for the Project:

1) Notification once the Project begins the entitlement process, if it has not already;
2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc);
3) Government-to-government consultation with the Lead Agency; and
4) The Tribe believes that monitoring by a Riverside County qualified archaeologist and a professional Pechanga Tribal Monitor may be required during earthmoving activities. Therefore, the Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed.
5) In the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

As a Sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project. We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project.

Please note that we are interested in participating in surveys within 'Atáaxum/Payómkawichum Ancestral Territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. If you have any additional questions or comments, please contact me at pmacarro@pechanga-nsn.gov or 951-770-6306.

DRAFT

Sincerely,

Paul E. Macarro
Cultural Coordinator
Pechanga Reservation

Andrew DeLeon

From: Alexandra Mc Cleary <Alexandra.McCleary@sanmanuel-nsn.gov> on behalf of Alexandra Mc Cleary
Sent: Monday, December 11, 2023 10:00 AM
To: Andrew DeLeon
Subject: RE: Cultural Resource Assessment for the San Jacinto Master Drainage Plan - Line E Project

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Andrew,

Thank you for contacting the San Manuel Band of Mission Indians regarding this project. Please be advised that Jessica Mauck is no longer working for San Manuel. I am San Manuel's current POC for all CRM-related matters, as reflected on the NAHC's contact list. Please update your company's address book, as Jessica's email will be decommissioned soon.

Upon review of the documentation, the San Jacinto Master Drainage Plan - Line E Project is located outside of Serrano ancestral territory and, as such, San Manuel will not be requesting to receive consulting party status with the lead agency or to participate in the scoping, development, or review of documents created pursuant to legal and regulatory mandates.

Thank you,
Alexandra

From: Andrew DeLeon <adeleon@appliedearthworks.com>
Sent: Friday, December 8, 2023 6:20 PM
To: Jessica Mauck <Jessica.Mauck@SanManuel-NSN.Gov>
Subject: Cultural Resource Assessment for the San Jacinto Master Drainage Plan - Line E Project

Good Afternoon,

Attached please find a scoping letter and map for the San Jacinto Master Drainage Plan – Line E Project in the City of San Jacinto, Riverside County, California.

Thank you,
Andrew

Andrew DeLeon, M.A., RPA (17087) **|** **Applied EarthWorks, Inc.**
Associate Archaeologist

3550 E. Florida Ave., Suite H
Hemet, CA. 92544-4937
951.766.2000 x-520 office
www.appliedearthworks.com

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If you are on your Outlook client, report the suspicious email by clicking on Report Phish icon in your Outlook toolbar.
If you are on a mobile device, forward the suspicious email to spam@sanmanuel.com.

DRAFT

Andrew DeLeon

From: Joseph Ontiveros <jontiveros@soboba-nsn.gov> on behalf of Joseph Ontiveros
Sent: Monday, December 11, 2023 4:18 PM
To: Andrew DeLeon; Jessica Valdez
Cc: Isaiah Vivanco
Subject: RE: Cultural Resource Assessment for the San Jacinto Master Drainage Plan - Line E Project

Follow Up Flag: Follow up
Flag Status: Flagged

Andrew,

Thank you for sending the scoping notice. The proposed San Jacinto Master Drainage Plan - Line E Project is located within an area of high concern for Tribal Cultural Resources. Substantial information will be provided to the lead agency during consultation.

Moving forward, please direct all correspondence for scoping to Jessica Valdez, Soboba's Cultural Resource Specialist, and myself. Proceeding in the manner I have requested, will assist you in receiving a prompt response.

Thank you,

JOSEPH ONTIVEROS
TRIBAL HISTORIC PRESERVATION OFFICER
(951) 654-5544 Ext. 4137
(951) 663-5279 Cell
jontiveros@soboba-nsn.gov

CULTURAL RESOURCE
23906 Soboba Rd. San Jacinto, CA 92583
P.O. Box 487 San Jacinto, CA 92581
www.soboba-nsn.gov

NOTICE: This communication may contain information that is proprietary, privileged, confidential, or otherwise legally exempt from disclosure. It is intended exclusively for the use of the individual or entity to which it is addressed. If you are not the intended recipient, you are not authorized to read, print, retain, copy, or disseminate this message or any part of it. If you have received this message in error, please notify the sender immediately by e-mail and delete all copies of the message.

DRAFT

From: Andrew DeLeon <adeleon@appliedearthworks.com>
Sent: Friday, December 8, 2023 6:20 PM
To: Joseph Ontiveros <jontiveros@soboba-nsn.gov>
Cc: Isaiah Vivanco <ivivanco@soboba-nsn.gov>
Subject: Cultural Resource Assessment for the San Jacinto Master Drainage Plan - Line E Project

Good Afternoon,

Attached please find a scoping letter and map for the San Jacinto Master Drainage Plan – Line E Project in the City of San Jacinto, Riverside County, California.

Thank you,

Andrew

Andrew DeLeon, M.A., RPA (17087) **| Applied EarthWorks, Inc.**
Associate Archaeologist

3550 E. Florida Ave., Suite H
Hemet, CA. 92544-4937
951.766.2000 x-520 office
www.appliedearthworks.com

DRAFT

Rincon Band of Luiseño Indians
CULTURAL RESOURCES DEPARTMENT

One Government Center Lane | Valley Center | CA 92082
(760) 749-1092 | Fax: (760) 749-8901 | rincon-nsn.gov

January 4, 2024

Sent via email: adeleon@appliedearthworks.com

Re: Master Drainage Plan – Line E, City of San Jacinto, Riverside County, California

Dear Mr. DeLeon,

This letter is written on behalf of the Rincon Band of Luiseño Indians ("Rincon Band" or "Band"), a federally recognized Indian Tribe and sovereign government. We have received your notification regarding the above-mentioned project and we thank you for the consultation notification.

At this time, we have no additional information to provide. We recommend that you directly contact Soboba of Luiseño Indians as they are closer to the project and may have pertinent information.

If you have additional questions or concerns, please do not hesitate to contact our office at your convenience at (760) 749-1092 ext. 320 or via electronic mail at slinton@rincon-nsn.gov.

Thank you for the opportunity to protect and preserve our cultural assets.

Sincerely,

Shuuluk Linton
Tribal Historic Preservation Coordinator
Cultural Resources

DRAFT

Bo Mazzetti, Chairman | Tishmall Turner, Vice Chair | Laurie E. Gonzalez, Council Member | John Constantino, Council Member | Joseph Linton, Council Member

Paleontological Resource Assessment for the San Jacinto Master Drainage Plan Line E City of San Jacinto, Riverside County, California

Chris Shi

DRAFT

Prepared By

Applied EarthWorks, Inc.
133 N. San Gabriel Boulevard, Suite 201
Pasadena, CA 91107

Prepared For
Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506

January 2024
draft

MANAGEMENT SUMMARY

Applied EarthWorks, Inc. (Æ), at the request of Albert A. Webb Associates, assessed the potential for impacts to significant paleontological resources for the San Jacinto Master Drainage Plan (MDP) Line E Project (Project) in the city of San Jacinto, Riverside County, California. The Project involves the construction of a 3-mile-long storm-drain channel as part of the MDP on approximately 1,920 acres of land in northern San Jacinto, which will provide flood protection to the San Jacinto Commerce Center Specific Plan. Æ prepared this Paleontological Resource Assessment (PRA) in partial satisfaction of California Environmental Quality Act (CEQA) requirements. The City of San Jacinto is the lead agency for CEQA compliance.

This PRA was completed from a combination of desktop studies and fieldwork. The desktop studies included a review of published and unpublished literature and maps, as well as museum records searches. The purpose of these studies was to identify the geologic units in the Project area and to determine whether previously recorded paleontological localities occur either within the Project area, or within the same geologic units nearby but outside the Project area. As a result of the desktop studies and fieldwork, Æ has determined that the Project area has High B Sensitivity based on Riverside County's sensitivity rankings.

Æ recommends preparation of a Paleontological Resource Impact Mitigation Program (PRIMP) by a qualified professional paleontologist (Paleontological Principal Investigator, Project Paleontologist) as defined by mitigation paleontology industry standards and/or the Society of Vertebrate Paleontology. The PRIMP will specify the steps to be taken to mitigate impacts to paleontological resources. For instance, Worker's Environmental Awareness Program training should be prepared prior to the start of Project-related ground disturbance and presented in person to all field personnel to describe the types of paleontological resources that may be found and the procedures to follow if any are encountered. The PRIMP also will include a monitoring plan that indicates where construction monitoring will be required and the frequency of required monitoring (i.e., full-time, spot-checks, etc.). to ensure adverse impacts to paleontological resources will be reduced to a less-than-significant level in accordance with CEQA.

DRAFT

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1
INTRODUCTION

Applied EarthWorks, Inc. (Æ), at the request of Albert A. Webb Associates, assessed the potential for impacts to significant paleontological resources for the San Jacinto Master Drainage Plan (MDP) Line E Project (Project) in the city of San Jacinto, Riverside County, California. Æ prepared this Paleontological Resource Assessment (PRA) in partial satisfaction of California Environmental Quality Act (CEQA) requirements. The City of San Jacinto (City) is the lead agency for CEQA compliance.

1.1 PROJECT DESCRIPTION

The Project is within the western portion of the city of San Jacinto in Riverside County (Figure 1-1). Specifically, the approximately 1,920-acre Project area is south-southwest of the intersection of Ramona Expressway and North Sanderson Avenue. The northwestern corner of the Project area is approximately 1 mile west of the intersection, and the southeastern corner borders and partially overlaps the east-northeastern side of the San Jacinto Reservoir approximately 1.7 miles south of the intersection. The Project area is mapped in Sections 18, 19, 20, and 29, and unsectioned areas of Township 4 South, Range 1 West, San Bernardino Baseline and Meridian, as shown on the U.S. Geological Survey (USGS) Lakeview and San Jacinto, CA, 7.5-minute topographic quadrangle maps (Figure 1-2).

The Project is a component of the MDP that involves development of a 3-mile-long storm-drain channel that will provide flood protection to the San Jacinto Commerce Center Specific Plan. Storm water will flow from south to north, beginning from an outlet channel of a large joint flood-control and confluence basin at the southeastern terminus and ending at the existing Metropolitan Water District of Southern California aqueduct right-of-way at the northwestern terminus. The Project will involve construction of an earthen channel measuring 65 feet wide and up to 10 feet high, with side slopes inclined at 4:1 (horizontal:vertical), as well as several sloped rip-rap drops along the alignment. The Project also will include 20-foot-wide access roads on both sides of the channel along with seven 6- to 8-cell reinforced concrete box culverts. One of the culverts will intersect Sanderson Avenue, and the remaining culverts will intersect future roadways. The maximum anticipated depth of excavation for the Project is approximately 20 feet below ground surface (bgs).

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1.2 PURPOSE OF INVESTIGATION

This PRA is designed to accomplish several goals: (1) identify the geologic units within the Project area and assess their paleontological resource potential; (2) determine whether the Project has the potential to adversely impact scientifically significant paleontological resources; (3) provide Project-specific management recommendations for paleontological resources, as necessary; and (4) demonstrate compliance with state laws and local regulations. Section 1.4 describes the ways in which this PRA meets the stated goals.



Figure 1-1 Project vicinity in Riverside County, California.

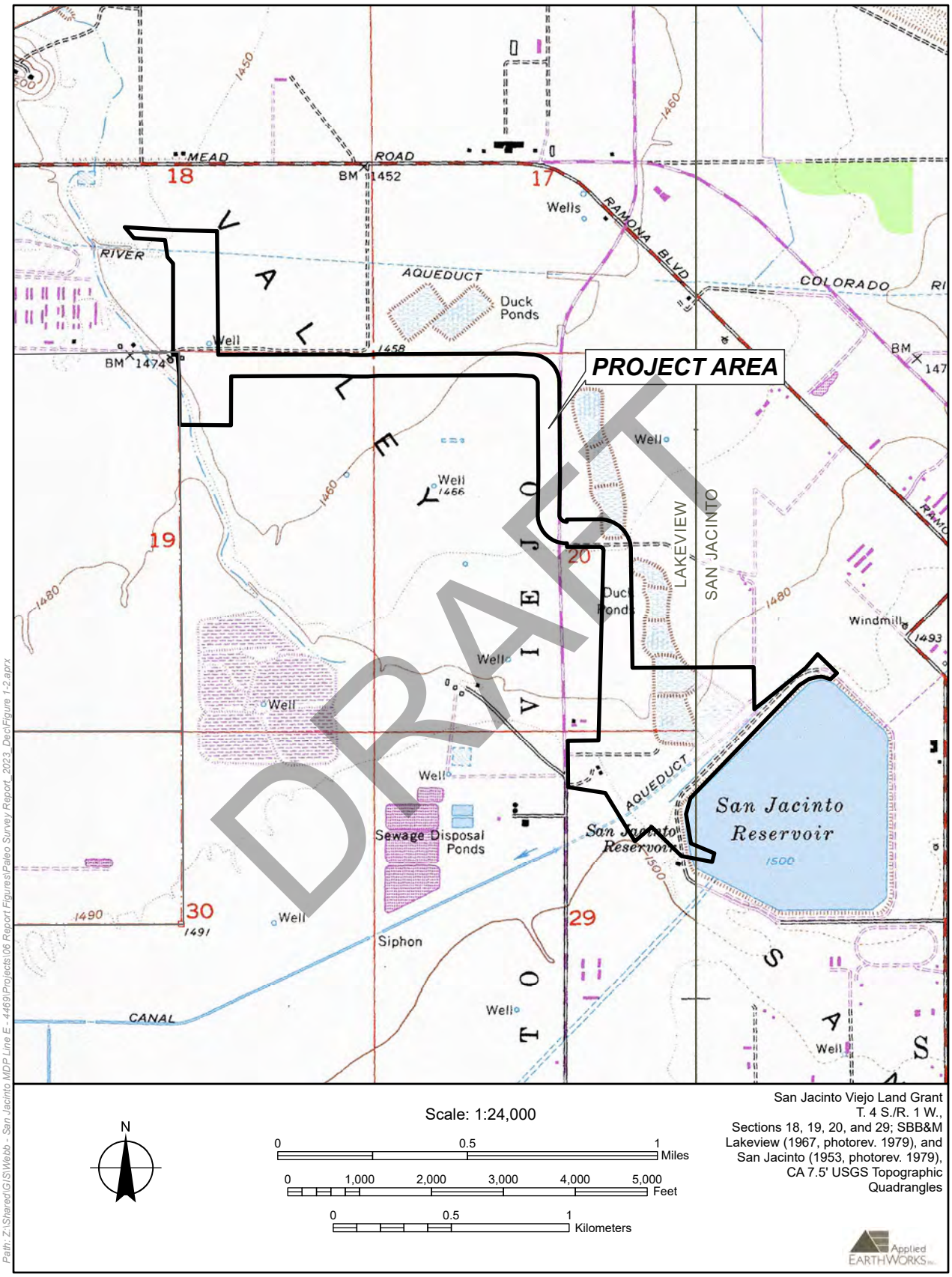

Figure 1-2 Project location on USGS Lakeview and San Jacinto 7.5-minute topographic quadrangles.

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1.3 KEY PERSONNEL

Qualifications for Æ's key paleontology personnel can be found in Appendix A. Æ Paleontology Program Manager Amy Ollendorf served as the Principal Investigator for the paleontological investigation. She oversaw each task required for this PRA, including quality control. Ollendorf qualifies as a principal investigator for paleontology per industry standards (Murphey et al., 2019). She has interdisciplinary doctor of philosophy and master of science degrees involving geology and a bachelor of science degree in geology and anthropology (double major), all of which focused on paleontological subject matter. Ollendorf is the principal investigator for paleontology on Æ's 2021–2024 California Statewide Paleontological Resource Use Permit (CA-21-06P) from the U.S. Bureau of Land Management (BLM). She also is a Registered Professional Archaeologist (RPA 12588) with over 40 years of experience.

Æ Senior Paleontologist Chris Shi completed the desktop research and wrote the PRA. Shi has the necessary qualifications to meet the Society of Vertebrate Paleontology (SVP; 2010) and industry standards (Murphey et al., 2019) for a qualified professional paleontologist and is an additional principal investigator for paleontology on Æ's BLM permit. He has a master's degree in geology with a focus on paleobotany, and additional graduate studies in invertebrate paleontology. Furthermore, he has over 14 years of experience in geology and paleontology, including the past 7 years in paleontological monitoring, recovery, and preparation of fossil remains, laboratory analysis, and report preparation. Æ Senior Paleontologist/Geographic Information System Analyst Melissa Macias prepared the figures for the report in coordination with Shi. Æ Paleontological Technician Victor Jiménez-González completed the paleontological field survey.

1.4 REPORT ORGANIZATION

Chapter 1 has described the Project, defined the purpose of the investigation, and provided a description of Æ's key personnel for this PRA. Chapter 2 discusses the regulatory framework governing the Project. Chapter 3 presents the paleontological sensitivity criteria and resource guidelines used for this assessment. Chapter 4 provides the methods employed, and Chapter 5 describes the geology and paleontology of the Project area. The results of the desktop studies, and paleontological sensitivity assessment are presented in Chapter 6. Management recommendations can be found in Chapter 7, and references cited are listed in Chapter 8. Appendix A provides qualifications of key personnel.

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2
REGULATORY ENVIRONMENT

Paleontological resources (i.e., fossils) are considered nonrenewable because when they are destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under various federal, state, and local laws. This Project is not subject to federal laws. Consequently, all resources are protected under state and local laws, as described in the following sections.

2.1 STATE

California is among the states that protect significant paleontological resources. CEQA is the legal framework through which this protection is accomplished. Enacted in 1970, CEQA does not directly regulate land uses but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of unavoidable environmental impacts of proposed projects and to adopt all feasible measures to mitigate those impacts.

2.1.1 California Environmental Quality Act

This Project is subject to Section 15002(a)(3) of the Guidelines for Implementation of CEQA (California Code of Regulations, Title 14, Chapter 3), which states one of the basic purposes of CEQA is the intention to "prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible." Therefore, CEQA requires detailed studies that analyze the environmental effects of a proposed project.

If a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered. Specifically, Section VII(f) of Appendix G of the CEQA Guidelines, the Environmental Checklist Form, poses the question, "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" If paleontological resources are identified as being within the proposed project area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

2.1.2 CEQA Implementation

Guidelines for implementation of CEQA are codified in 14 CCR 15000 et seq., which requires state and local public agencies to identify the environmental impacts of proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. The various agencies within state government all have their own guidance documents to assist with CEQA compliance. The City is the government agency responsible for CEQA compliance for the Project.

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2.2 LOCAL

In addition to state-level implementing regulations, policies, and guidance, various counties and municipalities throughout California also have developed environmental goals, policies, and guidance that pertain to paleontological resources. The following sections list all relevant goals, objectives, and policies.

2.2.1 County of Riverside

There are several policies covering paleontological resources within the County of Riverside (County) *General Plan, Multipurpose Open Space (OS) Element* (Riverside County Planning Department, 2015:OS-51):

> **OS 19.6:** Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, paleontological resource impact mitigation program (PRIMP) shall be filed with the Riverside County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.
>
> **OS 19.7:** Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the Riverside County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.
>
> **OS 19.8:** Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the Riverside County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.
>
> **OS 19.9:** Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.

2.2.2 City of San Jacinto

The City's *General Plan, Resource Management (RM) Element* also includes goals, policies, and implementation program that pertain to paleontological resources (City of San Jacinto, 2006:RM-9 and Appendix RM-5 and RM-6). Those within the cultural resources section of the document that are relevant to paleontological resources include:

> **Resource Management (RM) Goal 4:** Promote cultural awareness through the preservation of the City's historical, archaeological, and paleontological resources. Policies 4.1 through 4.4 cover the identification, protection, and preservation of such resources within the City.

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RM-16 California Environmental Quality Act, Cultural Resources

Continue to assess development proposals for potential impacts to sensitive historic, archaeological, and paleontological resources pursuant to the California Environmental Quality Act (CEQA). The first two policies, a and b, cover archaeological and built-environment resources, but the third policy addresses paleontological resources:

c. The City shall require an assessment of the potential for development proposals to significantly impact paleontological resources pursuant to the California Environmental Quality Act Guidelines. If the project involves earthworks, the City may require a study conducted by a professional paleontologist to determine if paleontological assets are present, and if the project will significantly impact the resources. If significant impacts are identified, the City may require the project to be modified to avoid impacting the paleontological materials, require monitoring of rock units with high potential to contain significant nonrenewable paleontologic [sic] resources, or require mitigation measures to mitigate the impacts, such as recovering the paleontological resources for preservation.

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3
PALEONTOLOGICAL RESOURCE ASSESSMENT GUIDELINES

Protection of paleontological resources requires assessment of the potential for geologic units to yield significant paleontological resources that could be directly or indirectly impacted or destroyed during Project development. Successful protection also involves the formulation and implementation of appropriate management measures to mitigate impacts. Mitigation measures are proportional to the potential of individual areas to yield intact and significant paleontological resources.

3.1 DEFINITION OF PALEONTOLOGICAL RESOURCES AND SIGNIFICANCE CRITERIA

The SVP guidelines define paleontological resources as fossils and fossiliferous deposits (SVP, 2010). Fossils are the evidence of once-living organisms as preserved in the rock record. They include both the lithified remains of ancient plants and animals and the traces thereof (trackways, imprints, burrows, etc.). In general, the SVP considers fossils to be greater than 5,000 years old (older than middle Holocene[1]) and to typically be preserved in sedimentary rocks, although certain volcanic rocks and low-grade metamorphic rocks may be fossiliferous if formed under certain conditions.

Well-preserved and identifiable individual fossils are considered significant paleontological resources if they are a type specimen, rare, a complete specimen, or part of an important diverse fossil assemblage. Of particular importance are fossils found in situ, or in their primary geologic context. These fossils are important because they are used to examine evolutionary relationships, provide insight on the development of and interaction between biological communities, establish time scales for geologic studies, and for many other scientific purposes, including investigation into paleoenvironments and paleoclimates (Scott and Springer, 2003; SVP, 2010). Among the various types of fossils, intact and in situ vertebrate fossils are usually assigned a greater significance than other types as they are comparatively rare. Consequently, more attention tends to be placed on the recovery of vertebrate fossils than other types.

3.2 PROFESSIONAL STANDARDS AND CLASSIFICATION OF PALEONTOLOGICAL RESOURCE SENSITIVITY

Most professional paleontologists in California adhere to the guidelines set forth by the SVP (2010) and industrywide standards (Murphey et al., 2019) to determine the course of paleontological mitigation for a given project unless specific city, county, state, or federal guidelines are available. The City does not have its own paleontological sensitivity guidelines. However, the County of Riverside (County) has developed a system that establishes detailed protocols for the assessment of the paleontological sensitivity of a project area and outlines

[1] Middle Holocene: the Holocene Epoch is subdivided into early (11,700 to 8,200 years ago), middle (8,200 to 4,200 years ago), and late (4,200 years ago to present) subepochs (Cohen et al., 2023). The Quaternary Period also includes the older Pleistocene Epoch, which is also subdivided into early (2.6 million to 1.8 million years ago), middle (1.8 million to 77,400 years ago), and late (77,400 to 11,700 years ago) subepochs (Cohen et al., 2023).

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measures to follow in order to mitigate adverse impacts to known or unknown fossil resources during project development (County of Riverside, 2015). Therefore, this PRA utilizes the County's ranking system and mitigation measures.

Following the County's established process, baseline information is used to assign the paleontological sensitivity of a geologic unit(s) (or members thereof) to one of four categories—Low, Undetermined, High A (Ha), and High B (Hb) (County of Riverside, 2015). Table 3-1 shows the criteria for the categories in comparison with those of the SVP as well as mitigation recommendations for each category.

Table 3-1
Paleontological Sensitivity Classifications

Sensitivity/Potential			
County of Riverside	**SVP**	**Criteria[a]**	**Mitigation Recommendations[b]**
High A High B	High	Rock units from which vertebrate or significant specimens of other fossil types have been recovered are considered to have a high potential. Rock units with high potential also may include rock units that are temporally or lithologically suitable for the preservation of fossils (e.g., Middle Holocene and older, argillaceous and carbonate-rich paleosols, fine-grained marine sandstones, etc.). Rock units with High B Sensitivity are considered to have high potential at depths greater than 4 feet bgs.	Retain a qualified paleontologist and typically complete a field survey, PRIMP, and on-site construction monitoring. Any significant specimens discovered during monitoring will need to be prepared, identified, and curated into a museum. A final report documenting the significance of the finds will also be required.
Undetermined	Undetermined	In some cases, available literature on a particular rock unit will be scarce and a determination of whether or not it is fossiliferous or potentially fossiliferous will be difficult to make. Under these circumstances, further study is needed to determine the unit's paleontological resource potential.	A field survey is required to further assess the unit's paleontological potential. The survey may provide data for development of a PRIMP prior to construction.
Low	Low	Rocks units from which few fossils have been recovered or generally unsuitable for preservation of fossils are considered to have a low potential. These units typically yield fossils only on rare occasions and under unusual circumstances (e.g., basalt flows, recent colluvium, etc.).	Mitigation is not typically required; however, if an unanticipated paleontological resource is encountered, a qualified professional paleontologist (Principal Investigator, Project Paleontologist) may need to evaluate the resource to consider mitigation.
N/A	No Potential	Rock units that have no potential for paleontological resources are those that are formed under or exposed to immense heat and pressure, such as high-grade metamorphic rocks and plutonic igneous rocks.	No mitigation required.

a - Criteria based on County of Riverside (2015) and SVP (2010).
b - Recommendations based on County of Riverside (2015).

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4
METHODS

This PRA was completed through desktop studies and a field survey. The twofold purpose of the off- and on-site research was: (1) to identify the geologic units in the Project area and immediate vicinity to determine whether previously recorded paleontological localities occur either within the Project area or within the same geologic units nearby and (2) to determine the sensitivity of the geologic units in the Project area for their potential to yield paleontological resources.

4.1 LITERATURE REVIEWS AND MUSEUM RECORDS SEARCHES

In many areas, the near-surface layers of sediments and sedimentary rocks are broken down and converted to soil (pedogenesis) through chemical and physical weathering processes (Boggs, 2012). During pedogenesis, any fossils preserved within the near-surface layers often are destroyed or rendered unrecognizable. Therefore, intact and identifiable fossils are unlikely to be found in soil. Reviews of relevant geologic maps, regional geological publications, and unpublished reports are necessary to ascertain the geology and stratigraphy of a project area to determine the potential for significant subsurface paleontological resources.

To supplement the map and literature reviews, Æ requested searches of records of the invertebrate and vertebrate collections maintained by the Natural History Museum of Los Angeles County (NHMLAC) and the Western Science Center of Hemet (WSC). Æ also completed online searches of two databases readily available to the public—the Paleobiology Database (PBDB) and the database maintained by the University of California Museum of Paleontology (UCMP). All records searches were completed to identify known fossil localities within or near the Project area. In addition to the museum records searches, Æ examined the geotechnical investigation report for the Project (Marquez, 2023).

4.2 FIELD SURVEY

Prior to the field survey, Shi examined recent aerial photographs of the entire Project area in Google Earth to determine likely locations of geologic outcrops and potential survey routes. For the purpose of discussing survey locations, we have defined two subareas within the Project area. The northwestern subarea includes the northwestern terminus where the proposed channel alignment meets the existing Metropolitan Water District of Southern California aqueduct right-of-way. An array of greenhouses is located in the central portion of this subarea. The southeastern subarea includes the large joint flood-control and confluence basin at the southeastern terminus, which borders the San Jacinto Reservoir. A homestead also is in the central portion of this subarea. The east-west and north-south stretches of the alignment between these two subareas cross several agricultural fields.

Victor Jiménez-González conducted the paleontological field survey for the Project on November 29, 2023, alongside Æ Associate Archaeologist Andrew DeLeon, who conducted the cultural field survey. The purpose of the survey was to confirm the presence or absence of exposed fossils on the ground surface and to evaluate geologic exposures for their potential to yield significant subsurface paleontological resources.

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Jiménez-González started the survey from the northwestern subarea and proceeded east parallel to Ramona Expressway, then south parallel to Sanderson Avenue before crossing the street and proceeding south to the southeastern subarea. He completed the survey with a combination of close visual inspection and spot-checking. Close visual inspection was conducted where the ground surface was visible and sediments were exposed, including (1) near the array of greenhouses in the northwestern subarea; (2) around the perimeter of the homestead; and (3) within agricultural fields along the north-south stretch of the alignment north of the homestead. Jiménez-González spot-checked the remainder of the Project area where the ground surface was obscured by vegetation, including (1) most of the northwestern subarea north of the greenhouses; (2) the east-west stretch of the alignment parallel to Ramona Expressway; and (3) most of the southeastern subarea south of the homestead. He used a cellular Global Positioning System receiver to navigate through the Project area, provided notes on his field form using the ArcGIS Survey123 application, and took photographs to document the survey. Any fossils encountered were to be field-documented and not collected.

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5
GEOLOGY AND PALEONTOLOGY

The following sections provide the geological context of the Project area, descriptions of the geologic units mapped as surface exposures within the boundaries of the Project area, and units exposed nearby and thought to be present in the subsurface. The section also includes any paleontological information reported from the units.

5.1 REGIONAL GEOLOGY

The Project area is in the San Jacinto Valley within the northern part of the geologically complex Peninsular Ranges geomorphic province (California Geological Survey, 2002)[2]. Derived from the same massive batholith (i.e., very deep igneous intrusion) as the core of the Sierra Nevada, the Peninsular Ranges are a series of mountain ranges separated by northwest-trending valleys formed from faults branching from the San Andreas Fault (Norris and Webb, 1976; California Geological Survey, 2002). The mountain ranges are bounded to the east by the Colorado Desert and range in width from 30 to 100 miles (Norris and Webb, 1976).

The Project area is within the San Jacinto Fault Zone and is crossed by the northwest-southeast-trending Casa Loma Fault (Morton et al., 2006a, 2006b). The geologic units in the region date from the Paleozoic[3] to the present, with basement rocks represented by the Mesozoic[4] Peninsular Ranges batholith and prebatholithic metasedimentary and metavolcanic rocks (Jahns, 1954; Morton et al., 2006b). Thick sequences of Cenozoic[5] sediments, mostly Quaternary in age, have accumulated above these in the valleys of the region.

5.2 GEOLOGY AND PALEONTOLOGY OF THE PROJECT AREA

The Project area is mapped on the Lakeview and San Jacinto quadrangles at a scale of 1:24,000 by Morton and Matti (2001) and Dibblee and Minch (2003), respectively. However, more recent

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[2] A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and tectonic history (American Geological Institute, 1976).

[3] Paleozoic Era: Approximately 539 to 252 million years ago, subdivided into six periods—Cambrian (539–485 million years ago), Ordovician (485–444 million years ago), Silurian (444–419 million years ago), Devonian (419–359 million years ago), Carboniferous (359–299 million years ago), and Permian (299–252 million years ago) (Cohen et al., 2023).

[4] Mesozoic Era: Approximately 252 to 66 million years ago, subdivided into three periods—Triassic (252–201 million years ago), Jurassic (201–145 million years ago), and Cretaceous (145–66 million years ago) (Cohen et al., 2023).

[5] Cenozoic Era (formerly Tertiary): 66 million years ago to present, subdivided into three periods—Paleogene (66–23 million years ago), Neogene (23–2.6 million years ago), and Quaternary (2.6 million years ago to present). The Paleogene Period is subdivided into the Paleocene, Eocene, and Oligocene epochs; the Paleocene Epoch lasted from approximately 66 to 56 million years ago, the Eocene Epoch lasted from approximately 56 to 34 million years ago, and the Oligocene Epoch lasted from approximately 34 to 23 million years ago. The Neogene Period is subdivided into the Miocene and Pliocene epochs; the Miocene Epoch lasted from approximately 23 to 5.3 million years ago and the Pliocene Epoch lasted from approximately 5.3 to 2.6 million years ago. The Quaternary Period is subdivided into the Pleistocene and Holocene epochs; the Pleistocene Epoch, or last Ice Age, lasted from approximately 2.6 million to 11,700 years ago when the Holocene Epoch began; all dates according to Cohen et al. (2023).

geologic map compilations at a scale of 1:100,000 by Morton et al. (2006a) and Lancaster et al. (2012) have refined the geology of the these quadrangles and therefore, the geologic map of the Project area (Figure 5-1) is based on these compilations. The following subsections provide additional information from Morton et al. (2006b) where relevant. The subsections also summarize the findings from 19 borings completed along the entire channel alignment as part of the geotechnical investigation (Marquez, 2023).

5.2.1 Young Alluvial-Valley Deposits (Qyv_a/Qya and Qyv_{1a})

The majority of the Project area falls within undifferentiated late Pleistocene to Holocene young alluvial-valley deposits (Qyv_a), according to the surface geology map by Morton et al. (2006a). In addition, small wedges of the oldest, late Pleistocene to early Holocene subunit of the deposits (Qyv_{1a}) occur at the ground surface of the southwestern corner of the northwestern subarea and the west-southwestern side of the southeastern subarea (Morton et al., 2006a). The geologic contact between Qyv_1 and Qyv_a is delineated by the Casa Loma Fault (Morton et al., 2006a). The surface geology of the easternmost third of the southeastern subarea is also mapped by Lancaster et al. (2012) as late Pleistocene to Holocene young alluvial-valley deposits but is instead labeled as Qya. Qyv_a and Qya sediments are fluvial deposits commonly present along valley floors in the region and consist of unconsolidated to slightly consolidated, undissected to slightly dissected sand, silt, and clay (Morton et al., 2006a, 2006b; Lancaster et al., 2012). These deposits are mostly sandy in composition (subscript "a" = arenaceous) in the vicinity of the Project area. The composition of Qyv_{1a} (Morton et al., 2006a, 2006b) does not differ markedly from that of the Qyv_a and Qya deposits, other than gravel reported by Lancaster et al. (2012) for the latter unit.

The boring logs from the geotechnical report show alluvial deposits from a depth of 0.5–2.5 feet bgs to their maximum depths of either 21.5 or 51.5 feet bgs (Marquez, 2023). In most of the borings, the deposits alternate between beds with varying proportions of sand and silt (i.e., sand, silty sand, sand with silt, sandy silt, silt with sand). Three of the borings (B-1, B-4, and B-15) also encountered beds of clayey sand. The authors of the report used Morton and Matti (2001) as their reference, and their observations are consistent with the mapping. Specifically, the geologic units mapped in the Project area in Morton and Matti (2001)are identical to those mapped in Morton et al. (2006a), as the latter incorporates data from the former.

All beds of the young alluvial-valley deposits older than middle Holocene in age are potentially fossiliferous. In particular, Pleistocene alluvial deposits are well documented to have yielded a wide variety of megafauna as well as numerous invertebrate and plant taxa throughout inland valleys of Riverside and San Bernardino counties (Reynolds and Reynolds, 1991; Scott, 2007; Springer et al., 2009).

5.2.2 Artificial Fill

Marquez (2023) reported the presence of artificial fill in all the borings to depths of 0.5–2.5 feet bgs. The fill consists of locally derived sandy silt and silty sand. Because the fill consists of local, potentially fossiliferous sediments, it may yield fossils. However, such fossils, if present, are unlikely to be significant as they would be removed from their primary geologic context and may have become damaged during excavation and transport. Despite this, the fill forms only a thin veneer over undisturbed alluvial deposits in the Project area. Therefore, significant, in situ fossils may be preserved in the shallow subsurface just beneath the fill.

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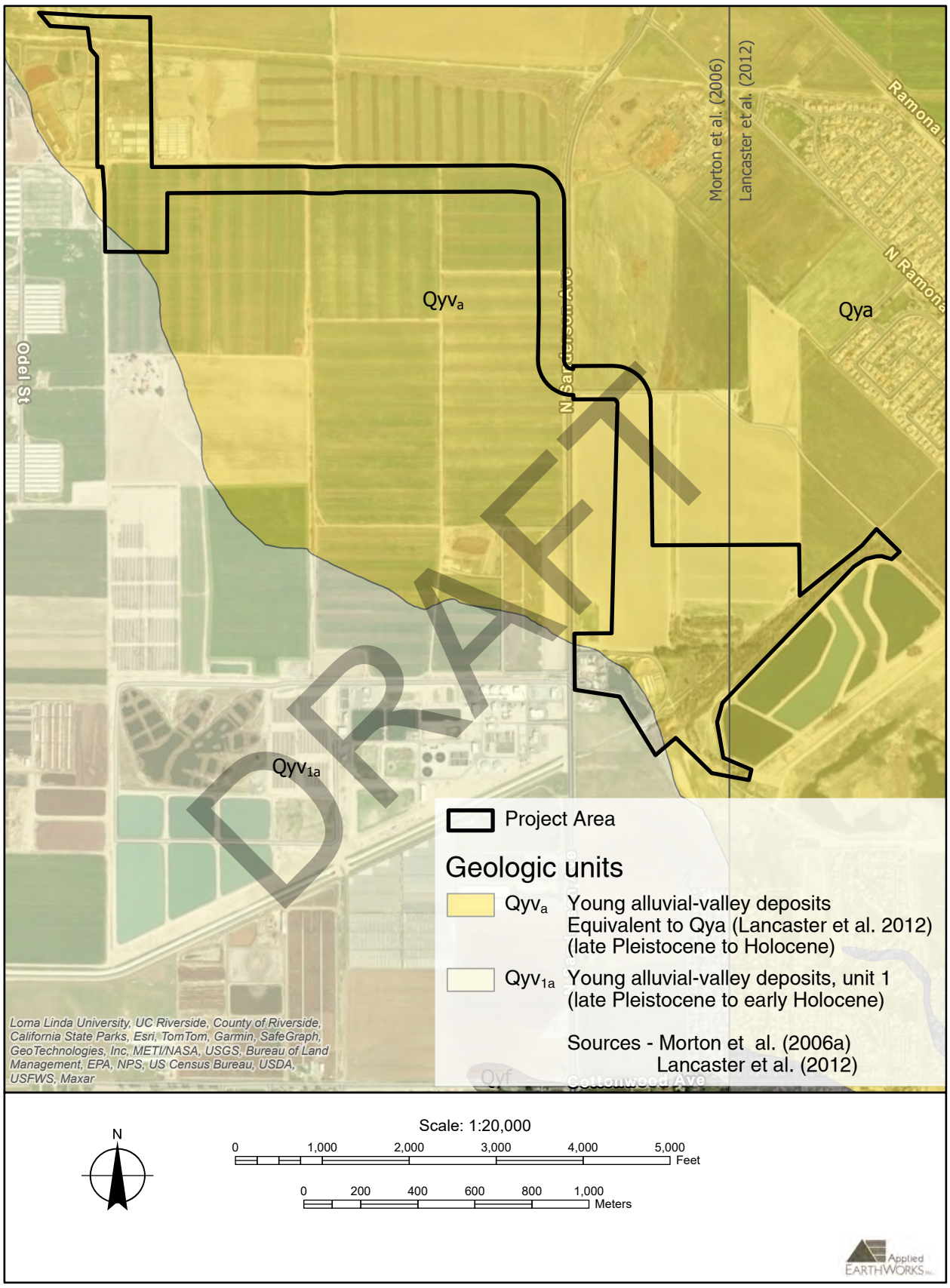

Figure 5-1 Geologic map for the Project area and vicinity.

6
RESULTS AND ANALYSIS

This chapter reports on the results of the desktop studies and fieldwork completed for this Project. Paleontological sensitivity rankings also are assigned to the geologic units mapped at the ground surface as well as those likely present at unknown depths based on the available information.

6.1 GEOTECHNICAL REPORT

The geotechnical investigation for the Project included excavation of 19 hollow-stem auger borings to depths of either 21.5 or 51.5 feet bgs along the length of the Project area, with B-1 completed in the northwestern subarea and B-19 completed in the southeastern subarea (Marquez, 2023). Specifically, borings B-1, B-2, and B-4 reached a depth of 51.5 feet bgs, whereas the rest terminated at 21.5 feet bgs. From the boring logs, a layer of artificial fill derived from local sandy silt and silty sand is at 0.5–2.5 feet bgs, followed by alternating beds of alluvial sand and silt of varying proportions, which extend to the maximum depths of the borings. Three of the borings (B-1, B-4, and B-15) also show beds of clayey sand at various depths. As discussed in the previous chapter, the authors noted the alluvial sediments were consistent with mapping by Morton and Matti (2001), whose geologic data was incorporated into Morton et al. (2006a). No paleontological resources were encountered during the geotechnical investigation.

6.2 RECORDS SEARCHES

The UCMP online database does not list any localities within a 10-mile radius of the Project area. Records search results from the PBDB, WSC, and NHMLAC are detailed below in Table 6-1, which shows all listings within a 10-mile radius of the Project area. The PBDB online database does not list any fossil localities from Pleistocene alluvial deposits within the Project area but shows numerous localities reported from Lakeview 5–6 miles to the west. The WSC search did not yield any localities within the Project area, although numerous localities are listed from Pleistocene alluvial deposits reported during construction of the Eastside Pipeline Project 1.5–2 miles to the southwest. The NHMLAC records search results do not report any localities within the Project area, although several nearby localities to the south-southwest are listed from geologic units similar to those mapped in or in the vicinity of the Project area.

6.3 FIELD SURVEY RESULTS

Low ground visibility and the absence of geologic outcrops or road cuts (Figure 6-1) limited Æ's close field examinations of the surficial geology in the Project area. The ground surface throughout the Project area was mostly obscured by vegetation, particularly in much of the northwestern and southeastern subareas and in the east-west stretch of the alignment parallel to Ramona Expressway. Jiménez-González observed exposed sediments in a few locations including the perimeter of the greenhouses in the northwestern subarea (Figure 6-2), the perimeter of the homestead in the southeastern subarea (Figure 6-3), and on dirt roads and fields between patches of vegetation along the linear, north-south stretch of the alignment in the southern half of the Project area (Figure 6-4). Most of these exposed sediments appear to have been previously disturbed from cultivation or landscaping. Jiménez-González also observed spoil

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Table 6-1
Fossil Localities Reported near the Project Area

Locality No.	Geologic Unit (Date)	Taxa	Depth	Approximate Distance from Project Area
WSC[a]—Eastside Pipeline Project, numerous localities	Alluvial deposits (Pleistocene)	Aves (bird) Rodentia (rodent) Gastropoda (snail) Numerous other vertebrates, microvertebrates, and invertebrates	200–300 feet bgs	1.5–2 miles
PBDB[b]—Lakeview localities	Alluvial deposits (Pleistocene)	*Mammuthus* (mammoth) *Smilodon* (saber-toothed cat) *Equus* (horse) *Bison* sp. cf. *B. antiquus* (bison) Numerous other vertebrates, invertebrates, and plants	Unknown	5–6 miles
LACM[c] VP 4540	Unnamed formation, gravel pit (Pleistocene)	Equidae (horse)	Unknown	6 miles
LACM[c] VP 1653, IP 437	Unknown formation (Pleistocene)	*Squatina* (monkfish) *Gasterosteus* (stickleback) *Sobobapteron kirkbaye* (protoorthopteran insect) *Terebratalia hemphili* (terebratulid brachiopod)	Unknown	7 miles

a – Western Science Center collection.
b – Paleobiology Database.
c – Natural History Museum of Los Angeles County collection.

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piles from previous excavations east of Sanderson Avenue along the north-south stretch of the alignment, which appear identical in lithology to nearby sediments and elsewhere in the Project area. Because of the low ground visibility, lack of geologic outcrops or road cuts, and previous disturbances throughout most of the Project area, little geologic information such as stratigraphy was discernible during the survey. Of the sediments Jiménez-González did observe, he recorded poorly sorted, white (10YR 8/1) to gray (10YR 6/1) silty sand with angular gravel throughout the entire Project area. He did not observe any notable changes in lithology and did not encounter any paleontological resources during the survey.



Figure 6-1 Overview of the northwestern subarea of the Project area from the north boundary; facing south.

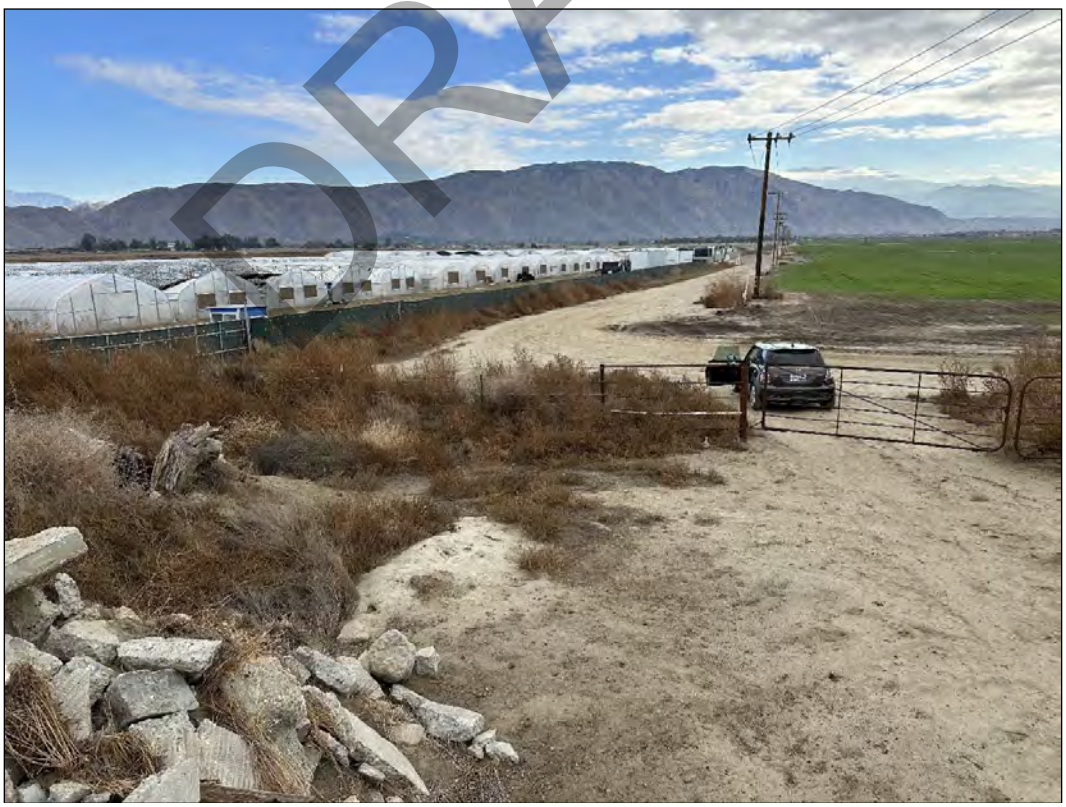

Figure 6-2 Greenhouse array in the northwestern subarea; facing east.

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Figure 6-3 Homestead in the southeastern subarea; facing northwest.



Figure 6-4 View from the dirt road where the proposed alignment crosses Sanderson Avenue, showing spoil piles to the right; facing east.

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6.4 DETERMINATION OF PALEONTOLOGICAL RESOURCE POTENTIAL WITHIN THE PROJECT AREA

Using information obtained from the desktop studies and field survey, Æ determined the paleontological resource potential of the Project area. Æ's paleontological sensitivity rankings follow the County of Riverside (2015) classification system. Based on the findings, Æ recommends the assignment of High B Sensitivity to the entire Project area (Figure 6-5).

Æ did not observe any exposures of unequivocally undisturbed alluvial deposits during the survey. Based on the presence of artificial fill in all of the boring logs and the extent of previous disturbance in the Project area, most of the sediments Æ observed during the survey may have been the locally derived artificial fill described by (Marquez, 2023). Therefore, we consider the surficial sediments in the Project area unlikely to yield significant paleontological resources. However, Æ's desktop studies indicate deposits of Qyv_a/Qya as well as Qyv_{1a} have a high potential of preserving significant paleontological resources particularly with increasing depth. (Marquez, 2023) described sediments matching the descriptions of Qyv_a/Qya at a depth of 0.5–2.5 feet bgs, just below artificial fill, throughout the Project area. Therefore, construction monitoring for paleontological resources from 4 feet bgs and downward (i.e., High B recommendation) may result in observations that can help to further refine our understanding of the geology of the Project area.

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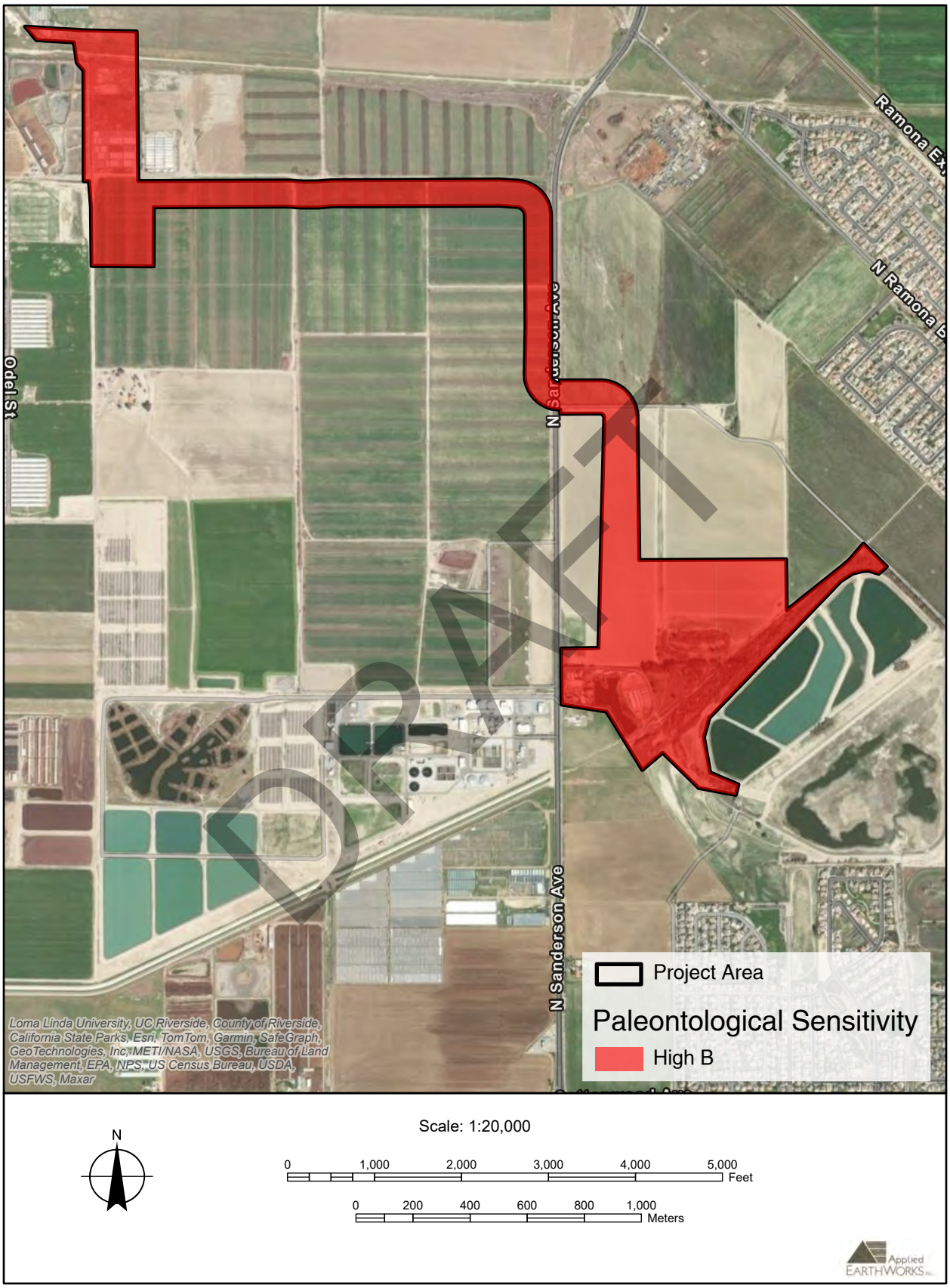

Figure 6-5 Paleontological sensitivity of the Project area.

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7
RECOMMENDATIONS

Æ concludes that construction activities may impact significant paleontological resources in various locations throughout the Project area. Æ's desktop studies indicate the Project area has High B Sensitivity for paleontological resources.

Prior to the issuance of grading permits and consistent with applicable policies (County of Riverside, 2015), Æ recommends a PRIMP be prepared by a qualified professional paleontologist (Paleontological Principal Investigator, Project Paleontologist) as defined by mitigation paleontology industry standards (Murphey et al., 2019) and/or the SVP (2010). The PRIMP will specify the steps to be taken to mitigate impacts to paleontological resources. For instance, Worker's Environmental Awareness Program training should be prepared prior to the start of Project-related ground disturbance and presented in person to all field personnel to describe the types of paleontological resources that may be found and the procedures to follow if any are encountered.

The Project-specific PRIMP also will include a monitoring plan that will indicate where construction monitoring should occur and the frequency of required monitoring (i.e., full-time, spot-checks, etc.). In addition to construction monitoring procedures, the monitoring plan also will provide details about fossil collection, analysis, and preparation for permanent curation at an approved repository, such as the WSC. Lastly, the monitoring plan will describe the different reporting standards to be used, such as monitoring with negative findings versus monitoring resulting in fossil discoveries.

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8
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APPENDIX A

Qualifications of Key Personnel

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AMY L. OLLENDORF

Vice President/Managing Principal/Paleontology Program Manager/Principal Investigator

Areas of Expertise

- Paleontology, mineralogy, and sedimentary geology
- CEQA/NEPA compliance
- Project management

Years of Experience

- 40

Education

Postdoctoral Research Associate, 2006–2007, World Heritage Studies, University of Minnesota

Ph.D., Ancient Studies,1993, University of Minnesota

M.S., Ancient Studies, 1986, University of Minnesota

B.S., Anthropology (with honors) and Geology, 1983, Beloit College

Registrations/Certifications

- Registered Professional Archaeologist #12588
- Licensed Professional Geologist, Minnesota #30084 (6/1998-6/2018, expired)
- Paleontologist Consultants List, Santa Cruz County (2022-present)
- Certified Paleontologist and Archaeologist, Orange County (2020-present)
- Paleontology and Cultural Consultant, Riverside County (2018-present)

Permits/Licenses

BLM - California Statewide Paleontological Resources Use Permit *CA-21-06P*, Principal Investigator.

BLM - Nevada Statewide Paleontological Resources Use Permit *N-090758*, Principal Investigator, Field Director.

Technical Qualifications

Dr. Ollendorf has 40 years of experience in paleontology, paleoecology, environmental compliance, and geoarchaeology at the global, national, tribal, state, and local levels. She meets industry standards for principal investigator in paleontology and she is also Æ's principal investigator on Æ's California and Nevada statewide Paleontological Resource Use Permits for paleontology from the US Bureau of Land Management (BLM).

Dr. Ollendorf has supervised and/or participated in paleontological services, tribal negotiations, and agency coordination throughout her career. She also has managed EISs and EAs. Her project experience includes work in 35 states, including California and other western states, and abroad on a wide range of client projects across many different industry sectors.

During her career, Dr. Ollendorf has written or overseen several hundreds of compliance reports in addition to having published multiple articles in peer-reviewed professional journals and presented to a wide variety of audiences, including professional peers.

Selected Project Experience

California High-Speed Rail Merced-to-Fresno Counties, California. Principal Investigator/Managing Principal, Paleontology and Cultural Resources (2023-present). Æ is providing as-needed multi-year paleontological services and occasional cultural resources services to support all environmental work within the approximately 57-mile-long corridor. Paleontologically sensitive geologic units: early to middle Pliocene-age Mehrten, Pliocene- to Pleistocene-age Laguna, Pliocene- to Holocene-age Tulare, early Pleistocene-age Turlock Lake, middle Pleistocene-age Riverbank, and late Pleistocene-age Modesto Formations; and Pleistocene-age non-marine sediment. Completing for CEQA compliance (California High-Speed Rail Authority) and NEPA compliance (Federal Railroad Administration). Working closely with paleontology staff (Chris Shi and Melissa Macias). Client: T.Y. Lin.

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CHRISTOPHER SHI

Senior Paleontologist/Project Manager

Areas of Expertise

- Paleontological resource technical and project management
- CEQA/NEPA compliance

Years of Experience

- 14

Education

Ph.D., Geology (studies), UCLA, 2012-2016

M.S., Geology, UCLA, 2011

B.S., Biology, University of Minnesota, Minneapolis, 2006

Registrations/Certifications

- Paleontologist Consultants List, Santa Cruz County (2022-present)
- Certified Paleontologist, Orange County (2020-present)
- Qualified Paleontologist, Riverside County (2019-present)

Permits

- Field Director, California BLM Statewide Paleontological Permit CA-21-06P

Classes/Training

- OSHA Excavation Competent Person Seminar, Mar. 11, 2019
- OSHA Hazardous Waste Operations Worker (HAZWOPER) Training, 40-Hour, January 20-23, 2020 and 8-Hour Refreshers, January 21, 2021, June 10, 2022, and June 20, 2023

Professional Experience

2020–	Senior Paleontologist/Project Manager, Applied EarthWorks, Inc., Pasadena, California.
2018–2020	Associate Paleontologist/Project Manager, Applied EarthWorks, Inc., Pasadena, California.
2016–2018	Paleontological Laboratory and Field Technician, Applied EarthWorks, Inc., Pasadena, California.
2017–2018	Lead Paleontology Monitor, Rincon Consultants, Los Angeles, California.

Technical Qualifications

Mr. Shi is a paleontologist and geologist with 14 years of experience in paleontology, evolutionary biology, mineralogy, and sedimentary geology, and meets the Society of Vertebrate Paleontology's (SVP) standards for a qualified professional paleontologist/project paleontologist/principal investigator. He has a background in plant and invertebrate taphonomy, and his master's thesis focused on the characterization of fossilized Eocene ferns using a novel three-dimensional imaging technique. Additionally, Mr. Shi spent several years working toward a Ph.D. in geology with research focused on the link between the trend in changing seawater chemistry and the evolution of the first animals to develop shells from calcium carbonate during the Cambrian explosion. He has completed several professional publications and presentations throughout his career.

Mr. Shi completes various tasks within the Paleontology Program of Applied EarthWorks. He coordinates and schedules paleontological monitors throughout Æ's 5 offices. In the field, Mr. Shi's responsibilities include stratigraphic analyses, geological and paleontological data collection, bulk-sediment sampling, collection paleontological resources, and documentation of fossil localities. In the lab, Mr. Shi picks microvertebrate fossils, identifies, analyzes, and prepares collected fossils for permanent curation, including jacketing of large vertebrate specimens. Mr. Shi also regularly completes paleontological desktop literature and map reviews and coordinates with various paleontology curators for museum records searches; authors paleontology monitoring plans, inventory and evaluation reports, resource impact management plans, and worker environmental awareness training materials. In the past, Mr. Shi served as Æ's lead monitor on construction monitoring projects for utility, transportation, and residential and commercial development projects.

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Table 1 – Total Construction-Related Fuel Consumption

MDP Line E

Fuel	Consumption	
Diesel		
On-Road Construction Trips[1]	39,016	Gallons
Off-Road Construction Equipment[2]	290,325	Gallons
Diesel Total	**329,340**	**Gallons**
Gasoline		
On-Road Construction Trips[1]	30,632	Gallons
Off-Road Construction Equipment[3]	-	Gallons
Gasoline Total	**30,632**	**Gallons**

Notes:

1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod for construction in 2027 and fleet-average fuel consumption in gallons per mile from EMFAC2021 web based data for Riverside (South Coast). See Table 2 for calculation details.
2. Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (HP)-hour, based on SCAQMD CEQA Air Quality Handbook, Table A9-3E.
3. All emissions from off-road construction equipment were assumed to be diesel.

Table 2 – On-Road Construction Trip Estimates

MDP Line E

Trip Type	Trips	Trip length	Vehicle Miles Traveled (VMT)	Fuel Efficiency	Annual Fuel Usage[1]	
	(trips)	(miles)	(miles)	(mpg)	(Fuel)	(gallon)
Worker[2,3]	45,080	18.5	833,980	27.9	Gasoline	30,632
Vendor[4]	6,272	10.2	63,974	7.7	Diesel	8,563
Hauling[5]	64,467	3	193,401	6.4	Diesel	30,453

Notes:

1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod output for construction and fleet-average fuel consumption in gallons per mile from EMFAC2021 web based data for 2027 in Riverside (South Coast).
2. Worker trips were assumed to be 100% gasoline powered vehicles.
3. Per CalEEMod, worker Trips were assumed to be 25% LDA, 50% LDT1, and 25% LDT2.
4. Vendor trips were assumed to be 50% MHDT and 50% HHDT, split evenly between the MHDT and HHDT construction categories.
5. Per CalEEMod, hauling trips were assumed to be 100% HHDT.

Phase I Environmental Site Assessment

North Sanderson Avenue and Record Road, San Jacinto, California

January 30, 2024

Prepared for:

Shea Properties

Prepared by:

Roux Associates, Inc.
5150 E. Pacific Coast Highway, Suite 450
Long Beach, California, 90804

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Executive Summary

Shea Properties (User) retained Roux Associates, Inc. (Roux) to perform a Phase I Environmental Site Assessment (ESA) of the property located along North Sanderson Avenue and Record Road in San Jacinto, Riverside County, California; the property is identified as the Line E - Orange Proposed Irrigation Channel Alignment (Subject Property; Figure 1). Roux performed this Phase I ESA in general accordance with the American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-21) in an effort to identify, to the extent feasible, the presence of recognized environmental conditions (RECs) with respect to the Subject Property as defined in ASTM E1527-21. Exceptions to, or deletions from, this practice are described in Section 9.1 of this report.

The Subject Property consists of a proposed irrigation channel alignment, referred to as the Line E - Orange Proposed Irrigation Channel Alignment, that traverses nine individual parcels (collectively identified as the Parent Property) with Riverside County Assessor's Parcel Numbers (APNs) 436-170-008, 436-170-016, 436-170-001, 436-030-004, 436-010-003, 432-030-012, 432-030-010, 432-030-006, and 430-100-018 (Parcels 1 through 9; Figure 2). The proposed irrigation channel project will include buffer and support areas (Figure 2) for construction activities (such as equipment staging), which are largely located within the Parent Property but are not included as part of the Subject Property. North Sanderson Avenue, a north-south trending road, transects the Parent Property and is located east of Parcels 6 and 7 and west of Parcels 2 through 5. Record Road, an east-west trending road, also transects the Parent Property and is located north of Parcels 6 through 8 and south of Parcel 9. A description of the use and/or operation of the Parent Property and each Subject Property area is provided below:

- Parcel 1 is developed with the western portion of the San Jacinto Reservoir. The Subject Property portion of Parcel 1 consists of berms and unpaved roadways.
- Parcel 2 is developed as a ranch for retired horses operated by the California Equine Retirement Foundation (805 North Sanderson Avenue). The Subject Property portion of Parcel 2 consists of a vacant area with no structures or notable features;
- Parcel 3, including the Subject Property portion, consists of vacant land;
- Parcel 4, including the Subject Property portion, consists of an agricultural field (watermelon);
- Parcel 5, including the Subject Property portion, consists of an agricultural field (unknown leafy crop);
- Parcel 6, including the Subject Property portion, consists of an agricultural field (watermelon);
- Parcels 7 and 8, including the Subject Property portions, consist of vacant land; and
- Parcel 9, including the Subject Property portions, consists of an enclosed agricultural field (unknown crop) with greenhouse farming structures.

Based on a review of historical sources, the following site histories were identified for the Parent Property, including Subject Property areas:

- Parcel 1 was vacant land as early as 1901 and has been developed as part of the San Jacinto Reservoir since at least 1949. The Subject Property area of Parcel 1 has consisted of berms and unpaved roadways since the parcel was developed as part of the Reservoir.

- Parcels 2, 3, and 4 were vacant land as early as 1901. By 1949, a dwelling and multiple structures (likely associated with agricultural operations of the surrounding area) were apparent on the western-most portions of Parcels 2, 3, and 4. Duck ponds were depicted within the central portions of Parcel 3 and 4 (outside the Subject Property area) between the 1960s through 2015 when the land was developed with row crops as part of agricultural operations. The current horse retirement facility and associated structures and features were present on Parcel 2 by 2006. No structures have been present in the Subject Property area of Parcel 2.

- Parcel 5 was vacant land as early as 1901 through the 1940s when the parcel was used as agricultural land. A duck pond (part of a series of duck ponds) was depicted on the eastern portion of the parcel (and within the Subject Property area) from the 1960s through 2012 when the parcel was converted to agricultural land.

- Parcels 6, 7, and 8, including the Subject Property areas, were vacant land from as early as 1901. By the 1950s, Parcels 6, 7, and 8 were agricultural land with various unpaved roads. A small structure, likely associated with the agricultural operations in the area, was located on the Subject Property portion of Parcel 8 from at least 1975 through 2002. Parcel 8 has been vacant or agricultural land since 2005.

- Parcel 9, including the Subject Property area, was vacant land from as early as 1901 through the 1970s when two small structures, likely associated with the surrounding agricultural operations, appeared within the southwestern portion of the parcel. Parcel 9, including the Subject Property area, was most recently developed with greenhouse farming structures starting in 2023.

On October 12 and 13, 2023, Roux visually assessed the Subject Property during the site reconnaissance for potential RECs, including, but not limited to, potential underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyl (PCB)-containing equipment, hazardous materials storage or handling areas, containerized or bulk wastes, and visual indications of impacted soil.

Roux, on behalf of User, conducted previous Phase I ESAs and subsurface investigations of Parcels 7 and 8 in 2021 and Parcel 6 in 2023. The Phase I ESAs and subsurface investigations were prepared under separate covers; previous environmental issues identified as RECs, hRECs, and/or OEFs with respect to Parcels 6, 7, and 8 were addressed in the subsurface investigations. Based on the analytical results of the 2021 and 2023 investigations, Roux did not recommend any further investigations with respect to Parcels 6, 7, and 8 (including the Subject Property areas).

Roux also performed a records review in an effort to identify RECs in connection with the Subject Property. This records review addressed the Subject Property and surrounding properties. Roux reviewed commercially available records associated with the Subject Property and nearby properties to assess potential concerns associated with the migration of hazardous substances. The records review also included reasonably ascertainable historical data, which can be helpful in identifying the past uses of the Subject Property and surrounding areas, as it may relate to the environmental condition of the Subject Property.

Roux performed interviews and/or file reviews with various government agencies and other parties with possible knowledge of the Subject Property and surrounding properties in an effort to identify current and past uses of the Subject Property and surrounding areas, as they may relate to the environmental condition of the Subject Property.

ASTM E 1527-21 defines a Recognized Environmental Condition (REC) as:

> "The presence of hazardous substances or petroleum products in, on, or at the Subject Property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum

products in, on or at the Subject Property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on or at the Subject Property under conditions that pose a material threat of a future release to the environment. A de minimis condition is not a recognized environmental condition."

A Controlled Recognized Environmental Condition (cREC) as:

> "A recognized environmental condition affecting the Subject Property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations and other property use limitations."

And a Historical Recognized Environmental Condition (hREC) as:

> "A previous release of hazardous substances or petroleum products affecting the Subject Property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the Subject Property to any controls (for example, activity and use limitations and other property use limitations."

The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

This Executive Summary provides a brief overview of the findings of this Phase I ESA. Although the Executive Summary is an integral part of a report, it does not substitute for reading the entire report or the appended or referenced documents in order to fully understand the findings and potential environmental concerns associated with the Subject Property.

Recognized Environmental Conditions (RECs)

Based on the information obtained through the performance of this Phase I ESA, Roux identified the following RECs in connection with the current and historical operations at the Subject Property or adjoining properties. To the extent possible, the locations of the RECs are shown in Figure 2. To avoid confusion, all RECs, cRECs, hRECs, and OEFs are numbered sequentially.

> **REC 1 – Former Agricultural Applied Pesticide Area**. According to aerial photographs, agricultural operations (row crops) have been conducted on Parcels 3, 4, 5, 6, 7, and 8 (including Subject Property areas) since at least 1949. Parcel 9 appeared developed for agricultural use circa 1975 and again in 2023. Based on the long-term agricultural use, it is possible that agricultural chemicals, such as organochlorine, lead-based, and arsenic-based pesticides, herbicides, and fertilizers, may have been used on-site within Parcels 3 through 8. Previous site investigations conducted within Parcels 6, 7, and 8 did not identify significant evidence of soil contamination associated with historical crop growth. The potential for impacts from agricultural chemicals to on-site soils within Parcels 3, 4, 5, and 9 is considered a REC.

Controlled Recognized Environmental Conditions (cRECs)

Roux did not identify known or suspected cRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

Historical Recognized Environmental Conditions (hRECs)

Roux did not identify known or suspected hRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

Other Environmental Features (OEFs)

The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Other environmental features (OEFs) are environmental conditions that do not meet the definition of a REC, but which may warrant mention in a comprehensive Phase I ESA. Based on the subject Phase I ESA, Roux identified the following OEFs.

> **OEF 2 – Adjoining Dairy Ponds.** The west adjoining dairy farm features several ponds, likely used to store dairy farm effluent including manure. At the time of the inspection, no water was observed in the ponds. The likely use of the adjoining dairy ponds for disposal of dairy farm effluent (including manure) is considered an OEF due to the potential generation and migration of methane gas. The Subject Property is slated to be redeveloped with an irrigation channel with no structures, minimizing the concern for gases beneath future inhabited buildings or structures.

1. Introduction

Roux Associates, Inc. (Roux) completed this Phase I Environmental Site Assessment (ESA) of the property located along North Sanderson Avenue and Record Road in San Jacinto, Riverside County, California; the property is identified as the Line E - Orange Proposed Irrigation Channel Alignment (Subject Property). The Subject Property consists of a proposed irrigation channel alignment and traverses nine individual parcels (collectively identified as the Parent Property) with Riverside County Assessor's Parcel Numbers (APNs) 436-170-008, 436-170-016, 436-170-001, 436-030-004, 436-010-003, 432-030-012, 432-030-010, 432-030-006, and 430-100-018 (Parcels 1 through 9). The Subject Property location is shown in Figure 1 and the Subject Property and vicinity is shown in Figure 2. Roux performed this Phase I ESA in compliance with the scope and limitations of American Society for Testing Materials (ASTM) E1527-21 and the terms and conditions of Roux' proposal dated July 28, 2023. Roux conducted this Phase I ESA for the benefit of Shea Properties (the User).

The following sections of this report present our Phase I ESA findings and conclusions. A glossary containing terms and definitions presented in ASTM E1527-21 is included in Appendix A – Glossary of Terms. Other appendices presented at the end of the report include historical topographic maps, historical aerial photographs, regulatory records review documentation, applicable historical records, and personnel qualifications.

1.1 Purpose

The purpose of this Phase I ESA is to identify and report, to the extent feasible, recognized environmental conditions (RECs) with respect to the Subject Property. Performing a Phase I ESA in general compliance with ASTM E 1527-21 may enable a User to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability. That is, the practice that constitutes one of the requirements for "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC Section 9601(35) (B).

1.2 Scope of Services

The scope of services for this Phase I ESA included, but was not limited to, the activities listed below.

- A review of reasonably ascertainable and practicably reviewable topographic maps, historical aerial photographs, and city directories, if available, to investigate current and past uses of the Subject Property and surrounding properties;
- A review of specific government lists pursuant to ASTM Standard E 1527-21 regarding environmental activities for the Subject Property and local area properties;
- A review of recorded land title records, building, assessors, and fire department records, for permits, citations, and reports connected to the Subject Property that were reasonably ascertainable, practicably reviewable, and publicly available within reasonable time and cost;
- An inspection by an environmental professional to investigate the current use of the Subject Property and to identify environmental concerns including but not limited to, the presence of hazardous substances or petroleum products, wastes, underground storage tanks (USTs), aboveground storage tanks (ASTs), or other environmental concerns;

- Interviews with available representatives of the owner of the Subject Property, occupants, and local government officials by an environmental professional; and
- Preparation of this Phase I ESA report.

Roux initiated this Phase I ESA pursuant to receipt of written authorization to proceed on September 21, 2023.

1.3 Standard of Care

Roux conducted this Phase I ESA using a defined scope of services considered appropriate and agreed upon by all parties on the date the service was authorized, unless the scope of services or the methods used were later modified, in writing, and accepted by all parties prior to performance. Roux conducted this Phase I ESA in accordance with generally accepted practices in a manner consistent with that level of care exercised by other members of our profession in the same locality and under similar conditions of time and accessibility of improvements and information. No other representations, expressed or implied, and no warranty or guarantee is included or intended to be part of this Phase I ESA.

Please note that the scope of services performed in execution of this assessment may not be appropriate to satisfy the needs of other parties. We, therefore, are not responsible for independent conclusions, opinions, or recommendations of others based on our assessment. Furthermore, this Phase I ESA relates to the environmental conditions of the Subject Property and does not address issues raised in transactions such as business risk, purchase of business entities, or interests therein, or of their assets, that may well involve environmental liabilities pertaining to properties previously owned or operated or other off-site liabilities.

Additionally, the findings of this Phase I ESA are based on Roux' observations, inquiries, and historical research using reasonably ascertainable and practically reviewable information obtained within reasonable time and cost constraints. Roux does not represent that this Phase I ESA is an exhaustive investigation that reflects the findings of all of the information available for the Subject Property, nor is it representative of future Subject Property conditions. If additional information is generated from the Subject Property, it should be provided to Roux so that we may evaluate its impact on our conclusions. As such, activities or episodes that transpire subsequent to this Phase I ESA are not considered in this assessment. It is not intended that a Phase I ESA in accordance with ASTM E1527-21 be an exhaustive assessment of a property nor can it wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property.

1.4 Assumptions

This Phase I ESA Report, including the exhibits attached hereto, describes the results of Roux' investigation to identify the presence of *recognized environmental conditions* connected with the Subject Property in accordance with ASTM E1527-21, as allowed by and consistent with the regulatory requirements of the All Appropriate Inquiry Rule, 40 CFR Part 312, Amendment to Standards and Practices for All Appropriate Inquires Under CERCLA, Final Rule, published December 30, 2013 (AAI Rule). Specifically, the preamble to the amended AAI Rule states:

> *The Environmental Protection Agency (EPA) today is taking final action to amend the standards and practices for conducting all appropriate inquiries under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to reference a standard practice recently made available by ASTM International, a widely recognized standards development organization. Specifically, this final*

rule amends the ''All Appropriate Inquiries Rule'' at 40 CFR Part 312 to reference ASTM International's E1527–13 ''Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process'' and make clear that persons conducting all appropriate inquiries may use the procedures included in this standard to comply with the All Appropriate Inquiries Rule[1].

As of February 13, 2023, the EPA indicated that the updated standard ASTM E1527-21 is now AAI compliant. While ASTM E1527-21 is now the current standard, the previous standard (ASTM E1527-13) is still AAI compliant until February 13, 2024.

One of the requirements that a person acquiring real property must meet in order to qualify for either the innocent landowner, contiguous owner, or bona fide prospective purchaser (collectively hereinafter "Prospective Purchaser") defense to liability under the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and the Small Business Liability Relief and Brownfields' Revitalization Act of 2002, 42 U.S.C. 9601-9675 (collectively referred to hereafter as "CERCLA") is that person must conduct all appropriate inquiries into the previous ownership and uses of the property in conformance with the AAI Rule (or the ASTM E1527-21) prior to acquisition of the property. The User has acknowledged that, under the AAI Rule, Roux' performance of this Phase I ESA in accordance with ASTM E1527-21 will not alone result in the User satisfying all requirements of the AAI Rule and will not in itself provide a defense to CERCLA liability. The User has acknowledged that the AAI Rule also requires that the Prospective Purchaser undertake certain additional inquiries and post-acquisition activities to satisfy the CERCLA AAI requirements. Accordingly, Roux makes no guarantees or warranties, expressed or implied, regarding this Phase I ESA, including without limitation, that this Phase I ESA will qualify the User for a defense to CERCLA liability.

Roux has performed this Phase I ESA in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. Professional judgments expressed herein are based on the facts currently available to Roux.

The AAI Rule requires, and the conclusions and recommendations stated herein represent, the application of a variety of engineering and technical disciplines to material facts and conditions associated with the Subject Property. As such, these conclusions and recommendations are based on subjective interpretations and the exercise of discretion based on the facts available to Roux and conditions at the time of the performance of this Phase I ESA. Many of these facts and conditions are subject to change over time. Accordingly, the conclusions and recommendations must be considered within this context.

The User has agreed that Roux shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time this Phase I ESA was performed. To the extent practicable, Roux has identified data gaps, and has evaluated the potential significance of such data gaps. Recommendations to address those data gaps are presented herein and are based on the data available at the time of the performance of this Phase I ESA. Implementation of the recommendations may not fully address the data gaps, and the information obtained from execution of those recommendations may alter and/or modify the interpretation of the Subject Property conditions and conclusions, herein. This Phase I ESA does not include consideration of matters specifically excluded by ASTM E1527-21, including but not limited to, asbestos-containing building materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, and mold unless specifically identified herein.

[1] Federal Register: December 30, 2013 (Volume 78, Number 250) Page 79319

Emerging contaminants that are not defined as hazardous substances under CERCLA including, but not limited to per- and polyfluoroalkyl substances (PFAS) are outside the scope of the Phase I ESA. This Phase I ESA does not include the completion of searches for recorded environmental liens.

Roux has not collected any soil and/or groundwater samples on the Subject Property for Phase I purposes, and is relying on information presented by others, often in preliminary, draft, or verbal form. By referencing this information, Roux does not accept responsibility for the accuracy of the underlying data, sampling methods, laboratory analysis, or documentation.

This Phase I ESA Report should not be considered a legal interpretation of existing environmental laws and regulations. This Phase I ESA was conducted with a reasonable degree of inquiry to identify *recognized environmental conditions*, but uncertainty is not eliminated. No Phase I ESA can wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property. The Phase I ESA process is intended to reduce, but not eliminate, the uncertainty involved with identifying *recognized environmental conditions*.

This Phase I ESA Report is not an appraisal or value judgment of the Subject Property. The User has agreed that Roux shall not be liable for any use of this Phase I ESA Report as an appraisal or value judgment of the Subject Property.

This Phase I ESA Report has been prepared for the exclusive use of the User for specific application to the Subject Property covered by this Phase I ESA Report. The User has agreed that any third-party use of this Phase I ESA Report, upon disclosure by the User, is the sole responsibility and at the sole liability of the User.

1.5 User Reliance

No additional parties may use the information contained in this report without obtaining the written permission of Roux or the User. Roux' duties and obligations extend to the User and to no other party. Roux' duties and obligations to the User are not transferable to persons, corporations, or organizations without the express written consent of the User and Roux. The User may rely upon the information provided in this Phase I ESA report for a period of 180 days. After 180 days, this Phase I ESA should be updated in accordance with ASTM E1527-21 guidance. Roux will not be liable for any consequential damages arising from the use of this report for other than its intended purpose, for use of this report beyond 180 days of its issue date, or from unauthorized use by third parties.

This Phase I ESA report must be read and interpreted as a whole and can only be considered representative of the conditions of the Subject Property as of the date of our site reconnaissance described herein. Roux makes no representation whatsoever concerning the condition of the Subject Property beyond the date of our site reconnaissance described herein. Individual sections and appendices of this report are dependent on the balance of this report, and on the terms, conditions, and stipulations contained in the proposal and written amendments accepted by Roux.

2. Subject Property Description

2.1 Subject Property Location and Description

Subject Property Information	
Subject Property Name	Line E - Orange Proposed Irrigation Channel Alignment
Address	No current or proposed address for irrigation channel alignment 805 North Sanderson Avenue (associated with parcel 436-170-016)
City	City of San Jacinto
County	Riverside
State	California
Location	Subject Property traverses nine contiguous parcels (Parent Property) located along North Sanderson Avenue and Record Road. The Subject Property traverses both North Sanderson Avenue and Record Road.
Assessor's Parcel Numbers (APNs) for Parent Property	Parent Property consists of the following parcels: Parcel 1: 436-170-008, owned by Eastern Municipal Water District; Parcel 2: 436-170-016, owned by California Equine Retirement Foundation; Parcel 3: 436-170-001, owned by Golden Ocean Realty LLC; Parcel 4: 436-030-004, owned by Rennsport Properties LLC and Golden Ocean Realty LLC; Parcel 5: 436-010-003, owned by Guang Fei Chen and Hongxia Zhang; Parcel 6: 432-030-012, owned by JD Pierce; Parcel 7: 432-030-010, owned by Shea Properties; Parcel 8: 432-030-006, owned by Shea Properties; and, Parcel 9: 430-100-018, owned by Senior Info Care LLC.
Subject Property Acreage (per Google Earth and Riverside County Assessor Website, respectively)	Approximately 65 acres for the irrigation channel alignment. Parent Property totals approximately 665.02 acres
Subject Property Occupants / Uses	Parcel 1: Berms and unpaved roadways part of San Jacinto Reservoir Parcel 2: Vacant area part of California Equine Retirement Foundation (805 North Sanderson Avenue) Parcel 3: Vacant land Parcel 4: Agricultural use (watermelon crops) Parcel 5: Agricultural use (unknown leafy crop) Parcel 6: Agricultural use (previously corn crops) Parcels 7 and 8: Vacant land Parcel 9: Agricultural use (unknown crops)
On-site Operations	Part of San Jacinto Reservoir (Parcel 1), ranch for retired horses (Parcel 2), and agricultural production (Parcels 4, 5, 6, and 9). Remaining Parent Property areas are vacant or inactive.
Description of On-site Structures	No permanent structures currently occupy the Subject Property areas.
Subject Property Paving	Subject Property and Parent Property generally consist of unpaved areas.

Subject Property Information	
Subject Property and Parent Property Vicinity	General agricultural (row crops and dairies), vacant, and residential

Refer to Section 5.0 for a detailed description of the current condition of the Subject Property and operations.

2.2 Vicinity General Characteristics

The facilities and improvements which are adjoining to the Parent Property are provided in the following table. Selected adjoining and nearby properties are shown in Figure 2.

Direction from Parent Property	Improvements / Use (Addresses)
North	Vacant and agricultural land, followed by Ramona Expressway and Vanderwoude Dairy (26580 Ramona Expressway)
Northeast	Vacant land, agricultural land, and residences
East	Vacant land, agricultural land, and party of San Jacinto Reservoir
Southwest	Residence (775 North Sanderson Avenue, Jacinto Valley Regional Water Reclamation Facility (770 North Sanderson Avenue), and agricultural land
Southeast	Single-family residences along the intersection of Sandalwood Street and Georgetown Street and the intersection of Caseros Drive and Georgetown Street.
West	Hettinga Dairy, including ponds (1861 North Warren Road)

2.3 Past Use of the Subject Property

Based on a review of historical sources, the following site histories were identified for the Parent Property, including Subject Property areas:

- Parcel 1 was vacant land as early as 1901 and has been developed as part of the San Jacinto Reservoir since at least 1949. The Subject Property area of Parcel 1 has consisted of berms and unpaved roadways since the parcel was developed as part of the Reservoir.

- Parcels 2, 3, and 4 were vacant land as early as 1901. By 1949, a dwelling and multiple structures (likely associated with agricultural operations of the surrounding area) were apparent on the western-most portions of Parcels 2, 3, and 4. Duck ponds were depicted within the central portions of Parcel 3 and 4 (outside the Subject Property area) between the 1960s through 2015 when the land was developed with row crops as part of agricultural operations. The current ranch for retired horses and associated structures and features were present on Parcel 2 by 2006. No structures have been present in the Subject Property area of Parcel 2.

- Parcel 5 was vacant land as early as 1901 through the 1940s when the parcel was used as agricultural land. A duck pond (part of a series of duck ponds) was depicted on the eastern portion of the parcel (and within the Subject Property area) from the 1960s through 2012 when the parcel was converted to agricultural land.

- Parcels 6, 7, and 8, including the Subject Property areas, were vacant land from as early as 1901. By the 1950s, Parcels 6, 7, and 8 were agricultural land with various unpaved roads. A small structure, likely associated with the agricultural operations in the area, was located on the Subject

Property portion of Parcel 8 from at least 1975 through 2002. Parcel 8 has been vacant or agricultural land since 2005.

- Parcel 9, including the Subject Property area, was vacant land from as early as 1901 through the 1970s when two small structures, likely associated with the surrounding agricultural operations, appeared within the southwestern portion of the parcel. Parcel 9, including the Subject Property area, was most recently developed with greenhouse farming structures starting in 2023.

2.4 Physical Setting

Roux obtained and reviewed published, reasonably ascertainable information concerning the physical setting of the Subject Property. The following is a summary of the information reviewed from those physical setting sources.

Physical Setting Summary	
United States Geological Survey (USGS) Topographic Map	Lakeview / San Jacinto, California Quadrangle
Approximate Subject Property Elevation / Source	1,465 feet above mean sea level (msl) / Lakeview / San Jacinto, California (2018) 7.5-minute quadrangle topographic map published by the USGS
Nearest Surface Water Feature(s) and Approximate Distance(s)	A pond associated with the California Equine Retirement Foundation and a portion of the San Jacinto Reservoir are located in the southeastern portion of the Parent Property. Reclamation ponds associated with the San Jacinto Valley Regional Reclamation Facility are located approximately 350 feet to the south, and the San Jacinto River is located approximately 1.2 miles to the northeast of the Subject Property.
Regional Geology / Source	Quaternary deposits: alluvium, lake, playa and terrace, consolidated and semi-consolidated / California Department of Conservation, 2010 Geologic Map of California
Subject Property Topography / Source	Generally flat with a gradual slope to the north / Site observation and USGS topographic map
Hydrogeological Region / Source	Located along the eastern portion of the San Jacinto Groundwater Basin / *California Department of Water Resources Bulletin 118, Update 2003 and Interim Update 2016*
Depth to Groundwater / Source	Perched groundwater zones in the site vicinity were reported to be approximately 11 to 13 feet below ground surface (bgs) / Monitoring well installation report for a facility approximately 0.5 mile northeast of the Subject Property (Leighton, 2009)
Groundwater Gradient Direction / Source	Groundwater in the site vicinity is reported to flow to the southwest with a hydraulic gradient of approximately 0.004 feet per foot / Monitoring well installation report for a facility approximately 0.5 mile northeast of the Subject Property (Leighton, 2009)
Nearby Soils / Source	Soils in the site vicinity are reported to be silt and silty sands to a depth of approximately 15 feet bgs / Subsurface investigation for south adjoining property (Roux, 2021B)

3. Sources of Information

Sources of information utilized in preparing this Phase I ESA report included historical topographic maps; historical aerial photographs; a walkover survey of the Subject Property, Parent Property, and adjoining properties; in-person discussions with User and tenant personnel; a review of records available at selected local and state regulatory agencies; a review of databases maintained by local, state, and federal government agencies; and other records available from commercial and online sources.

3.1 Historical Sources

To help understand the history of the Subject Property and adjoining properties, historical sources were obtained from Environmental Data Resources, Inc. (EDR), of Shelton, Connecticut. The sources and locations within the Appendices are provided in the table below.

EDR Historical Sources		
Historical Range	**Source**	**Appendix**
1901 – 2018	U.S. Geological Survey Topographic Maps	B
1938 – 2020	EDR Aerial Photographs "Decade Package"	C
No Available Coverage	EDR "Certified Sanborn® Map Report"	D
1976 – 2020	EDR "City Directory Image Report"	E

3.2 Government Databases

To document potential sources of contamination at or near the Subject Property, a government records search was conducted by EDR. The search included local, state, and federal records for the Subject Property and for other properties within ASTM-standard distances of the Subject Property. The records search is summarized in Section 8.0 and copies of "The EDR Radius Map™ Reports with GeoCheck®" are included in its entirety as Appendix F. As recommended by ASTM, all but a few of the databases searched were "current," i.e., had been updated within 90 days prior to the search date.

3.3 Site Reconnaissance

Roux personnel conducted a reconnaissance of the Subject Property, Parent Property, and surrounding areas on October 12 and 13, 2023. During the site reconnaissance, Roux representatives Ms. Ashley Whitaker and Ms. Francine Cason were able to access all areas of the Subject Property and representative areas of the Parent Property. The observations made during the site reconnaissance are discussed in Section 5.0 and throughout the report. A photographic log of the site reconnaissance is included as Appendix G.

3.4 Interviews

On October 12 and 13, 2023, Roux personnel contacted representatives of the Parent Property parcels via telephone and email regarding access to the Subject Property. No on-site items of features of significant environmental concern were noted during the site reconnaissance. No previous Subject Property owners/operators were available for an interview. This data gap is not considered significant due to sufficient

information regarding Subject Property history available from previous reports, EDR historical documents, and public records requests.

3.5 User Provided Information

ASTM E1527-21 provides an optional User Questionnaire to present select User-provided information that can assist in identifying possible RECs in connection with the Subject Property. According to ASTM E1527-21, these tasks do not require the technical expertise of an environmental professional and the environmental professional generally does not perform these tasks. Roux administered the optional questionnaire to the User at the beginning of this Phase I ESA to assist them with these tasks; however, the completed questionnaire has not been returned to Roux as of this report date.

3.6 Regulatory Agencies

Roux contacted governmental agencies for reasonably ascertainable information concerning environmental conditions at the Parent Property and Subject Property. Roux contacted or reviewed information from the agencies provided in the following table. Refer to Appendix H – Pertinent Historical Documentation for copies of the records reviewed. A summary of the information gathered from the regulatory agencies is provided in the table and details regarding the records were incorporated into applicable sections as noted.

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
Federal				
U.S. Environmental Protection Agency (EPA) – FOIAonline	9/25/2023 11/22/2023	10/3/2023 12/6/2023	No records were associated with the Subject Property or Parent Property.	N/A
National Pipeline Mapping System (NPMS) Online Database	9/26/2023 11/22/2023	N/A	No pipelines were found within 1,000 feet of the Subject Property or Parent Property.	N/A
State				
State Water Resources Control Board (SWRCB): GeoTracker Online Database	9/26/2023 11/22/2023	N/A	Westra Dairy Farm, located adjoining to the south at 870 Sanderson Avenue, was identified in the GeoTracker database as having a closed Leaking Underground Storage Tank (LUST) file and is discussed in detail in Section 7.1.2.	7.1.2
SWRCB: Storm Water Multiple Application and Report Tracking System (SMARTS) Online Database	9/26/2023 11/22/2023	N/A	Stormwater construction permits associated with the San Jacinto Reservoir were identified for Parcel 1. The permits were issued in June 2021 (terminated) and September 2021 (active).	N/A
Department of Toxic Substances Control (DTSC) Sacramento Office	9/25/2023 11/22/2023	9/27/2023 11/28/2023	No records were associated with the Subject Property or Parent Property.	N/A
DTSC Chatsworth Office	9/25/2023 11/22/2023	10/2/2023 11/29/2023	Records for the Proposed High School at the Villages of San Jacinto were identified for a portion of the Subject Property (within Parcels 7 and 8) and are discussed in in Section 6.3.	6.3

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
DTSC Cypress Office	9/25/2023 11/22/2023	10/2/2023 11/28/2023	Records for the Proposed High School at the Villages of San Jacinto were identified for a portion of the Subject Property (within Parcels 7 and 8) and are discussed in in Section 6.3.	6.3
DTSC: EnviroStor Online Database	9/26/2023 11/22/2023	N/A	One EnviroStor record was listed in association with the Subject Property (see above). The Proposed High School at the Villages of San Jacinto facility is listed as a DTSC Site Cleanup Program and discussed below in Section 6.3.	6.3
DTSC: Hazardous Waste Tracking System (HWTS) Online Database	9/26/2023 11/22/2023	N/A	No records were associated with the Subject Property or Parent Property.	N/A
California Air Resources Board (CARB)	9/25/2023	10/3/2023	No records were associated with the Subject Property.	N/A
California Office of Environmental Health Hazard Assessment (OEHHA)	9/25/2023 11/22/2023	9/26/2023 11/28/2023	No records were associated with the Subject Property or Parent Property.	N/A
CalEPA CalRecycle	9/25/2023 11/22/2023	10/3/2023 12/4/2023	No records were associated with the Subject Property or Parent Property.	N/A
CalEPA CalRecycle Solid Waste Information System (SWIS) Online Database	9/26/2023 11/22/2023	N/A	No records were associated with the Subject Property or Parent Property.	N/A
State of California Department of Conservation: Geological Energy Management (CalGEM) Online Database	9/26/2023 11/22/2023	N/A	No on-site and nearby oil well records.	N/A
County / Regional				
Santa Ana Regional Water Quality Control Board (SARWQCB)	9/25/2023 11/22/2023	9/27/2023 11/22/2023	No records were associated with the Subject Property or Parent Property.	N/A
South Coast Air Quality Management District (SCAQMD)	9/25/2023 11/22/2023	9/27/2023 12/6/2023	No records were associated with the Subject Property or Parent Property.	N/A

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
SCAQMD Facility Information Detail (FIND) Online Database	9/26/2023 11/22/2023	N/A	No records were associated with the Subject Property or Parent Property.	N/A
Riverside County Department of Environmental Health (RCDEH) Land Use and Water Resources	9/25/2023	10/20/2023	No records were associated with the Subject Property or Parent Property.	N/A
RCDEH Hazardous Materials and Underground Storage Tanks (USTs)	9/25/2023 11/22/2023	10/20/2023 12/6/2023	No records were associated with the Subject Property or Parent Property.	N/A
RCDEH Wells Program Online Database	11/22/2023	N/A	No well records were associated with the Subject Property. Wells were identified within the Parent Property areas of Parcel 4 and Parcel 9 (see Figure 2). Historical topographic maps have identified at least one former well within Parcel 7. No wells were identified within the Subject Property areas.	N/A
Riverside County Building and Safety Department (RCBSD)	9/25/2023 11/22/2023	9/26/2023 11/29/2023	No records were associated with the Subject Property or Parent Property.	N/A
RCBSD Online Database	9/25/2023 11/22/2023	N/A	No records were associated with the Subject Property or Parent Property.	N/A
City / Local				
City of San Jacinto City Clerk	9/25/2023 11/22/2023	9/26/2023 11/29/2023	No records were associated with the Subject Property or Parent Property.	N/A

4. Subject Property History

This section documents the history of the Subject Property, Parent Property, and adjoining properties and describes current conditions and existing or former environmental features.

4.1 Subject Property History

The history of the Subject Property, Parent Property, and, to a lesser extent, the surrounding area, including previous land use, has been compiled based on information from the exhaustive list of sources provided in Section 3.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
Predevelopment History				
1900s	1901	Historical Topographic Map: Elsinore / San Jacinto (30-minute)	The Subject Property and Parent Property are depicted as undeveloped or vacant land.	Adjoining properties are generally depicted as vacant land. Arterial roads are depicted to the north (currently Ramona Expressway) and east (currently Ramona Boulevard). Small structures (likely homesteads or residential dwellings) are depicted during this period.
1910s	No sources available.			
1920s	No sources available.			
Early Agricultural Use				
1930s	1938	EDR Aerial Photograph	A dwelling and multiple structures (likely associated with agricultural operations of the surrounding area) are apparent within Parcel 2. A north-south trending stream runs through the Parent Property area east of Sanderson Avenue. The remaining Parent Property areas appear to be undeveloped vacant land.	Adjoining properties are shown to be vacant and agricultural land. A road appears to the north of the Subject Property (currently Ramona Expressway). Minor homesteads or residential dwellings appear during this period.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
1940s	1942	Historical Topographic Map: Perris (15-minute)	An unimproved road and residential dwelling are depicted in the area of Parcel 2. Coverage for the eastern portions of Parcels 1 through 4 was not available.	The land to the east of the Parent Property is unmapped. No other significant changes noted to the remaining vicinity.
	1943	Historical Topographic Map: Perris / Banning (15-minute)	Parcel 2 continues to be developed with a small structure and road. The remaining Parent Property areas consist of vacant or unimproved land.	No significant changes from prior history except for some additional residential dwellings to the north and east and the appearance of a road to the west (currently North Warren Road).
	1948	Historical Topographic Map: Banning (15-minute)	The eastern portions of Parcels 1 through 4 appear vacant and undeveloped. The western portion of Parcels 1 through 4 are in unmapped areas. The entirety of Parcels 5 through 9 are in unmapped areas.	No significant changes from prior topographic maps.
	1949	EDR Aerial Photograph	Several Parent Property areas appear developed with row crops (Parcels 3, 4, 5, and 6). Residential structures appear on Parcel 2 and animal enclosures appear on Parcels 3 and 4. A north-south trending road (currently North Sanderson Avenue) is apparent. The San Jacinto Reservoir and associated structures are present within Parcel 1.	Adjoining properties to the north and east generally appear developed for agricultural use (row crops). The adjoining site to the east appears to be occupied by the San Jacinto Reservoir and a portion of the San Diego Aqueduct.
1950s	1953	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	The earliest topographic map depiction of San Jacinto Reservoir appears in Parcel 1. Three small structures (likely residences) appear in Parcels 2 and 3. One well is depicted in Parcel 7 and one small structure is depicted in the northwest corner of Parcel 8. An unpaved road appears between Parcels 8 and 9. Early configuration of the current Sanderson Avenue is depicted.	Adjoining land use generally remains unchanged. Additions of windmills and wells are depicted in the general vicinity.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
		EDR Aerial Photograph	Increased agricultural use throughout the Parent Property (Parcels 3, 4, 5, 6, and 8). No other significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	1956	Historical Topographic Map: Banning (7.5-minute)	Coverage for the western portions of Parcels 1 through 4 was not available. No coverage was available for 5 through 9. No significant changes noted for eastern portions of Parcels 1 through 4.	No significant changes from prior topographic maps.
1960s	1961	EDR Aerial Photograph	Additional unpaved roads likely associated with agricultural operations, appear to traverse the Parent Property. Increased agricultural use is noted throughout Parcel 7. Features resembling ponds appear on Parcels 4 and 5.	Features resembling ponds appear on an adjoining site to the north. An early configuration of the current dairy farm to the east is apparent. No other significant configurational changes were noted.
	1967	EDR Aerial Photograph	No aerial coverage was provided for portions of Parcels 7 and 8. No other significant changes noted to for the remaining Parent Property areas.	Early configuration of the wastewater treatment facility to the south and dairy farm to the north are apparent.
	1967	Historical Topographic Map: Lakeview / San Jacinto (15-minute)	Duck ponds were depicted on Parcels 3, 4, and 5. A total of three water wells were now depicted in the western portion of the Parent Property (Parcels 7, 8, and 9). A section of an intermittent stream was depicted in the southwest portion of the Parcel 8.	Duck ponds were depicted on the adjoining site to the north of Parcel 5 and Parcel 7. Three structures and two sewage disposal ponds were depicted in the vicinity to the south of Parcel 7 as part of the San Jacinto Valley Regional Water Reclamation Facility.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
1970s	1975	EDR Aerial Photograph	A new pond appears within Parcel 3. Features resembling structures likely associated with the agricultural operations are within Subject Property areas of Parcel 8. Structures likely associated with agricultural operations are depicted within Parcel 9.	No significant changes from prior aerial photographs.
	1978	EDR Aerial Photograph	No significant changes from prior aerial photographs.	The early stage of current residential development is apparent to the east. No other significant changes from prior aerial photographs.
	1979	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	North Sanderson Avenue is depicted in its current configuration. No other significant changed noted from prior topographic maps.	The operations of the San Jacinto Valley Regional Water Reclamation Facility appear expanded with additional sewage disposal ponds.
1980s	1985	EDR Aerial Photograph	Parcel 2 appears to be developed with an oval-shaped feature resembling a track or pond. Western-most portions of Parcels 3 and 4 appear to be developed with ranching or agricultural features such as animal enclosures. The features noted above are located outside the Subject Property areas. No other significant changes from prior aerial photographs.	Increased agricultural use in the general vicinity and increase residential development to the east.
	1989	EDR Aerial Photograph	A small rectangular structure appears on the northwest corner of Parcel 8. Western-most portions of Parcels 3 and 4 appear to be developed with ranching or agricultural features including two structures and animal enclosures. The features noted above are located outside the Subject Property areas. No other significant changes from prior aerial photographs.	Duck ponds previously shown on the adjoining land to the north, were no longer present.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
1990s	1995	Cole Information	Wind Machine Sales & Service listed as occupant at 805 North Sanderson Avenue (Parcel 2).	N/A
	1996	EDR Aerial Photograph	Most of the previous ponds on Parcels 3, 4, and 5 are no longer present and areas are replaced with agricultural land (row crops). No other significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
		Historical Topographic Map: San Jacinto (7.5-minute)	Eastern portions of Parcels 1 through 4 appear unchanged. Remaining Parent Property areas are in unmapped areas.	No significant changes from prior topographic maps.
2000s	2002	EDR Aerial Photograph	The previous small structure on Parcel 8 is no longer present. Parcel 2 appears to be under construction with the current horse retirement facility. A structure, resembling a residence, appears on the northwest portion of Parcel 4 (outside of Subject Property area). No other significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	2005	Cole Information	Residential tenants listed as occupants at 981, 1225, and 1315 North Sanderson Avenue (potentially associated with Parcel 4).	N/A
	2006	EDR Aerial Photograph	A pond and several stables (currently the California Equine Retirement Foundation) appears in Parcel 2. The structure previously shown on Parcel 4 is no longer present. No other significant changes from prior aerial photographs.	Single-family residences were developed on the land to the south of the Parent Property.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
	2009	EDR Aerial Photograph	Decreased agricultural activity is apparent on Parcels 4, 5, 6, 7, 8, and 9. Agricultural continues in later aerial photographs. No other significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
2010s	2010	Cole Information	Residential tenants listed as occupants at 981, 1225, and 1315 North Sanderson Avenue (potentially associated with Parcel 4).	N/A
	2012	Historical Topographic Map: Lakeview / Sab Jacinto (7.5-minute)	No significant changes from prior topographic maps.	No significant changes from prior topographic maps.
		EDR Aerial Photograph	No significant changes from prior aerial photographs.	Increased residential development is noted to the west of Parcel 4 and south of Parcel 1. No other significant changes from prior aerial photographs.
	2014	Cole Information	Residential tenant listed as occupant at 1315 North Sanderson Avenue (potentially associated with Parcel 4). Residential tenant listed as occupant at 805 North Sanderson Avenue (Parcel 2).	Residential tenants to the north.
	2015	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	Former duck ponds present in Parcels 3, 4, and 5 are no longer depicted. One intermittent pond is depicted in the area of Parcel 3 and/or 4. No other significant changes from prior topographic maps.	No significant changes from prior topographic maps.
	2016	EDR Aerial Photograph	Previous features on Parcels 3 and 4 are no longer present; the area now appears developed with row crops. No other significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property and Parent Property Description**	**Vicinity Description**
	2017	Cole Information	Residential tenant and California Equine Retirement Foundation listed as occupants at 805 North Sanderson Avenue (Parcel 2).	Residential tenants to the north.
	2018	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	Former duck pond areas in Parcels 2 and 4 are depicted as a marsh or swamp area.	No significant changes from prior topographic maps.
2020s	2020	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
		EDR Digital Archive	California Equine Retirement Foundation listed as occupant at 805 North Sanderson Avenue (Parcel 2).	Residential tenants to the north.
	2021	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	No significant changes from prior topographic maps.	No significant changes from prior topographic maps.

Several portions of the Parent Property (and Subject Property) continue to be used for agricultural purposes (row crops). Environmental concerns associated with historical and current agricultural operations are discussed below in Section 5.2.

Aerial photographs and topographic maps indicate Parcels 3, 4, and 5 were developed with duck ponds between at least 1961 and 1989. Hunting and shooting range, such as those potentially associated with duck ponds, may impact shallow site soils with deposited lead from bullets and other metals. However, evidence indicating local hunting, shooting, or gun club activities was not identified at or near the Subject Property throughout the course of this Phase I ESA.

According to aerial photographs and city directory listings, the California Equine Retirement Foundation has occupied Parcel 2 since at least 2006. On-site operations do not include the use of significant quantities of hazardous substances or petroleum products. The Subject Property area of Parcel 2 is vacant with no structures or notable features. No environmental issues were identified in association with current and historical horse ranch operations on Parcel 2.

5. Current Subject Property Conditions

A Roux representative conducted a reconnaissance of the Subject Property and surrounding areas on October 12 and 13, 2023. During the Subject Property visit, Roux representatives, Ms. Ashley Whitaker and Ms. Francine Cason, observed the Subject Property and adjoining properties from reasonably accessible locations on the Subject Property and public thoroughfares. During the site reconnaissance, the weather was clear, and the temperature was approximately 90° Fahrenheit. The following sections summarize observations during the inspection. Roux documented the site reconnaissance with photographs which are provided in Appendix G.

5.1 Site Reconnaissance

The Subject Property consists of a proposed irrigation channel alignment which traverses nine contiguous parcels along North Sanderson Avenue and Record Road (Figure 2). North Sanderson Avenue, a north-south trending road, transects the Parent Property and is located east of Parcels 6 and 7 and west of Parcels 2 through 5. Record Road, an east-west trending road also transects the Paret Property and is located north of Parcels 6 through 8 and south of Parcel 9. A description of the use and/or operation of the Parent Property and each Subject Property area is provided below:

- Parcel 1 is developed with the western portion of the San Jacinto Reservoir. The Subject Property portion of Parcel 1 consists of berms and unpaved roadways.
- Parcel 2 is developed as a retired horse ranch occupied by California Equine Retirement Foundation (805 North Sanderson Avenue). The Subject Property portion of Parcel 2 consists of a vacant area with no structures or notable features;
- Parcel 3, including the Subject Property portion, consists of vacant land;
- Parcel 4, including the Subject Property portion, consists of an agricultural field (watermelon);
- Parcel 5, including the Subject Property portion, consists of an agricultural field (unknown leafy crop);
- Parcel 6, including the Subject Property portion, consists of an agricultural field (watermelon);
- Parcels 7 and 8, including the Subject Property portions, consist of vacant land; and
- Parcel 9, including the Subject Property portions, consists of an enclosed agricultural field (unknown crop) with greenhouse farming structures.

The adjoining properties are developed with agricultural land (row crops and dairy farm), residences, and the Jacinto Valley Regional Water Reclamation Plant.

5.2 Phase I ESA Observations

During the site reconnaissance, Roux personnel attempted to identify any environmental features that may be relevant in the context of the Phase I ESA. The features identified are summarized in the table below. Any such features are discussed in the following subsections.

Feature	Observed on the Subject Property	Observed on an Adjoining Property
Areas of stressed vegetation		
Areas which receive flood or storm water from potentially contaminated areas		
Air Compressor Vent Discharges		
Chemical Storage and/or Use		
Drainage Swales and Culverts		
Discharge Areas		
Discolored or Spill Areas		
Drums (55 Gallons or Larger)		
Electrical Transformers		
Former Agricultural Applied Pesticide Area	X	X
Hydraulic Lifts		
Incinerators		
Landfills or Landfarms		
Loading and Unloading Areas		
Non-Contact Cooling Water Discharge		
Oil-Water Separator(s)		
Open Areas Away from Production Areas		
Ponds		X
Process Area Sinks and Piping		
Rail Cars/Railroad Spurs		
Septic Systems Leach Fields or Seepage Pits		
Silos		
Sprayfields		
Storm Sewer and Spill Containment Collection System		
Surface Impoundments and Lagoons		
Underground / Aboveground Storage Tanks and Associated Piping		
Waste Piles		

5.2.1 Former Agricultural Applied Pesticide Area

According to aerial photographs, agricultural operations (row crops) have been conducted on Parcels 3, 4, 5, 6, 7, and 8 (including Subject Property areas) since at least 1949. Parcel 9 appeared developed for agricultural use circa 1975 and again in 2023. At the time of Roux's site reconnaissance, Parcel 4 was developed as a watermelon field, Parcel 5 was developed with a field (unknown leafy crops), and Parcel 6 was developed with a corn field. Parcels 3, 7, and 8 were vacant. Based on the long-term agricultural use, it is possible that agricultural chemicals, such as organochlorine, lead-based, and arsenic-based pesticides, herbicides, and fertilizers, may have been used on-site within Parcels 3 through 8. Previous site investigations conducted within Parcels 6, 7, and 8 did not identify significant evidence of soil contamination associated with historical crop growth. The potential for impacts from agricultural chemicals to on-site soils within Parcels 3, 4, 5, and 9 is considered a REC.

5.2.2 Pond(s)

The west adjoining dairy farm features several ponds, likely used to store dairy farm effluent including manure. At the time of the inspection, no water was observed in the ponds. The likely use of the adjoining dairy ponds for disposal of dairy farm effluent (including manure) is considered an other environmental feature (OEF) due to the potential for vapor migration of methane gas in soil vapor. The Subject Property is slated to be redeveloped with an irrigation channel with no structures, minimizing the concern for vapor intrusion to future occupants.

Concentrated animal feeding lots such as dairy farms can be a source of local groundwater degradation due to nitrates and total dissolved solids (TDS). The Subject Property and surrounding areas are not located within any known groundwater degradation areas affected by elevated nitrates and TDS.

6. Vapor Migration and Intrusion

As recommended by ASTM E 1527-21 and ASTM E 2600-15 (Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions), Roux performed a vapor migration/intrusion pathway assessment in order to identify the presence or likely presence of chemicals of concern vapors from contaminated soil and/or groundwater either on or near the Subject Property.

The operation of the west adjoining property as a dairy farm constitutes a source for potential vapor intrusion due to possible methane buildup in shallow soils. The dairy farm operations have been identified elsewhere in this report as an OEF.

No other sources for potential vapor intrusion were identified for the Subject Property, Parent Property, or any other adjoining or nearby properties.

7. Summary of Key Previous Investigations

The following sections provide a summary of previous environmental investigations at select Parent Property parcels, including portions of the Subject Property. Previous environmental investigation reports are included in Appendix H.

Roux, on behalf of User, conducted previous Phase I ESAs and subsurface investigations of Parcels 7 and 8 in 2021 and Parcel 6 in 2023. The Phase I ESAs and subsurface investigations were prepared under separate covers; and previous environmental issues identified as RECs, hRECs, and/or OEFs with respect to Parcels 6, 7, and 8 were addressed in the subsurface investigations and are discussed in more detail in the following sections.

7.1 Draft Environmental Impact Report (Dudek, 2009)

Dudek prepared an Environmental Impact Report (EIR) for the City of San Jacinto for the proposed Villages of San Jacinto redevelopment project (the Site). The Site, as defined by Dudek in the 2009 EIR, included Parcels 7 and 8 as well the south adjoining parcel at 870 Sanderson Avenue). The Villages of San Jacinto project consisted of mixed-use redevelopment of the Site including parks, residences, and a high school. Included in the EIR is a reference to a previous Phase I ESA prepared by Gradient Engineers, dated October 10, 2002 (2002 Phase I ESA). A copy of this report was not included in the appendices provided to Roux. The following on-Site environmental hazards were identified in the EIR, particularly regarding the former agricultural operations and petroleum storage.

- **Former Heifer Farm**. A southeastern portion of the Site, totaling approximately 20 acres in size, was formerly developed as a heifer raising farm from at least 1978 through 2002. The former heifer farm operations represented a REC due to the possible presence of methane from manure. According to the EIR, the Riverside County's Methane Investigation Protocol would be followed in order to ensure that methane hazards did not exist on the 20-acre portion of the Site formerly used for heifer raising. Methane gas sampling and associated mitigation activities were reportedly planned after grading, in accordance with RCDEH protocols.

  Roux note: The former heifer farm was located on the south adjoining parcel and is not considered a REC in the context of this Phase I ESA.

- **Petroleum-Stained Soil.** During the 2002 Phase I ESA, petroleum-stained soil was observed beneath a diesel aboveground storage tank (AST) located northwest of the reservoir (pond), near the irrigation groundwater well located southwest of the reservoir, and on the floor of the equipment shed, beneath three oil-containing 55-gallon drums. Based on the storage of hazardous substances and petroleum products in uncovered ground areas and evidence of a release, the former chemical storage identified above represented a REC. In order to evaluate and possibly mitigate environmental hazards associated with petroleum releases, the EIR recommended sampling and proper disposal of stained soils.

  Roux note: The petroleum-stained soil area was located on the south adjoining parcel and is not considered a REC in the context of this Phase I ESA.

- **Septic Systems.** According to the EIR, the Site was equipped with two septic systems that historical sources suggest may have been in operation for many decades. The EIR stated the septic systems would be removed along with any residue material in accordance with RCDEH protocols. Based on the likely use of these systems for domestic waste only, the existing septic systems represent an OEF.

Roux note: The locations of the septic systems were not identified or and are unlikely to be associated with disposal of hazardous substances or petroleum products. Any potentially on-site septic systems are not considered a REC in the context of this Phase I ESA.

- **Debris.** Debris, including old equipment, water heaters, tires, and trash were observed in several piles throughout the site both in the 2002 Phase I ESA and during Site reconnaissance associated with the EIR. Several mounds of soil also were observed across the Site. According to the EIR, the soil piles were generated from on-Site activities and were piled for storage and eventual removal. The EIR recommended a qualified environmental professional be present on-Site during removal of debris piles to assess debris and stockpiled soils and direct disposal accordingly. All debris would be disposed of in accordance with state and local laws. Based on observations made during the Site reconnaissance, on-Site debris represent an OEF.

  Roux note: The location of the debris was not identified or and is unlikely to be associated with disposal of hazardous substances or petroleum products. Any potentially on-site debris is not considered a REC in the context of this Phase I ESA.

7.2 Phase I ESA (South Shore, 2021)

South Shore Testing and Environmental (South Shore) conducted a Phase I ESA of Parcel 6 in 2021 on behalf of the current property owner, Mr. J.D. Pierce. At the time of the assessment, the property was vacant agricultural land and proposed to be redeveloped for residential use. South Shore identified the potential presence of pesticides in soil from historical agricultural use as a REC and recommended further investigation.

Subsequent soil sampling conducted in Parcel 6 is discussed below.

7.3 Phase I ESA (Roux, 2021A)

Roux prepared a Phase I ESA of Parcels 7 and 8, and the south adjoining property at 870 Sanderson Avenue (Site). A review of historical sources indicated that Parcels 7 and 8 were developed for agricultural use, possibly row crops, by 1949 and remained until approximately 2012. By 1978, 20 acres on the southeastern portion of the site (south adjoining property) were developed with a heifer raising farm including corrals, water cisterns, and covered structures. No heifer or dairy farm operations were identified within Parcel 7 or 8.

Westra Dairy Farm, formerly located at 870 Sanderson Avenue, was identified as having a closed Leaking Underground Storage Tank (LUST) file. The closed LUST case is discussed in Section 7.1.2. Roux identified the remaining petroleum hydrocarbon-impacted soil in the former LUST area as a hREC in the 2021 Phase I ESA.

Other notable items of environmental concern identified for the south adjoining parcel at 870 North Sanderson Avenue include petroleum-stained soil was observed beneath a diesel aboveground storage tank (AST) located northwest of a reservoir (pond), near the irrigation groundwater well located southwest of the reservoir, and on the floor of the equipment shed, beneath three oil-containing 55-gallon drums.

Roux also noted an EnviroStor case, identified as the Proposed High School at the Villages of San Jacinto (Proposed High School), associated with Parcels 7 and 8 of the Parent Property. DTSC records for the Proposed High School indicate soil samples, composite surface soil samples, and discrete soil samples were collected and analyzed for metals and organochlorine pesticides in order to determine potential threat to public health and/or the environment related to former agricultural use. A letter of “No Further Action” was

given on September 24, 2008. Based on the "No Further Action" letter and the lack of additional investigation, the Proposed High School property was not considered an environmental concern in the context of the Phase I ESA. Based on the available information, Roux identified the former Heifer Farm, petroleum-stained soil, unlined pond, and former agricultural use as RECs.

Roux note: For the purposes of this Phase I ESA, the former agricultural use of the Site was the only REC appliable to Parcels 7 and 8. The remaining RECs apply to the south adjoining property at 870 North Sanderson Avenue and are not considered RECs in the context of this Phase I ESA.

7.4 Phase II Subsurface Investigation Letter Report (Roux, 2021B)

Roux conducted Phase II a subsurface investigation on Parcels 7 and 8, and the south adjoining property at 870 Sanderson Avenue) to address environmental concerns identified by Roux in the 2021 Phase I ESA.

The scope of work attempted to address the following:

- Residual petroleum-impacted soil in the former UST area;
- Potential petroleum impacts from former on-Site ASTs;
- Potential volatile organic compounds, metals, pesticides, and total petroleum hydrocarbon (TPH), methane impacts from former on-Site heifer raising farm uses, including multiple livestock corrals and an unlined pond; and
- Potential pesticide impacts to shallow soils from former agricultural (row crop) uses.

Roux note: Potential pesticide impacts to shallow soils were the only environmental concerns located within the Subject Property. The remaining environmental concerns were located on the south adjoining property. Investigation of the off-site environmental concerns is not discussed in detail as part of this Phase I ESA.

On September 1 and 2, 2021, a total of 184 soil samples were collected from 46 quadrants (SS-1 through SS-46) across the Site, including Subject Property areas, at a depth of 0.5 feet bgs. Soil sampling locations were evenly distributed in a grid pattern across each quadrant. Soil samples were composited into 46 samples (SS-COMP-1 through SS-COMP-46) and analyzed for lead and arsenic and organochlorine pesticides (OCPs).

In general, individual OCP constituents were detected in several quadrants including dichlorodiphenyldichloroethane (4,4'-DDD), dichlorodiphenyldichloroethylene (4,4'-DDE), dichlorodiphenyl-trichloroethane (4,4'-DDT), and eldrin aldehyde. No OCPs were detected above applicable commercial/industrial screening levels.

Arsenic was detected at concentrations exceeding applicable regulatory screening levels; however, arsenic concentrations were below the upper range of regional background concentrations. Lead was not detected above regional background concentrations or applicable commercial/industrial screening levels.

Based on the results of this Phase II Subsurface Investigation, Roux determined that it had addressed the RECs identified in the Phase I ESA and did not recommend further investigation.

7.5 Phase I ESA (Roux, 2023A)

Roux conducted a Phase I ESA of the Parcel 6 in 2023. The property was vacant agricultural land at the time of the time of the assessment. Roux considered the potential presence of impacted on-site soils based on the long-term use of agricultural chemicals, such as pesticides, herbicides, and fertilizers as a REC.

7.6 Phase II Subsurface Investigation Letter Report (Roux, 2023B)

Roux conducted a Phase II investigation of a Parcel 6 in 2023 following the Phase I ESA which identified potential pesticide impacts to shallow soils from agricultural use as a REC. To address the identified environmental concern, Roux collected composite and discrete soil samples from 12 locations (quadrants) across the site to identify potential impacts in the shallow soil associated with historical agricultural use.

A total of 28 soil samples were collected from 12 quadrants, composited into 14 samples, and were analyzed for lead, arsenic, and OCPs.

No OCP constituents were reported at concentrations above their respective laboratory method reporting limits (MRLs). All MRLs were below applicable USEPA RSLs and/or DTSC HERO HHRA Note 3 for commercial/industrial soil.

Arsenic was detected at concentrations exceeding applicable regulatory screening levels; however, arsenic concentrations were below the upper range of regional background concentrations. Lead was not detected above regional background concentrations or applicable commercial/industrial screening levels.

The results of the Phase II subsurface investigation indicated that shallow soil OCP and select metals concentrations were below conservative regulatory thresholds for commercial/industrial land use and/or regional background concentrations. Roux concluded that the REC identified in the Phase I ESA was addressed and no further investigation was recommended.

8. Database Records Review

8.1 Standard Environmental Record Sources

According to ASTM Standard E1527-21, the purpose of reviewing regulatory records is to obtain and review records that will help identify *recognized environmental conditions* in connection with the Subject Property. In addition, some records to be reviewed pertain not only to the Subject Property, but also to properties within an additional "approximate minimum search distance" in order to help assess the likelihood of problems from migrating hazardous substances or petroleum products. The basis of the "approximate minimum search distance" is the Subject Property boundary.

Roux retained EDR of Shelton, Connecticut to provide ASTM Radius Map Reports (EDR Reports) for the Subject Property. Each report is a computerized search of select state and federal environmental databases that identify various properties with a record of environmental activity. Roux reviewed the reports and summarized the relevant findings in the following sections. Copies of the compiled EDR Reports have been included as Appendix F. The EDR reports include a detailed description of each of the databases searched, providing a summary of the type of information provided by each. A summary of Roux' review of the EDR Report listings is provided in Table 1.

The following section describes the findings of the database search. Roux used professional judgement in determining which EDR-listed sites to include in the narrative of this report. Facilities adjoining the Subject Property were included due to their proximity to the Subject Property and the potential for surface water discharges (e.g., storm water runoff, surface water effluent discharges) to enter the Subject Property or through the migration of groundwater. Sites with listings indicative of a release (e.g., SHWS, LUST, RELEASE) are likewise discussed below. Non-adjoining facilities with database listings not necessarily indicative of a release (hazardous waste generator, FINDS, ECHO, NPDES, HAZNET, AST, or UST) will not be discussed unless considered potentially relevant in context of the Phase I ESA.

8.1.1 Subject Property (Target Property)

Address	Owner/Operator	Database
Ramona Boulevard/CAW	Proposed High School at the Villages of San Jacinto	ENVIROSTOR, SCH, and CERS
N/A	Metropolitan Water District of Southern California	HWTS
N/A	San Jacinto Deteriorated Pole 2178000E Replacement	CERS
N/A	San Jacinto Reservoir Pump Station Pipeline	CERS

The Proposed High School at the Villages of San Jacinto (Proposed High School) was located in the northern portion of the Subject Property (Parcels 7 and 8) and is listed on the ENVIROSTOR, SCH, and CERS databases. Information associated with the Proposed High School case is discussed in Section 6.5.

The HWTS listing for Metropolitan Water District of Southern California is likely associated with the San Jacinto Reservoir facility (Parcel 1). The database listing was created in May 2018 and became inactive by August 2018. No additional information regarding the listing was available at the time of this assessment.

No violations were noted on the database listing. Based on the lack of documented releases or violations, this listing is not considered an environmental concern in the context of this Phase I ESA.

The CERS database listings under the name of "San Jacinto Deteriorated Pole 2178000E Replacement" and "San Jacinto Reservoir Pump Station Pipeline" are associated with the operations conducted at the San Jacinto Reservoir facility (Parcel 1). No additional information regarding this listing was available in the EDR report. Based on the lack of documented releases or violations, these listings are not considered an environmental concern in the context of this Phase I ESA.

8.1.2 Adjoining and Nearby Properties

Discussions of adjoining and nearby properties of potential environmental concern as noted in Table 1 are provided below.

- **Westra Dairy Farm (870 Sanderson Avenue).** The former Westra Dairy Farm is located on a south adjoining property (south of Parcel 7) and is listed on the LUST, CORTESE, and CERS database. The LUST database indicates there is a cleanup case for gasoline in soil. Under the direction of the County of Riverside, two 1,000-gallon USTs and one 10,000-gallon USTs were removed from the site in December 1999. Subsequent soil sampling was conducted and determined extent of the contamination was "very limited", and the vertical extent reached below the former tanks to a depth of 35 feet. A mobile soil vapor extraction system was used to extract and treat soil vapor contamination in mid-2001. A "No Further Action" letter was issued by the SA-RWQCB to the Westra Family Trust on December 26, 2001. According to the "No Further Action" letter, data from this investigation indicated that the residual petroleum hydrocarbons in soil were limited to an area with a 15-foot radius between 15 and 20 feet bgs and did not indicate a significant presence or source of petroleum hydrocarbons in the soil. Roux performed additional soil and soil vapor sampling in the vicinity of the former USTs and did not identify significant impacts (Roux, 2021B).

- **San Jacinto Mobil (2070 North Sanderson Avenue).** The San Jacinto Mobil facility is located approximately 0.5 mile northeast of the Subject Property and is listed on the LUST (Leaking Underground Storage Tank), CORTESE, and CERS databases. The LUST database indicates there is a cleanup case for diesel, gasoline, waste oil, motor oil, hydraulic oil, and lubricating oil in groundwater. According to groundwater monitoring reports, samples collected towards the direction of the Subject Property were non-detectable or had low detections of chemicals of concern (Leighton, 2009). On May 27, 2010, the facility was granted case closure by RCDEH. Due to the closure status and low detections, the San Jacinto Mobil facility is not considered an environmental concern in the context of the Phase I ESA.

- **Betty Goedhart (2004 North Ramona Boulevard).** The Betty Goedhart listing is associated with a property (approximately 0.20 mile west-northwest from the Subject Property) that appears to be an area utilized as a parking location for semi-trucks and trailers. According to the database listing, this facility is not a generator of hazardous waste of hazardous waste. The database listings notes that no violations were found for the facility. Based on the available information, this facility is not expected to be an environmental concern in the context of this Phase I ESA.

8.1.3 Orphan Sites

The EDR Report includes a section addressing "Orphan" sites. Orphan listings are sites, which, due to incomplete geographic location data, incomplete address information or incorrect address information, cannot be plotted correctly. The database reports identified one unmapped facility. Based on the relative distance to this facility, it is not considered a REC in the context of this Phase I ESA.

9. Findings

Roux has performed this Phase I ESA in general compliance with the scope and limitations of ASTM Standard Practice E1527-21. Roux separated the findings of this assessment into the following four categories: *recognized environmental conditions*, *controlled recognized environmental conditions*, *historical recognized environmental conditions* and *other environmental features*.

9.1 Data Gaps

During conduct of this ESA, the following data gaps, as defined in ASTM Standard E1527-21 were identified:

- Previous Subject Property owners/operators were not available for an interview. This data gap is not considered significant due to sufficient information regarding Subject Property history available from EDR historical documents and FOIA requests.

9.2 Recognized Environmental Conditions

Based on the information obtained through the performance of this ESA, Roux identified the following RECs in connection with the current and historical operations at the Subject Property or adjoining properties. To the extent possible, the locations of the RECs are shown in Figure 2. To avoid confusion, all RECs, cRECs, hRECs, and OEFs are numbered sequentially.

REC 1 – Former Agricultural Applied Pesticide Area. According to aerial photographs, agricultural operations (row crops) have been conducted on Parcels 3, 4, 5, 6, 7, and 8 (including Subject Property areas) since at least 1949. Parcel 9 appeared developed for agricultural use circa 1975 and again in 2023. Based on the long-term agricultural use, it is possible that agricultural chemicals, such as organochlorine, lead-based, and arsenic-based pesticides, herbicides, and fertilizers, may have been used on-site within Parcels 3 through 8. Previous site investigations conducted within Parcels 6, 7, and 8 did not identify significant evidence of soil contamination associated with historical crop growth. The potential for impacts from agricultural chemicals to on-site soils within Parcels 3, 4, 5, and 9 is considered a REC.

9.3 Controlled Recognized Environmental Conditions

Roux did not identify known or suspected cRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

9.4 Historical Recognized Environmental Conditions

Roux did not identify known or suspected hRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

9.5 Other Environmental Features

Based on the information obtained through the performance of this ESA, Roux identified the following OEFs in connection with the current and historical operations at the Subject Property or adjoining properties.

OEF 2 – Adjoining Dairy Ponds. The west adjoining dairy farm features several ponds, likely used to store dairy farm effluent including manure. At the time of the inspection, no water was observed

in the ponds. The likely use of the adjoining dairy ponds for disposal of dairy farm effluent (including manure) is considered an OEF due to the potential generation and migration of methane gas. The Subject Property is slated to be redeveloped with an irrigation channel with no structures, minimizing the concern for gases beneath future inhabited buildings or structure.

10. References

EDR, *The EDR Radius Map™ Report with GeoCheck®*, October 11 and November 21, 2023

EDR, *The EDR Aerial Photo Decade Package*, October 11, November 21, and November 22, 2023

EDR, *EDR Historical Topo Map Report*, October 11 and November 21, 2023

EDR, *Certified Sanborn Map Report*, October 11 and November 21, 2023

EDR, *The EDR-City Directory Abstract*, October 13 and November 28, 2023

ATC Associates Inc. (ATC), *Site Investigation, Westra Dairy, 870 Sanderson Avenue, San Jacinto, California*, October 30, 2000.

Dudek, *Recirculated Draft Environmental Impact Report No.2, Villages of San Jacinto,* August 2009.

Leighton Consulting, Inc. (Leighton), *Groundwater Monitoring Well Installation Report and Results of Groundwater Monitoring, Former San Jacinto Mobil, Site No. 200824216, 2070 North Sanderson Avenue, San Jacinto, California*, August 24, 2009.

Roux Associates, Inc. (Roux), *Phase I Environmental Site Assessment, North Sanderson Avenue Assessor's Parcel Numbers 432-030-006, 432-030-010, and 432-030-011 San Jacinto, California*, October 25, 2021 (2021A).

Roux Associates, Inc. (Roux), *Phase II Subsurface Investigation Letter Report, Proposed Industrial Building Complex, North Sanderson Avenue, San Jacinto, Riverside County, California*, October 27, 2021 (2021B).

Roux Associates, Inc. (Roux), *Phase I Environmental Site Assessment, South-Southwest of North Sanderson Avenue and North Ramona Boulevard, San Jacinto, California*, August 30, 2023 (2023A).

Roux Associates, Inc. (Roux), *Phase II Subsurface Investigation Letter Report, J.D. Pierce Property, Approximately 38-Acre Property, North Sanderson Avenue, San Jacinto, Riverside County, California*, November 15, 2023 (2023B).

South Shore Testing and Environmental (South Shore), *Phase I Environmental Site Assessment, Undeveloped Agricultural Land, Tentative Tract Map No. 38107, APN 432-030-012, San Jacinto, California,* June 28, 2021.

Stratus Environmental, Inc. (Stratus), *Well Investigation and Vapor Extraction Testing, Westra Dairy Farm, 870 North Sanderson Avenue, San Jacinto, California*, June 6, 2001.

11. Signature of Environmental Professional

Roux performed this assessment in accordance with the generally accepted practices for environmental assessments at the time of implementation. Roux made a reasonable effort to ensure that the information presented in this report is materially complete and accurate.

Roux completed a Phase I ESA in general compliance with the scope and limitations of ASTM Practice E1527-21 of the Line E - Orange Proposed Irrigation Channel Alignment property located along North Sanderson Avenue and Record Road in San Jacinto, Riverside County, California (the Subject Property).

"We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental professional as defined in §312.10 of 40 CFR 312" and,

"We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Roux performed this Phase I ESA by, or under direct supervision of, the undersigned environmental professionals. Copies of professional profiles for the undersigned environmental professionals and report preparers are included in Appendix I.

Respectfully Submitted,

ROUX ASSOCIATES, INC.

Rocio Quinones
Project Scientist

Mauricio Escobar, P.G.
Vice President / Principal Geologist

TABLES

1. Standard Environmental Record Sources (EDR Report) Summary

Table 1: Standard Environmental Record Sources (EDR Report) Summary
Proposed Irrigation Channel, San Jacinto, California

Site Name	Address	Database Listings	Distance (Miles)	Direction
EDR Report Inquiry Number: 7466759.2s				
PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT	RAMONA BOULEVARD/CAWSTON AVENUE	ENVIROSTOR,SCH	0	N/A
PROPOSED HIGH SCHOOL	RAMONA BOULEVARD/CAWSTON AVENUE	CERS	0	N/A
EASTERN MUN WATER DIST	22251 SANDERSON	FINDS,ECHO	0	N/A
EASTERN MUN WATER DIST	22251 SANDERSON	CERS	0	N/A
BETTY GOEDHART	2004 N. RAMONA BLVD.	RCRA NONGEN /	0.099	ENE
QUALITY TURF INC	2720 W RAMONA EXPY	RCRA NONGEN /	0.239	N
QUALITY TURF	2720 W RAMONA EXPRESS WY	AST	0.239	N
MOBIL SAN JACINTO	2070 SANDERSON	LUST	0.462	ENE
SAN JACINTO MOBIL	2070 N SANDERSON AVE.	LUST,CORTESE,CERS	0.462	ENE
EDR Report Inquiry Number: 7466753.2s				
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	LAT/LONG_USED	HWTS	0	N/A
SAN JACINTO DETERIORATED POLE 2178000E REPLACEMENT		CERS	0	N/A
SAN JACINTO RES. PUMP STATION PIPELINE		CERS	0	N/A
SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACI	700 N SANDERSON AVE	RCRA-VSQG	0.014	SW
WESTRA DAIRY FARM	870 SANDERSON	LUST,CORTESE,CERS	0.084	SSW
SAN JACINTO HOUSE	2025 LA CLARITA AVENUE	RCRA-LQG	0.087	SS
PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT	RAMONA BOULEVARD/CAWSTON AVENUE	ENVIROSTOR,SCH	0.497	NW
LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS	425 NORTH LYON AVENUE	ENVIROSTOR,SCH, CERS	0.525	SE
EDR Report Inquiry Number: 7503430.2s				
A C MAGNOLIA LLC	38100 DE ANZA DR	HWTS,HAZNET	0	N/A
MACLIN OPEN AIR MARKETS	789 LYON	LUST,HIST	0.106	SE
MACLIN OPEN AIR MARKETS	789 N LYON ST	LUST,CORTESE,CERS	0.19	SE
SAN JACINTO LIVESTOCK AUCTION	22124 LYON AVENUE	HIST UST	0.192	SSE
LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS	425 NORTH LYON AVENUE	ENVIROSTOR,SCH, CERS	0.641	SSE
PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT	RAMONA BOULEVARD/CAWSTON AVENUE	ENVIROSTOR,SCH	0.94	WNW
MT. VIEW CONTINUATION HIGH SCHOOL	RAMONA BOULEVARD	ENVIROSTOR,SCH	0.969	ESE
EDR Report Inquiry Number: 7503439.2s				
MWD - RAMONA EXPRESSWAY AND WARREN ROAD	LAT/LONG_USED	HWTS	0	N/A
OOSTDAM DAIRY	1710 N WARREN RD	RCRA NONGEN /	0.009	W
OOSTDAM DAIRY	1710 WARREN RD	CERS HAZ WASTE,CERS	0.009	W
QUALITY TURF INC	2720 W RAMONA EXPY	RCRA NONGEN /	0.02	NNE
QUALITY TURF	2720 W RAMONA EXPRESS WY	AST	0.02	NNE
DE VRY AND SON DAIRY	36582 RAMONA EXP	HIST UST	0.028	WNW
POKRAJAC CORP	1953 N WARREN RD	RCRA NONGEN /	0.036	W
SHANE COPENHAVER	1953 NORTH WARREN	RCRA NONGEN /	0.036	W

Table 1: Standard Environmental Record Sources (EDR Report) Summary
Proposed Irrigation Channel, San Jacinto, California

Site Name	Address	Database Listings	Distance (Miles)	Direction
EDR Report Inquiry Number: 7466759.2s				
PORTABLE PLANT #1	1871 WARREN ROAD	US MINES,ABANDONED MINES	0.103	WSW
BOONE RECYCLED MATERIALS INC	1871 S WARREN RD	RCRA NONGEN /	0.103	WSW
GERBEN HETTINGA/HETTINGA DAIRY	1861 N WARREN RD	AST,EMI,CIWQS,CERS	0.225	WSW
HEIN HETTINGA DAIRY	1861 N WARREN RD	RCRA NONGEN /	0.225	WSW
SAN JACINTO DAIRY(HEIN	1861 N WARREN RD	RCRA NONGEN /	0.225	WSW
HETTINGA FARMS-WARREN RD	1861 WARREN RD	CERS HAZ WASTE,WDS,CERS	0.225	WSW
PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT	RAMONA BOULEVARD/CAWSTON AVENUE	ENVIROSTOR,SCH	0.452	SE
EMERALD PLAINS, INC. - DEMLER EGG RANCH	1455 WARREN RD.	SWF/LF,HWTS,HAZNET,CIWQS	0.484	SW

Notes

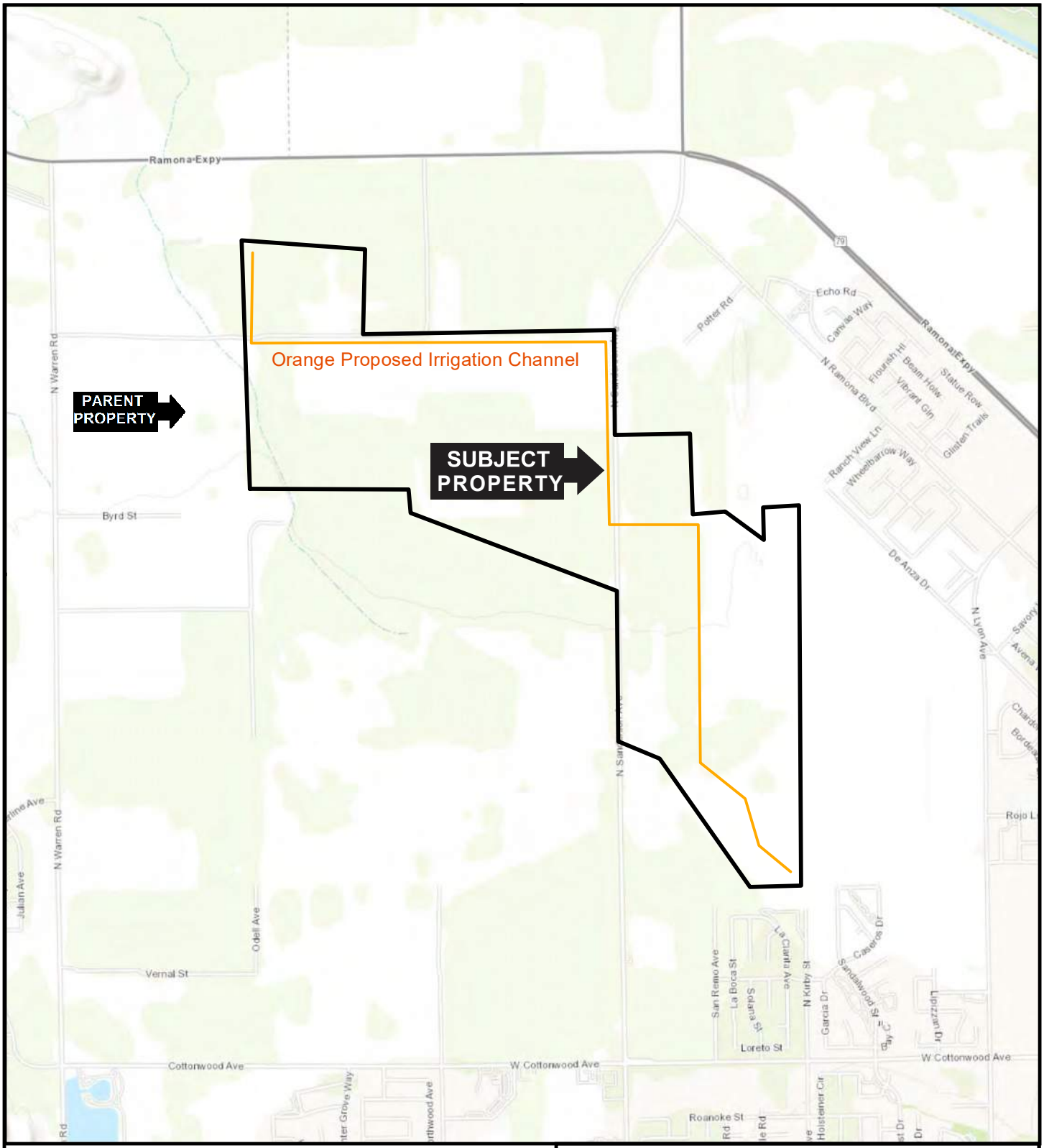
Blue: Facility does not have associated database listings indicative of a release or contamination

Green: Facility is hydraulically downgradient or crossgradient and/or is a closed release case

Orange: Facility has an associated release case impacting soil only and/or VOCs are not a potential contaminant of

FIGURES

1. Site Location Map
2. Site Plan



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

NORTH SANDERSON AVENUE AND RECORD AVENUE
SAN JACINTO, CALIFORNIA

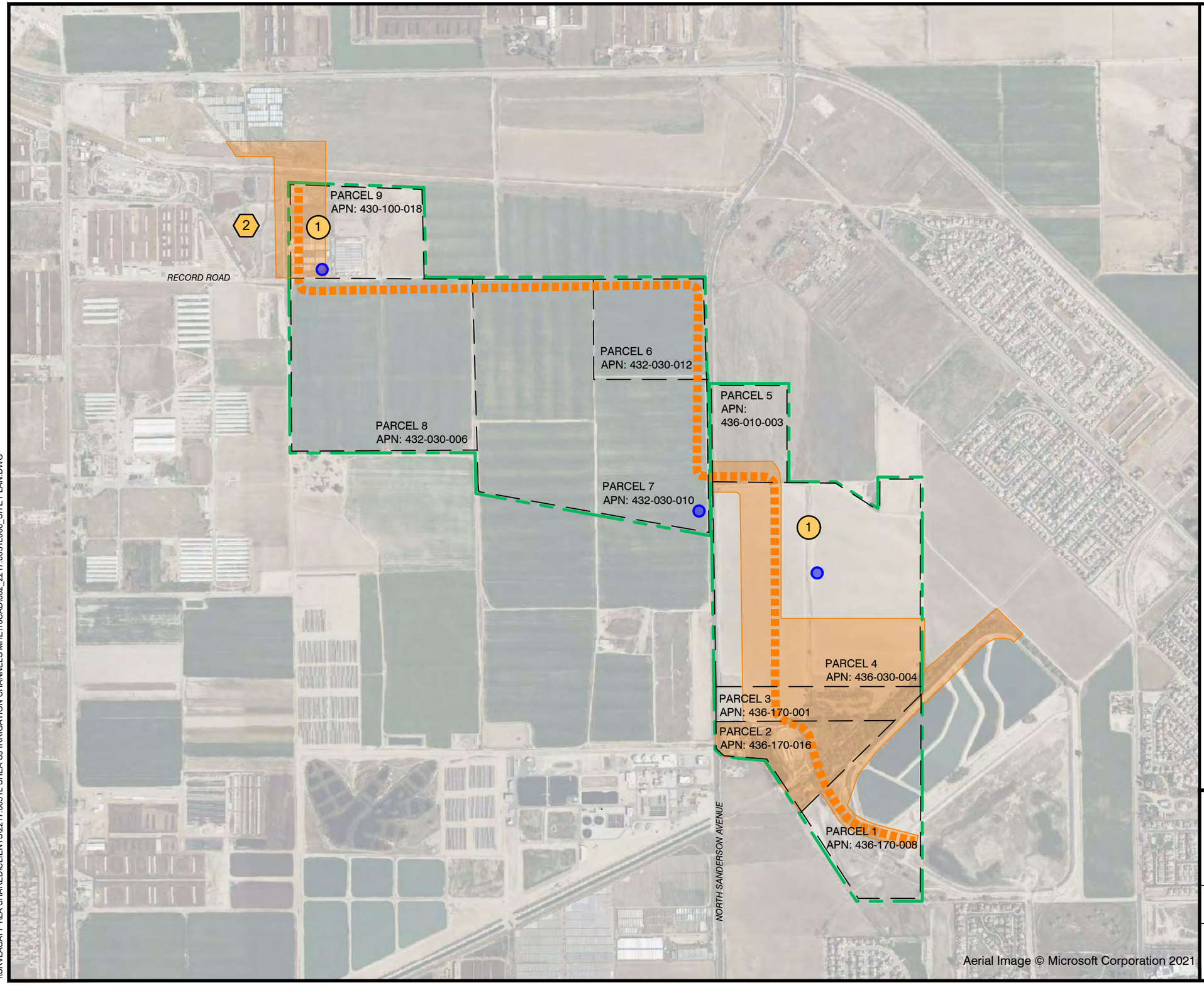
Prepared for: SHEA PROPERTIES

ROUX

Compiled by: A.C.	Date: 01/24/24
Prepared by: A.C.	Scale: AS SHOWN
Project Mgr: R.Q.	Project: 2217.00030L
File: 2217.0030L100.4.mxd	

FIGURE 1

S:\GIS\PROJECTS\2217\0030L\100\2217.0030L100.4.MXD



LEGEND

- ORANGE PROPOSED IRRIGATION CHANNEL (SUBJECT PROPERTY)
- APPROXIMATE PARENT PROPERTY BOUNDARY
- BUFFER AND SUPPORT AREAS
- APPROXIMATE WATER WELL LOCATION
- 1 — RECOGNIZED ENVIRONMENTAL CONDITION (REC)
- 2 — OTHER ENVIRONMENTAL FEATURE (OEF)

NOTES

- 1 — HISTORICAL AGRICULTURAL USE (PARCELS 3, 4, 5 AND 9)
- 2 — ADJOINING DAIRY PONDS

N

0' 1,200' 2,400'

Title:

SITE PLAN
PROPOSED IRRIGATION CHANNEL

NORTH SANDERSON AVENUE AND RECORD AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: J.V.	Date: 01/23/2024	FIGURE
Prepared by: A.W.	Scale: AS SHOWN	2
Project Mgr: R.Q.	Project: 2217.0025L	
File: 002_2217.0031L000_SITE PLAN.DWG		

\\SRVLACAFP1\LA SHARED\CLIENTS\2217.0031L SHEA SJ IRRIGATION CHANNEL\S MHE\10CAD\002_2217.0031L000_SITE PLAN.DWG

APPENDICES

A. Glossary of Terms

B. Historical Topographic Maps

C. Historical Aerial Photographs

D. Certified Sanborn Report

E. EDR City Directory Image Report

F. EDR Radius Map Report with GeoCheck®

G. Photographic Log

H. Pertinent Historical Documentation

I. Professional Profiles

APPENDIX A

Glossary of Terms

GLOSSARY OF KEY TERMS

This appendix provides definitions, description of terms, and a list of acronyms for many of the words used in ASTM E 1527-21. These terms are an integral part of ASTM E 1527-21 and are critical to understanding ASTM E 1527-21 and its use.

DEFINITIONS:

Abandoned Property – *property* that can be presumed to be deserted, or an intent to relinquish possession or control can be inferred from the general disrepair or lack of activity thereon such that a reasonable person could believe that there was an intent on the part of the current *owner* to surrender rights to the *property*.

Activity and Use Limitations – Legal or physical restrictions or limitations on the use of, or access to, a site or facility: *(1)* to reduce or eliminate potential exposure to *hazardous substances* or *petroleum products* in the soil, soil vapor, groundwater, and/or surface water on the *property*, or *(2)* to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or *engineering controls*, are intended to prevent adverse impacts to individuals or populations that may be exposed to *hazardous substances* and *petroleum products* in the soil, soil vapor, groundwater, and/or surface water on a *property*.

Construction debris, n – Concrete, brick, asphalt, and other such building materials discarded in the construction of a building or other improvement to property.

Contaminated public wells, n – Public wells used for drinking water that have been designated by a government entity as contaminated by toxic substances (for example, chlorinated solvents,) or petroleum products, or as having water unsafe to drink without treatment.

Contiguous Property Owner [42 U.S.C. Section 9607 (q)], n– a person may qualify for the *contiguous property owner liability protection* if, among other requirements, such person owns real *property* that is contiguous to, and that is or may be contaminated by *hazardous substances* from other real *property* that is not owned by that person. Furthermore, such person conducted *all appropriate inquiries* at the time of acquisition of the *subject property* and did not know or have reason to know that the *subject property* was or could be contaminated by a *release* or threatened *release* from the contiguous *property*. The *all appropriate inquiries* must not result in knowledge of contamination. If it does, then such person did “know” or “had reason to know” of contamination and would not be eligible for the *contiguous property owner liability protection*. See appendix C1 for the other necessary requirements that are beyond the scope of this practice.

Controlled Recognized Environmental Condition, n – a *recognized environmental condition* affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with *hazardous substances* or *petroleum products* allowed to remain in place subject to implementation of required controls (for example, *activity and use limitations* or *other property use limitations*). For examples of *controlled recognized environmental conditions,* see Appendix X4.

Data failure, n – failure to achieve the historical research objective in 8.3.1 even after reviewing the *standard historical resources* in 8.3.4.1 through 8.3.4.8 that are *reasonably ascertainable* and likely to be useful. *Data failure* is on type of *data gap*.

Data gap, n – a lack of or inability to obtain information required by this practice despite *good faith* efforts by the *environmental professional* to gather such information. *Data gaps* may result from incompleteness in

any of the activities required by this practice, including, but not limited to, *site reconnaissance* (for example, an inability to conduct the *site visit*), and *interviews* (for example. An inability to interview the *key site manager*, regulatory officials, etc.). See 12.6.

de minimis condition, n – a condition related to a *release* that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a *de minimis condition* is not a *recognized environmental condition* nor a *controlled recognized environmental condition*.

Demolition debris, n – Concrete, brick, asphalt, and other such building materials discarded in the demolition of a building or other improvement to a property.

Drum, n – A container (typically, but not necessarily, holding 55 gal (208 L) of liquid) that may be used to store *hazardous substances* or *petroleum products.*

Dry wells, n – Underground areas where soil have been removed and replaced with pea gravel, coarse sand, or large rocks. Dry wells are used for drainage, to control storm runoff, for the collection of spilled liquids (intentional and non-intentional), and wastewater disposal (often illegal).***Dwelling, n*** – Structure of portion thereof used for residential habitation.

Engineering controls, n – Physical modifications to a site or facility (for example, capping, slurry walls, or point of use water treatment) to reduce or eliminate the potential for exposure to hazardous substances or petroleum products contaminants in the soil or groundwater on the property.

Environment, n – *environment* shall have the same meaning as the definition of *environment* in CERCLA 42 U.S.C. Section 9601(8), For additional background information, see Legal Appendix (Appendix X1) to X1.1.1 “Releases.”

Environmental Compliance audit, n – the investigative process to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations. This term should not be used to describe this practice, although an *environmental compliance audit* may include an *environmental site assessment* or, if prior to audit are available, may be part of an *environmental site assessment*.

Environmental lien, n – A charge, security, or encumbrance upon title to a *property* to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of *hazardous substances* or *petroleum products* upon a *property*, including (but not limited to) liens imposed pursuant to CERCLA 42 USC § 9607(1) & 9607(r) and similar state or local laws.

Environmental professional, n – a person meeting the education, training, and experience requirements as set forth in 40 C.F.R. § 312.10(b). For the convenience of the reader, this section is reprinted in Appendix X2. The person may be an independent contractor or an employee of the *user*.***ERNS list, n*** – EPA’s emergency response notification system list of reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center. Notification requirements for such releases or spills are codified in 40 C.F.R. parts 302 and 355.

Fire insurance maps, n – Maps originally produced for fire insurance purposes that indicate uses of properties at specified dates.

Good faith, n – absence of any intention to seek an unfair advantage or to defraud another property; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned.

Hazardous substance, n – A substance defined as hazardous pursuant to CERCLA 42 USC § 9601(14), as interpreted by EPA regulations and the courts: "(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Soil Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 USC § 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator (of EPA) has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph; the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)." (See Appendix X1.)

Hazardous waste – Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Cat (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress). The Solid Waste Disposal Act of 1980 amended RCRA. RCRA defines hazardous waste, in 42 USC § 6903, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Hazardous waste/contaminated sites, n – sites on which a *release* has occurred, or is suspected to have occurred, of any *hazardous substance, hazardous waste,* or *petroleum products*, and that *release* has been reported to a government agency.***Innocent landowner [42 U.S.C. § 9601(35) & 9607(b)(3), n –*** a person may qualify as one of three types of innocent landowners: (1) a person who "did not know and had no reason to know" that contamination existed on the subject property at the time the purchaser acquired the subject property; (2) a government entity which acquired the subject property by escheat, or through any other involuntary transfer or acquisition, or through the exercise of eminent domain authority by purchase or condemnation; (3) a person who "acquired the facility by inheritance or bequest." To qualify for the *innocent landowner* defense, such person must have made *all appropriate inquiries* on or before the date or purchase. Furthermore, the *all appropriate inquiries* must not have resulted in knowledge of the contamination. If it does, then such person did "known" or "had reason to know" of contamination and would not be eligible for the *innocent landowner defense*. See Appendix X1 for the other necessary requirements that are beyond the scope of this practice.

Institutional controls (IC), n – A legal or administrative mechanism (e.g., deed restriction, restrictive zoning) on the use of, or access to, a site or facility to (1) reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the property, Of (2) to prevent activities that could interfere with the effectiveness of a response actions, in order to ensure maintenance of a condition of no significant risk to public health of the environment. An *institutional control* is a type of activity and use limitation (AUL).

Land title records, n - records that affect the title of real estate, which may include, among other things, deeds, mortgages, leases, land contracts, court orders, easements, liens, and AULs recorded within the

recording systems or land registration systems created by state statute in every state and ordinarily administered in the local jurisdiction (usually the county) in which the subject property is located, and available by performing a title search. Such records are publicly accessible, through the process of performing a title search to find *land title records* often requires specialized expertise or knowledge of the local system. Information bout the title to the subject property that is filed or stored in any place other than where land title records are, by law or custom, recorded for the local jurisdiction in which the subject property is located, are not considered land title records.

Landfill, n – A place, location, tract of land, area, or premises used for the disposal of solid wastes as defined by state solid waste regulations. The term is synonymous with the term *solid waste disposal site* and is also known as a garbage dump, trash dump, or similar term.

Landowner liability protections (LLPs), n – A defense to CERCLA available to bona fide prospective purchasers, contiguous property owners, and innocent landowners. See 42 U.S.C. § 9601(35)(A), 9601(40), 9607(q), and 9607(r).

Local government agencies, n – Those agencies of municipal or county governments having jurisdiction over the subject property. Municipal and county government agencies include but are not limited to cities, parishes, townships, and similar entities.

Local street directories, n – Directories published by private or government entities that list the occupant(s) of a specific address at the time the occupant data were collected, typically within a year of the publication date of the directory.

Material safety data sheet (MSDS), n – See safety data sheet.

Migrate/migration, v/n – For the purposes of this practice, “migrate” and “migration” refers to the movement of *hazardous substances* or *petroleum products* in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface.

National Priorities List (NPL), n – List compiled by the EPA, pursuant to CERCLA 42 USC § 9605(a)(8)(B), of sites with the highest priority for cleanup pursuant to EPA’s Hazard Ranking System. See 40 CFR Part 300.

Occupants, n – Those tenants, subtenants, or other persons or entities using a *property* or a portion of a *property.*

Operator, n – Person responsible for the overall operation of a facility.

Other historical resources, n – Any resource other than those designated that are credible to a reasonable person and that identify past uses of the properties.

Owner, n – Generally the fee owner of record for a *property*.

Petroleum exclusion, n – The exclusion from CERCLA liability provided in 42 USC § 9601(14), as interpreted by the courts and EPA: “The term (hazardous substance) does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).”

Petroleum products, n – Those substances included within the meaning of the *petroleum exclusion* to CERCLA, 42 USC § 9601(14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under Subparagraphs (A) through (F) of 42 USC § 9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). (The word fraction refers to certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil, pursuant to *Standard Definitions of Petroleum Statistics*[1]*.)*

Phase I Environmental Site Assessment, n – The process described in this practice.

Pits, ponds, or lagoons, n – Manmade or natural depressions in the ground surface that are likely to hold liquids or sludge containing *hazardous substances* or *petroleum products*. The likelihood of such liquids or sludge being present is determined by evidence of factors associated with the pit, pond, or lagoon, including, but not limited to, discolored water, distressed vegetation, or the presence of an obvious wastewater discharge.

Property, n – Real property including buildings and other fixtures and improvement located on and affixed to the land.

Property use limitation, n – Limitation or restriction on current or future use of a *property* in connection with a response to a *release*, in accordance with the applicable regulatory authority or authorities that allows *hazardous substances* or *petroleum products* to remain in place at concentrations exceeding unrestricted use criteria.

Property tax files, n – Files kept for property tax purposes by the local jurisdiction which may include records of past ownership, appraisals, maps, sketches, phtographs, or other information.

RCRA generators, n – Those persons or entities that generate hazardous waste, as defined and regulated by RCRA.

RCRA TSD facilities, n – Those facilities at which treatment, storage, and/or disposal of hazardous wastes takes place, as defined and regulated by RCRA.

Release, n/v – A *release* of any *hazardous substance* or *petroleum product* shall have the same meaning as the definition of “release” in CERCLA 42 U.S.C § 9601(22). There are a number of statutory exclusions from the definition of *release* that may impact the *environmental professional’s* opinion and conclusions, such as the normal application of fertilizer. For additional background information, see Legal Appendix (Appendix X1) to X1.1.1 “*Releases* and Threatened *Releases*.”

Report, n – Written report prepared by the environmental professional and constituting part of a “Phase I Environmental Site Assessment,” as required by this practice.

Safety data sheets, n – Written or printed material that is prepared by chemical manufacturers and importers for distributors’ and employers’ use that provides comprehensive information regarding a hazardous chemical pursuant to OSHA’s Hazard Communication Standard (HCS), 29 C.F.R. § 1910.1200.

Significant data gap, n – A *data gap* that affects the ability of the *environmental professional* to identify a *recognized environmental condition*.

Solid waste disposal site, n – A place, location, tract of land, area, or premises used for the disposal of solid wastes as defined by state solid waste regulations. The term is synonymous with the term *landfill* and is also known as a garbage dump, trash dump, or similar term.

Solvent, n – A chemical compound that is capable of dissolving another substance and may itself be a *hazardous substance,* used in a number of manufacturing/industrial processes including, but not limited to, the manufacture of paints and coatings for industrial and household purposes, equipment clean-up, and surface degreasing in metal fabricating industries.

Subject property, n – The property that is the subject of the *environmental site assessment* described in this practice.

Sump, n – Pit, cistern, cesspool, or similar receptacle where liquids drain, collect, or are stored.

Topographic map, n – Graphic representation delineating natural and man-made features of an area or region in a way that shows their relative positions and elevations.

TSD facility, n – Treatment, storage, or disposal facility (*see RCRA TSD facilities*).

Underground injection, n – The emplacement or discharge of fluids into the subsurface by means of a well, improved sinkhole, sewage drain hole, subsurface fluid distribution system or other system, or groundwater point source.

Underground storage tank (UST), n - Any tank, including underground piping connected to the tank, that is or has been used to contain *hazardous substances* or *petroleum products* and the volume of which is 10% or more beneath the surface of the ground.

USGS 7.5 Minute Topographic Map, n – USGS Topographic Map, including the current US Topo 7.5-Minute Series or the historical 7.5-Minute Topographic Series, which is available from the United States Geologic Survey and showing the subject property.

Wastewater, n – Water that (1) is or has been used in an industrial or manufacturing process, (2) conveys or has conveyed sewage, or (3) is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. Wastewater does not include water originating on or passing through or adjacent to a site, such as storm water flows, that has not been used in industrial or manufacturing processes, has not been combined with sewage, or is not directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

Zoning/land use records, n – Those records of the local government in which the *property* is located, indicating the uses permitted by the local government in particular zones within its jurisdiction. The records may consist of maps or written records.

DEFINITIONS SPECIFIC TO ASTM E 1527-21:

Actual knowledge, n – The knowledge actually possessed by an individual who is a real person, rather than an entity. Actual knowledge is to be distinguished from constructive knowledge that is knowledge imputed to an individual or entity.

Adjoining properties – Any real property or properties the border of which is contiguous or partially contiguous with that of the property, or that would be contiguous or partially contiguous with that of the property but for a street, road, or other public thoroughfare separating them.

Aerial photographs, n – Photographs taken from an airplane or helicopter (from a low enough altitude to allow identification of development and activities) of areas encompassing the property. Aerial photographs are often available from government agencies or private collections unique to a local area.

Appropriate inquiry, n – That inquiry constituting "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in CERCLA, 42 USC § 9601(35)(B), that will give a party to a *commercial real estate* transaction the *innocent landowner defense* to the CERCLA liability (42 USC § 9601(A) and (B) and § 9607(b)(3)), assuming compliance with other elements of the defense. See Appendix X1.

Approximate minimum search distance, n – The area for which records must be obtained and reviewed pursuant to Section 7 subject to the limitations provided in that section. This may include areas outside the *property* and shall be measured from the nearest *property* boundary. This term is used in lieu of radius to include irregularly-shaped properties.

Building department records, n – Those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property. Often, building department records are located in the building department of a municipality or county.

Business environmental risk, n – A risk which can have a material environmental or environmentally-driven financial impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of *business environmental risk* issues may necessitate that an *environmental professional* address one or more non-scope considerations, some of which are identified in Section 12.

Commercial real estate, n – Any real property except a dwelling or property with no more than four dwelling units exclusively for residential use (except that a dwelling or property with no more than four dwelling units exclusively for residential use is included in this term when it has a commercial function, as in the building of such dwellings for profit). This term includes, but is not limited to, undeveloped real property and real property used for industrial, retail, office, agricultural, other commercial, medical, or educational purposes; property used for residential purposes that has more than four residential dwelling units; and any property with no more than four dwelling units for residential use when it has a commercial function, as in the building of such dwellings for profit.

Commercial real estate transaction, n – A transfer of title to or possession of real property or receipt of a security interest in real property, except that it does not include transfer of title to or possession of real property or the receipt of a security interest in real property with respect to an individual dwelling or building containing fewer than five dwelling units, nor does it include the purchase of a lot or lots to construct a dwelling for occupancy by a purchaser, but a commercial real estate transaction does include real property purchased or leased by persons or entities in the business of building or developing dwelling units.

Controlled Recognized Environmental Condition, n – a *recognized environmental condition* affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with *hazardous substances* or *petroleum products* allowed to remain in place subject to implementation of required controls (for example, *activity and use limitations* or *other property use limitations*). For examples of *controlled recognized environmental conditions,* see Appendix X4.

Due diligence, n – the process of inquiring into the environmental characteristics of a *commercial real estate* or other conditions, usually in connection with a *commercial real estate* transaction. The degree and kind of *due diligence* vary for different *properties*, and differing purposes. See Appendix X1.

Environmental audit, n – The investigative process to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations. This term should not be used to describe Practice E 1528 or this practice, although an environmental audit may include an *environmental site assessment* or, if prior audits are available, may be part of an environmental site assessment.

Environmental professional, n – A person processing sufficient training and experience necessary to conduct a *site reconnaissance, interviews,* and other activities in accordance with this practice, and from the information generated by such activities, having the ability to develop opinions and conclusions regarding *recognized environmental conditions* in connection with the *property* in question. An individual's status as an environmental professional may be limited to the type of assessment to be performed or to specific segments of the assessment for which the professional is responsible. The person may be an independent contractor or an employee of the *user.*

Environmental site assessment (ESA), n – the process by which a person or entity seeks to determine is a subject property is subject to *recognized environmental conditions*. At the option of the *user*, an *environmental site assessment* may include more inquiry than that constituting *all appropriate inquiries* or, if the *user* is not concerned about qualifying for the *LLPs*, less inquiry than that constituting *all appropriate inquiries*. An *environmental site assessment* is both different from and often less rigorous than an *environmental compliance audit*.

Fill dirt, n – dirt, soil, sand, or other earth, that is obtained off-site, that is used to fill holes or depressions, create mounds, or otherwise artificially change the grade or elevation of real *property*. It does not include material that is used in limited quantities for normal landscaping activities.

Hazardous waste/contaminated sites, n – Sites on which a release has occurred, or is suspected to have occurred, of any *hazardous substance, hazardous waste,* or *petroleum products,* and that release or suspected release has been reported to a government entity.

Historical Recognized Environmental Condition, n – a previous *release* of any *hazardous substances* or *petroleum products* affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations, or other property use limitations). A *historical recognized environmental condition* is not a *recognized environmental condition*. For examples of *historical recognized environmental conditions*, see Appendix X4.

Innocent landowner defense – That defense to CERCLA liability provided in 42 USC § 9601(35) and § 9607(b)(3). One of the requirements to qualify for this defense is that the party make "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice." There are additional requirements to qualify for this defense.

Interviews, n – those portions of this practice that are conducted to gather information from an individual or individuals in person, by telephone, in writing, or via other electronic media to meet the objectives of this practice.

Key site manager, n – The person identified by the *owner* of a *property* as having good knowledge of the uses and physical characteristics of the property.

Local government agencies, n – Those agencies of municipal or county government having jurisdiction over the *property.* Municipal and county government agencies include, but are not limited to, cities, parishes, townships, and similar entities.

LUST sites, n – State lists of leaking underground storage tank sites. Section 9003 (h) of Subtitle I of RCRA gives EPA and states, under cooperative agreements with EPA, authority to clean up releases from UST systems or require owners and operators to do so.

Major occupants, n – Those tenants, subtenants, or other persons or entities each of which uses at least 40% of the leasable area of the *property* or any anchor tenant when the *property* is a shopping center.

Material threat, n – Obvious threat which is likely to lead to a release and that, in the opinion of the environmental professional, would likely result in impact to public health or the environment. An example might include an aboveground storage tank system that contains s *hazardous substance* and which shows evidence of damage. The damage would represent a *material threat* if it is deemed serious enough that it may cause or contribute to tank integrity failure with a release of contents to the environment.

Obvious, adj – That which is plain or evident; a condition or fact that could not be ignored or overlooked by a reasonable observer while *visually* or *physically observing the property.*

Other historical sources, n – Any source or sources other than those designated in 7.3.4.1-7.3.4.8 that are credible to a reasonable person and that identify past uses of the property. The term includes, but is not limited to, miscellaneous maps, newspaper archives, and records in the files and/or personal knowledge of the *property owner* and/or *occupants.*

Physical setting sources, n – Resources that provide information about the geologic, hydrogeologic, hydrologic, or topographic characteristics of the area that includes the subject property.

Practically reviewable, adj – Information that is *practically reviewable* means that the information is provided by the source in a manner and in a form that, upon examination, yield information relevant to the subject property without the need for extraordinary analysis of irrelevant data. The form of the information shall be such that the *user* can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the subject property or a geographic area in which the subject property is located are not generally *practically reviewable*. Most databases of public records are practically reviewable if they can be obtained from the source agency by the county city, zip code, or other geographic area of the facilities listed in the record system. Records that are sorted, filed, organized, or maintained by the source agency only chronologically are not generally *practically reviewable*. Listings in *publicly available* records which do not have adequate address information to be located geographically are not generally considered *practically reviewable*. For large databases with numerous records (such as RCRA hazardous waste generator and registered *underground storage tanks*), the records are not *practically reviewable* unless they can be obtained from the source agency in the smaller geographic area of zip codes. Even when information is provided by zip code for some large databases, it is common for an unmanageable number of sites to be identified within a given zip code. In these cases, it is not necessary to review the impact of all if the site that are likely to be listed in any given zip code because that information cannot be feasibly reviewed regarding its impact on the subject property, it is not *practically reviewable.*

Preparer, n – The person preparing the *transaction screen questionnaire* pursuant to Practice E 1528, who may be either the user or the person to whom the user has delegated the preparation of the *transaction screen questionnaire.*

Publicly available, adj – Information that is publicly available means that the source of the information allows access to the information by anyone upon request.

Reasonably ascertainable, adj – Information that is (1) *publicly available*, (2) obtainable from its source within reasonable time and cost constraints, and (3) *practically reviewable*.

Recognized Environmental Conditions, n – (1) the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* to the *environment*; (2) the likely presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* or likely *release* to the *environment*; or (3) the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* under conditions that pose a *material threat* of a future *release* to the *environment*.

Records review, n – That part that is contained in Section 8 of this practice addresses which records shall or may be reviewed.

Site reconnaissance, n – That part that is contained in Section 9 of this practice and addresses what should be done in connection with the *site visit*. The *site reconnaissance* includes, but is not limited to, the *site visit* done in connection with such a *Phase I Environmental Site Assessment*

Site visit, n – The visit to the subject property during which observations are made constituting the *site reconnaissance* section of this practice.

Standard environmental record sources, n – Those records specified in 8.2.2.

Standard historical sources, n – Those sources of information about the history of uses of the property specified in 8.3.4.

Standard physical setting source, n – A current USGS 7.5-minute topographic map (if any) showing the area on which the property is located.

Standard practice(s), n – The activities set forth in either and both this practice and Practice E 1528.

Standard sources, n – Sources of environmental, physical setting, or historical records specified in Section 7 of this practice.

Transaction screen process, n – The process described in Practice E 1528.

Transaction screen questionnaire, n – The questionnaire provided in Section 6 of Practice E 1528.

User, n – The party seeking to use Practice E1527 to complete an *environmental site assessment* of the *subject property*.

Visually and/or physically observed, v – During a *site visit* pursuant to this practice, this term means observations made by visual, auditory, or olfactory means while performing *site reconnaissance*.

ACRONYMS:

AULs – Activity and Use Limitations

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act of 1980 (as amended, 42 USC § 9601 *et seq.*)

C.F.R. – Code of Federal Regulations

CREC – Controlled Recognized Environmental Condition

EC – Engineering Control

EPA – United States Environmental Protection Agency

EPCRA – Emergency Planning and Community Right to Know Act (also known as SARA Title III), 42 USC § 11001 *et seq.*)

ERNS – Emergency response notification system

ESA – Environmental site assessment (different than an *environmental audit*)

FR – Federal Register

HREC – Historical Recognized Environmental Condition

IC – Institutional Control

LLP – Landowner Liability Protections under the *Brownfields Amendments*

LUST – Leaking underground storage tank

NCP – National Contingency Plan

NFRAP – Sites were no further remedial action is planned under CERCLA

NPDES – National Pollutant Discharge Elimination System

NPL – National Priorities List

PCBs – Polychlorinated biphenyls

RCRA – Resource Conservation and Recovery Act (as amended, 42 U.S.C. § 9601 *et seq.*.)

REC – Recognized Environmental Condition

SARA – Superfund Amendments and Reauthorization Act of 1986 (amendment to CERCLA).

TSDF – Hazardous waster treatment, storage, or disposal facility

U.S.C. – United States Code

USGS – United States Geological Survey

UST – Underground Storage Tank

APPENDIX B

Historical Topographic Maps

Proposed Irrigation Channel Orange

Not Reported

San Jacinto, CA 92582

Inquiry Number: 7466753.4

October 11, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/11/23

Site Name:	Client Name:
Proposed Irrigation Channel O	Roux Associates
Not Reported	5150 E Pacific Coast Highway
San Jacinto, CA 92582	Long Beach, CA 90804
EDR Inquiry # 7466753.4	Contact: Jay Vargas

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Roux Associates were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	33.813599 33° 48' 49" North
Project:	Proposed Irrigation Channel	**Longitude:**	-117.020735 -117° 1' 15" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	498081.00
		UTM Y Meters:	3741488.71
		Elevation:	1460.00' above sea level

Maps Provided:

2018
2015
2012
1979
1967, 1972
1953
1943
1901

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets



Lakeview
2018
7.5-minute, 24000



San Jacinto
2018
7.5-minute, 24000

2015 Source Sheets



Lakeview
2015
7.5-minute, 24000



San Jacinto
2015
7.5-minute, 24000

2012 Source Sheets



Lakeview
2012
7.5-minute, 24000



San Jacinto
2012
7.5-minute, 24000

1979 Source Sheets



Lakeview
1979
7.5-minute, 24000
Aerial Photo Revised 1976



San Jacinto
1979
7.5-minute, 24000
Aerial Photo Revised 1978

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1967, 1972 Source Sheets



Lakeview
1967
7.5-minute, 24000
Aerial Photo Revised 1966



San Jacinto
1972
7.5-minute, 24000
Aerial Photo Revised 1972

1953 Source Sheets



San Jacinto
1953
7.5-minute, 24000
Aerial Photo Revised 1949



Lakeview
1953
7.5-minute, 24000
Aerial Photo Revised 1951

1943 Source Sheets



Banning
1943
15-minute, 62500
Aerial Photo Revised 1941



PERRIS
1943
15-minute, 62500

1901 Source Sheets



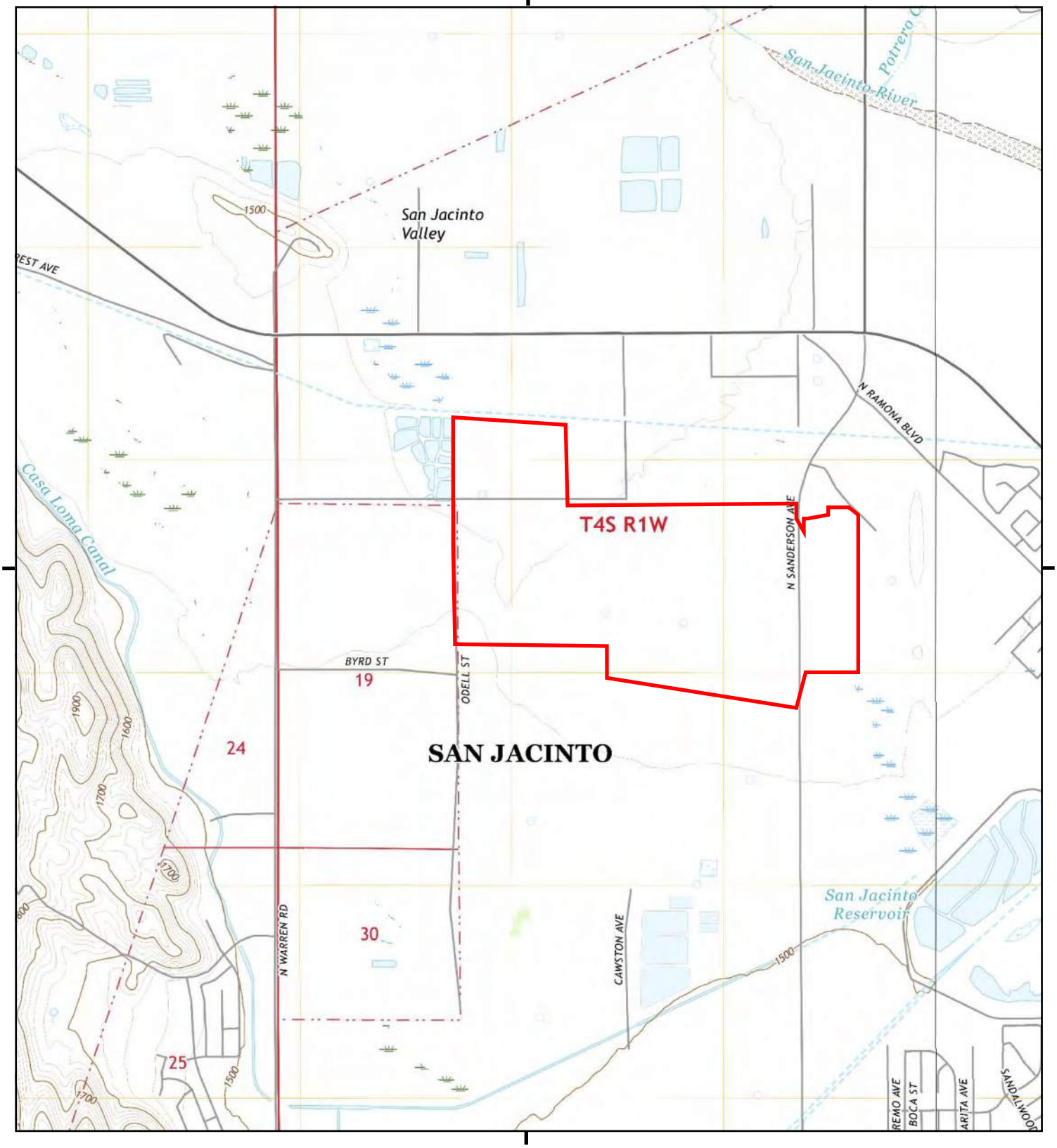
Elsinore
1901
30-minute, 125000



San Jacinto
1901
30-minute, 125000

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

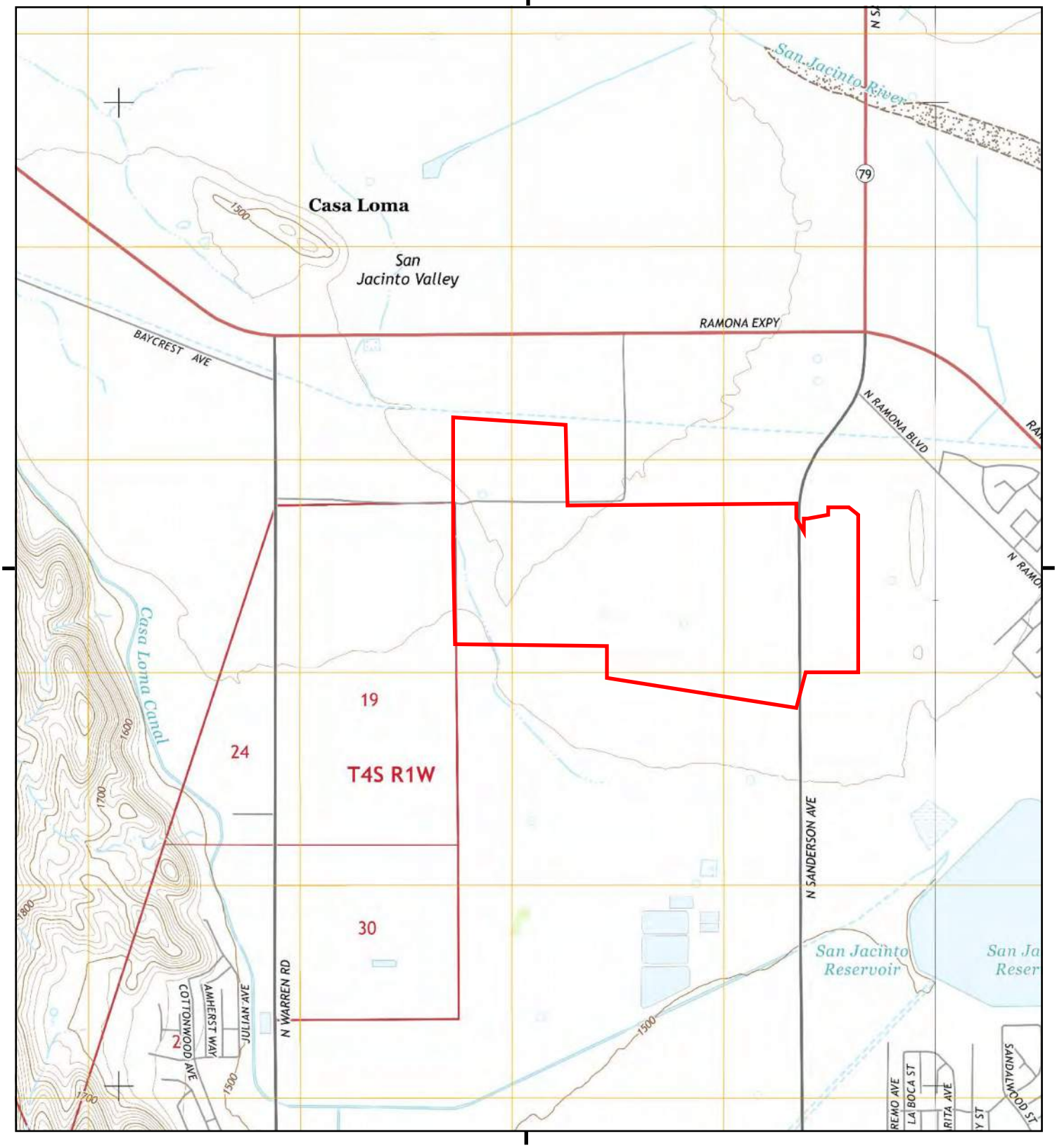
TP, Lakeview, 2018, 7.5-minute
E, San Jacinto, 2018, 7.5-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

2015



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W E
SW S SE

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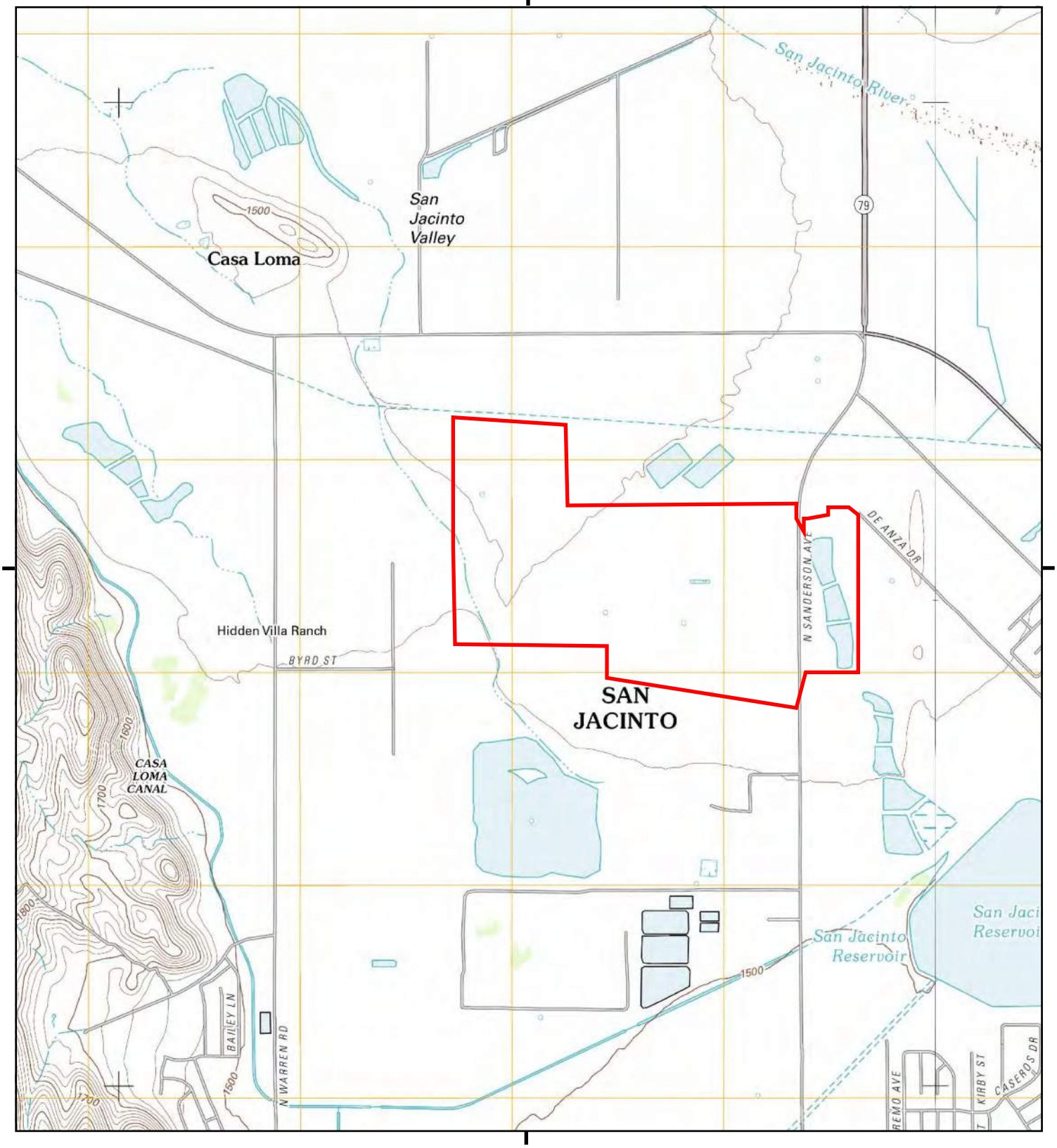
E, San Jacinto, 2015, 7.5-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

2012



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W E
SW S SE

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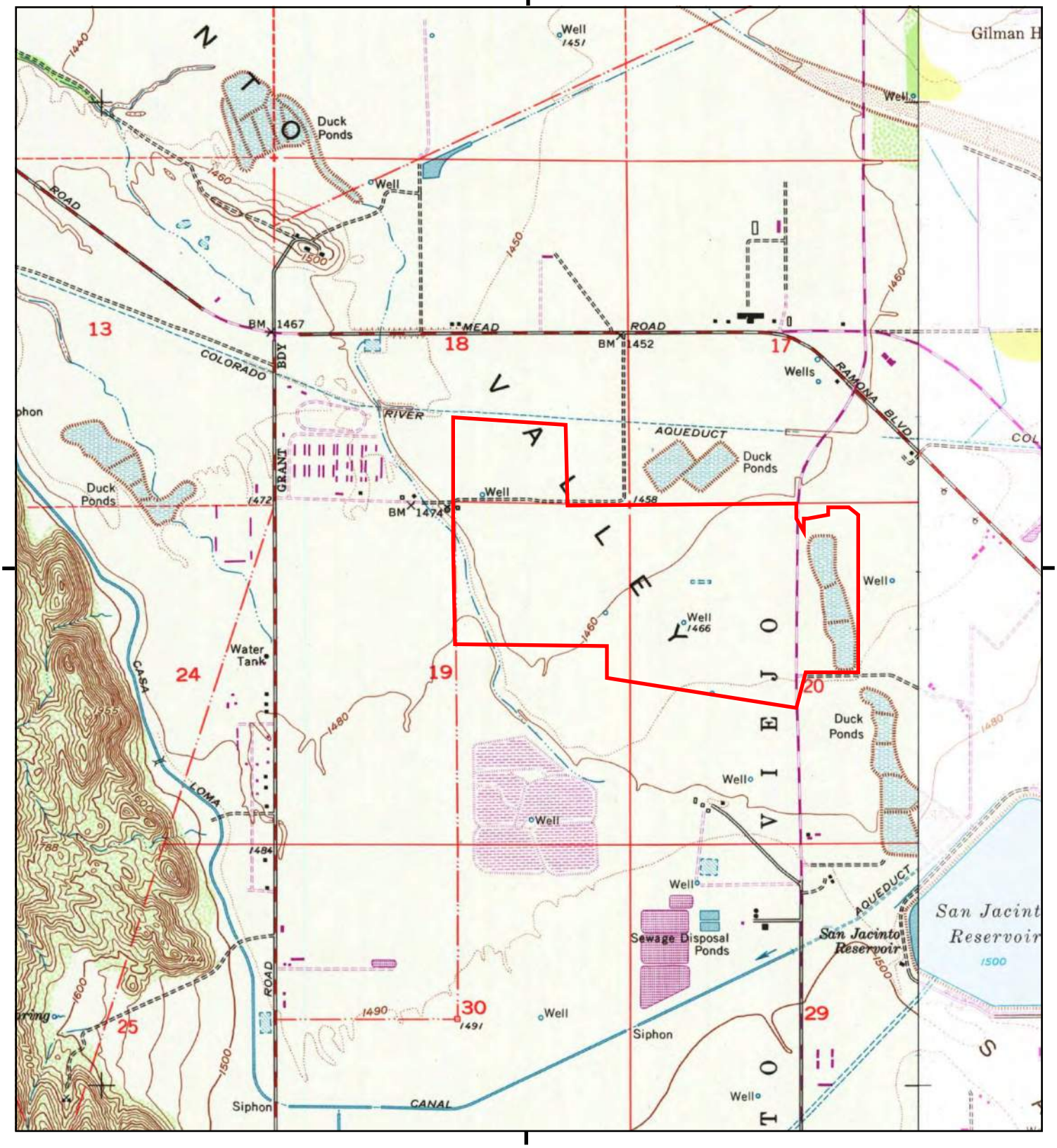
E, San Jacinto, 2012, 7.5-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

1979



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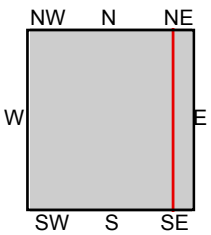
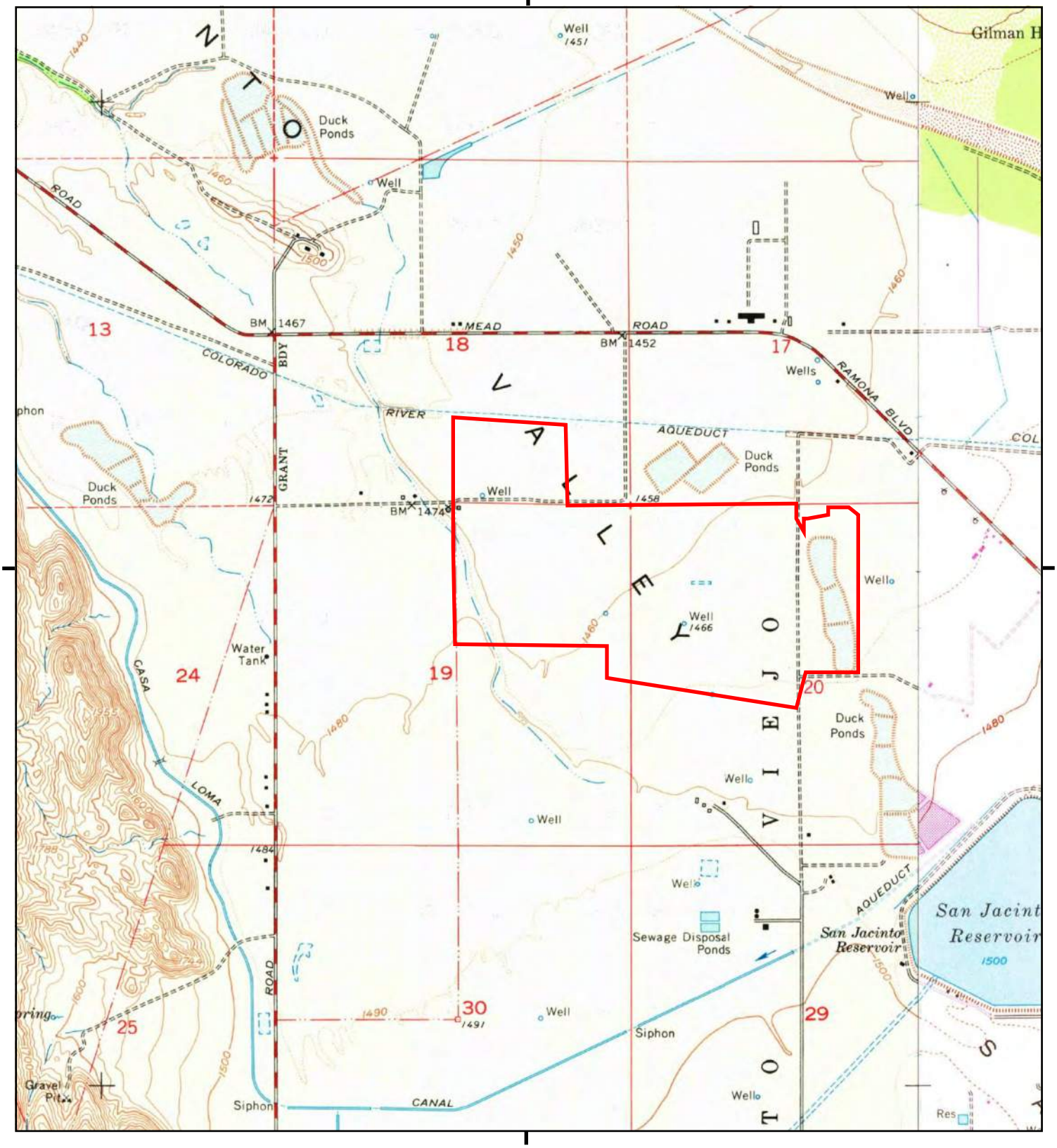


TP, Lakeview, 1979, 7.5-minute
E, San Jacinto, 1979, 7.5-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

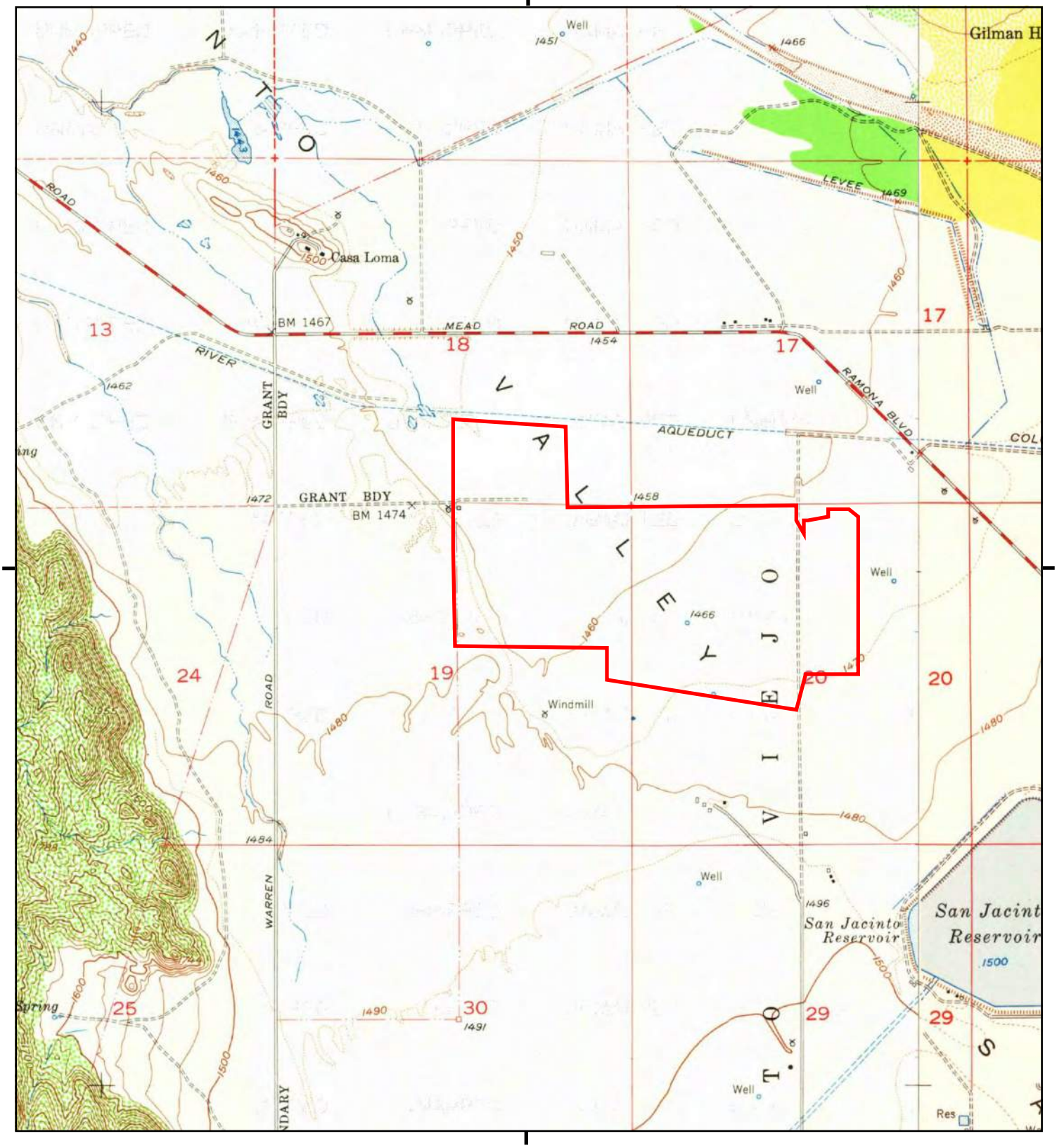
TP, Lakeview, 1967, 7.5-minute
E, San Jacinto, 1972, 7.5-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

1953



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

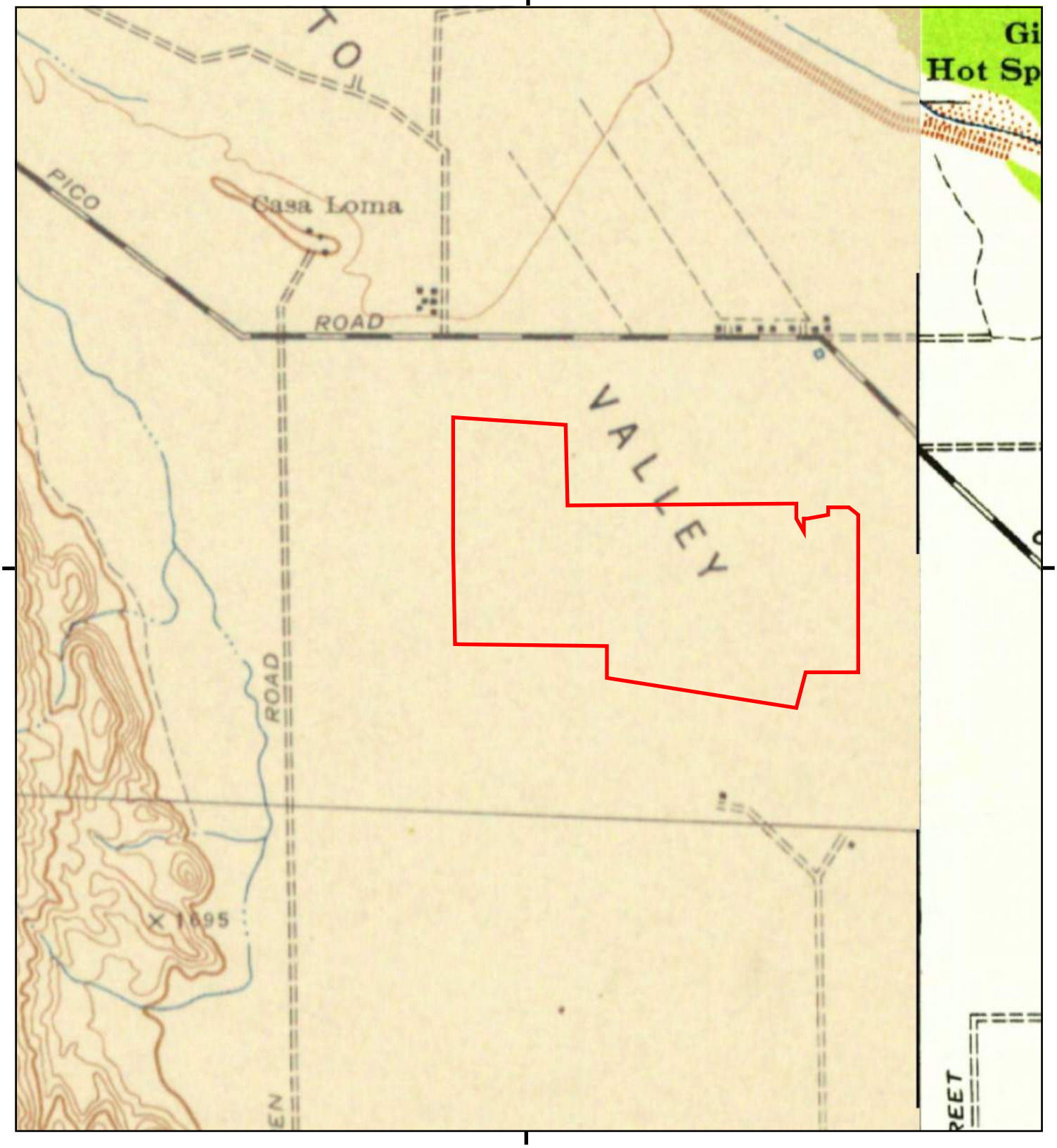
TP, Lakeview, 1953, 7.5-minute
E, San Jacinto, 1953, 7.5-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

1943



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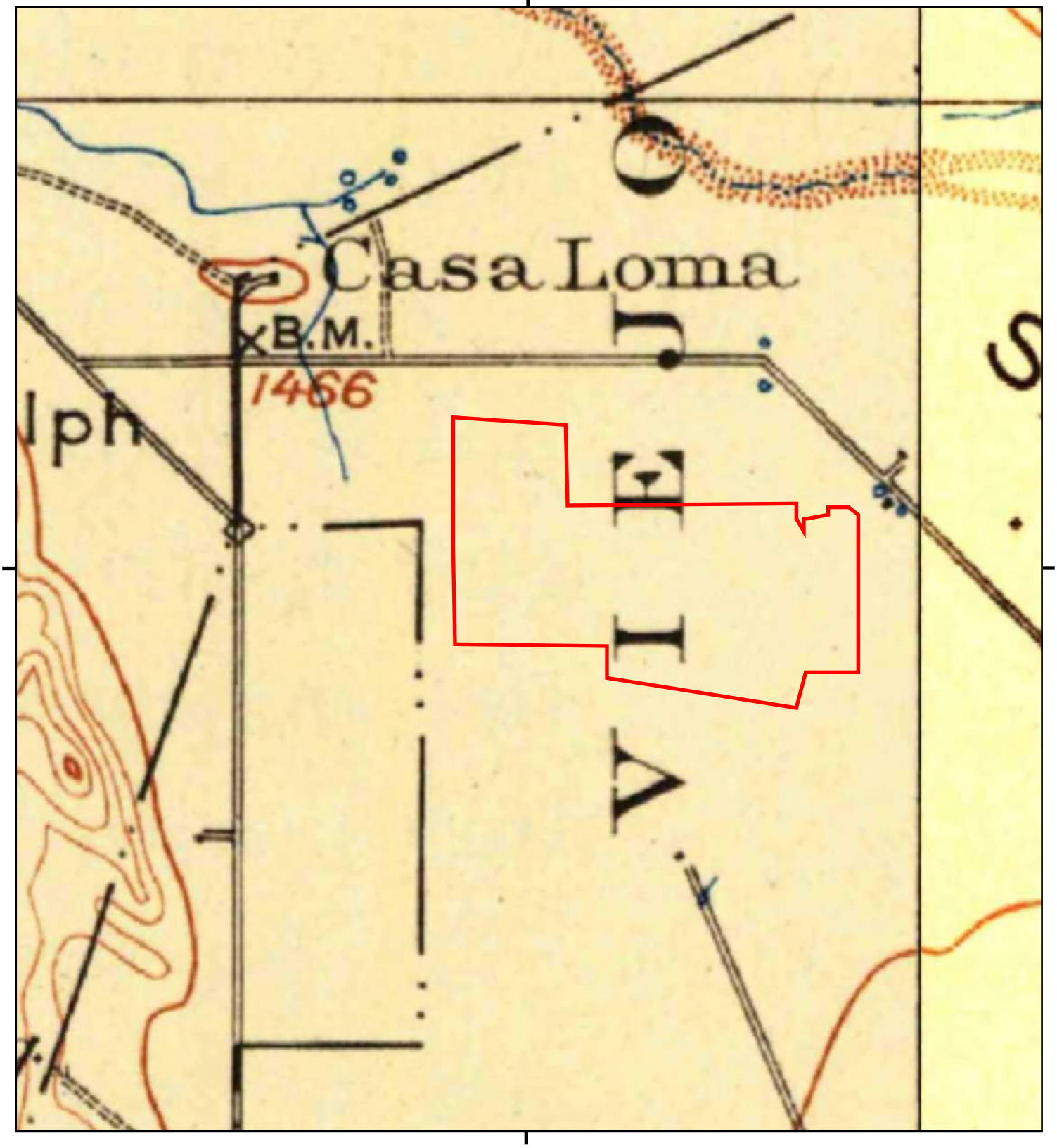
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, PERRIS, 1943, 15-minute
NE, Banning, 1943, 15-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1901, 30-minute
E, San Jacinto, 1901, 30-minute

SITE NAME: Proposed Irrigation Channel Orange
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

San Jacinto Irrigation Channel

Not Reported

San Jacinto, CA 92582

Inquiry Number: 7466759.4

October 11, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/11/23

Site Name:

San Jacinto Irrigation Channel
Not Reported
San Jacinto, CA 92582
EDR Inquiry # 7466759.4

Client Name:

Roux Associates
5150 E Pacific Coast Highway
Long Beach, CA 90804
Contact: Jay Vargas

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Roux Associates were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: Proposed Irrigation Channel

Coordinates:

Latitude:	33.805858 33° 48' 21" North
Longitude:	-117.002253 -117° 0' 8" West
UTM Zone:	Zone 11 North
UTM X Meters:	499791.47
UTM Y Meters:	3740630.24
Elevation:	1479.00' above sea level

Maps Provided:

2018	1948
2015	1943
2012	1942
1996	1901
1979	
1967, 1972	
1956	
1953	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets



Lakeview
2018
7.5-minute, 24000



San Jacinto
2018
7.5-minute, 24000

2015 Source Sheets



Lakeview
2015
7.5-minute, 24000



San Jacinto
2015
7.5-minute, 24000

2012 Source Sheets



Lakeview
2012
7.5-minute, 24000



San Jacinto
2012
7.5-minute, 24000

1996 Source Sheets



San Jacinto
1996
7.5-minute, 24000
Aerial Photo Revised 1994

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1979 Source Sheets



Lakeview
1979
7.5-minute, 24000
Aerial Photo Revised 1976



San Jacinto
1979
7.5-minute, 24000
Aerial Photo Revised 1978

1967, 1972 Source Sheets



Lakeview
1967
7.5-minute, 24000
Aerial Photo Revised 1966



San Jacinto
1972
7.5-minute, 24000
Aerial Photo Revised 1972

1956 Source Sheets



Banning
1956
15-minute, 62500
Aerial Photo Revised 1951

1953 Source Sheets



San Jacinto
1953
7.5-minute, 24000
Aerial Photo Revised 1949



Lakeview
1953
7.5-minute, 24000
Aerial Photo Revised 1951

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1948 Source Sheets



BANNING
1948
15-minute, 50000

1943 Source Sheets



Banning
1943
15-minute, 62500
Aerial Photo Revised 1941



PERRIS
1943
15-minute, 62500

1942 Source Sheets



Perris
1942
15-minute, 62500
Aerial Photo Revised 1939

1901 Source Sheets



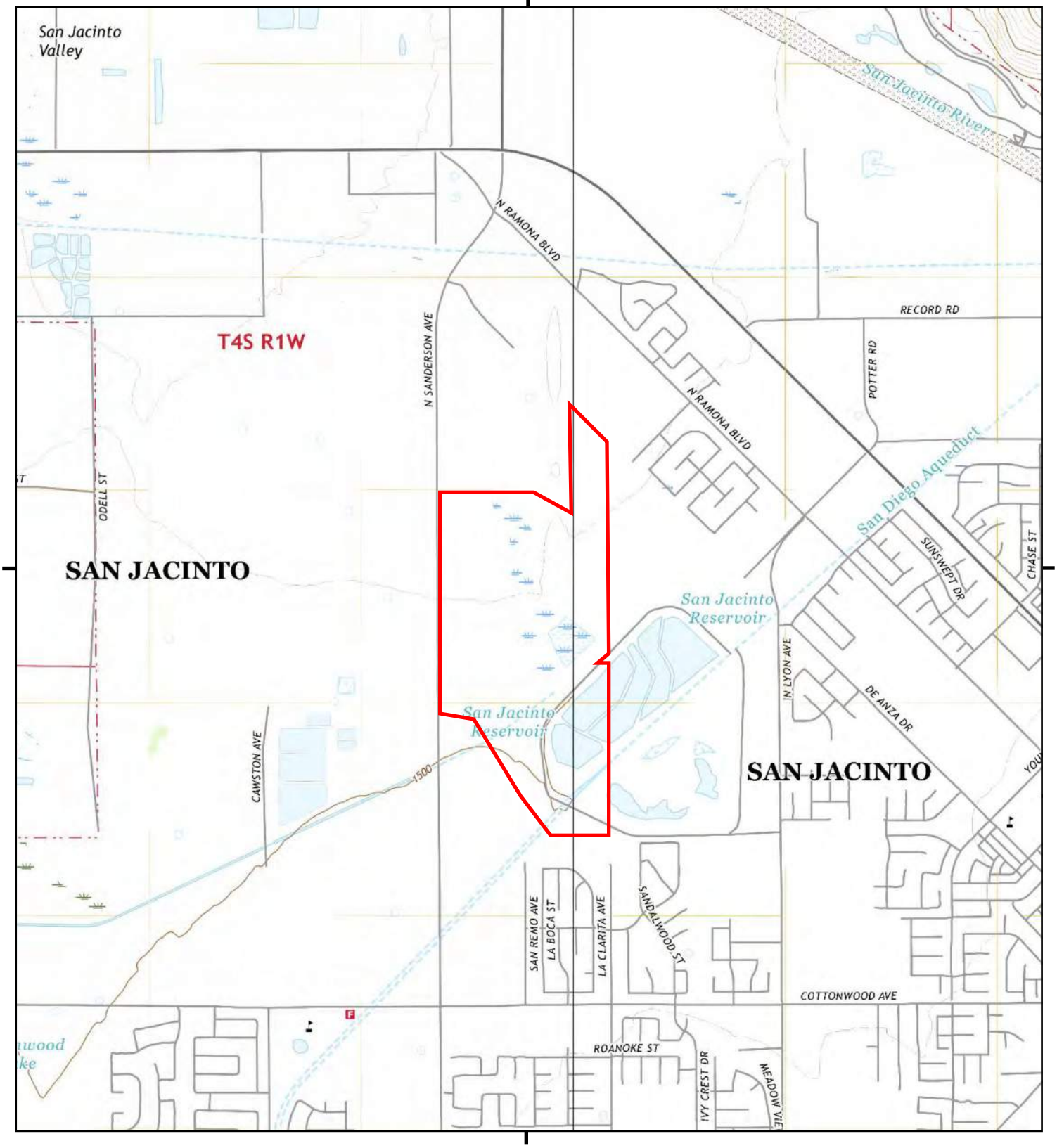
Elsinore
1901
30-minute, 125000



San Jacinto
1901
30-minute, 125000

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

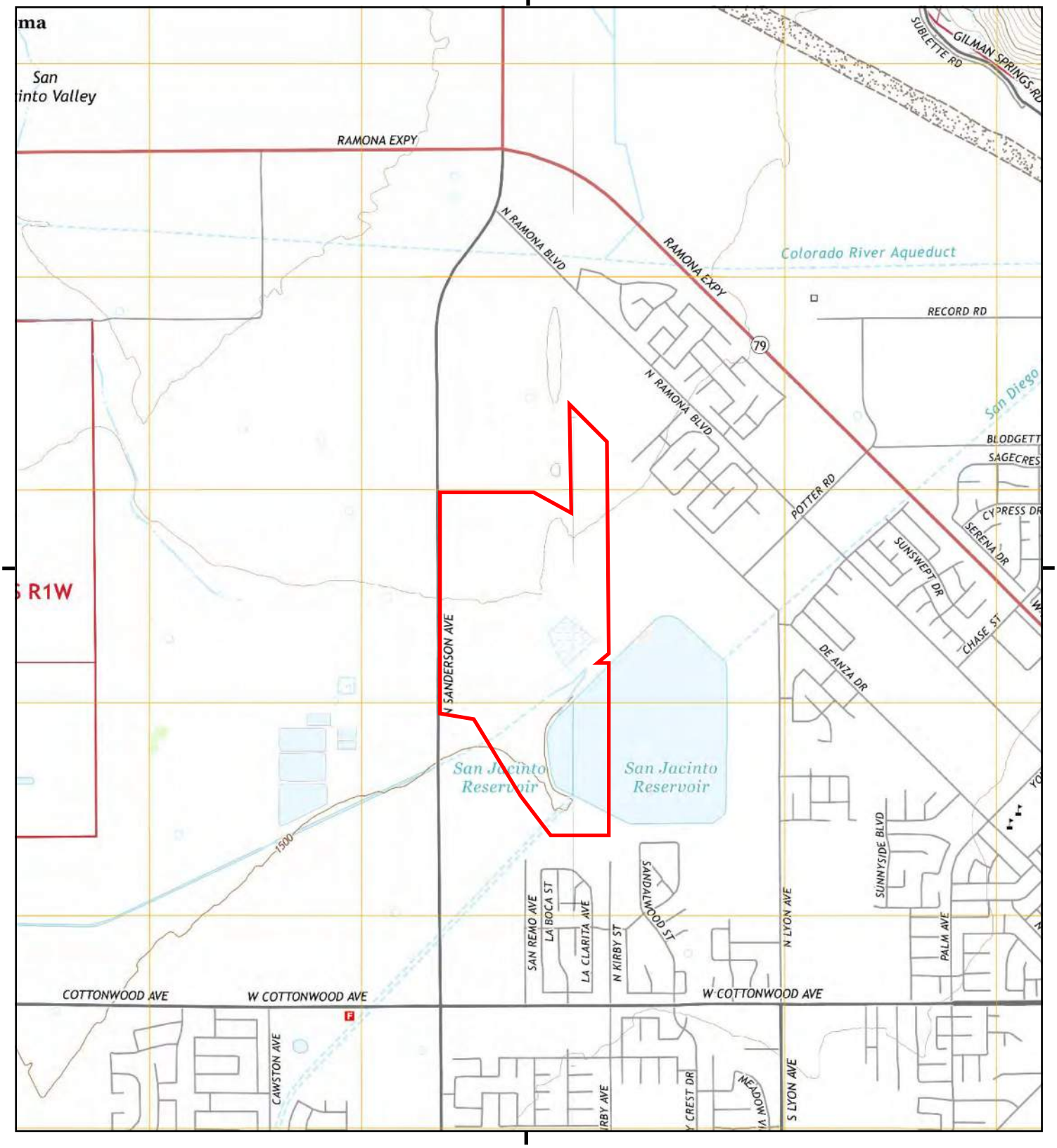
TP, Lakeview, 2018, 7.5-minute
E, San Jacinto, 2018, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

2015



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W E
SW S SE

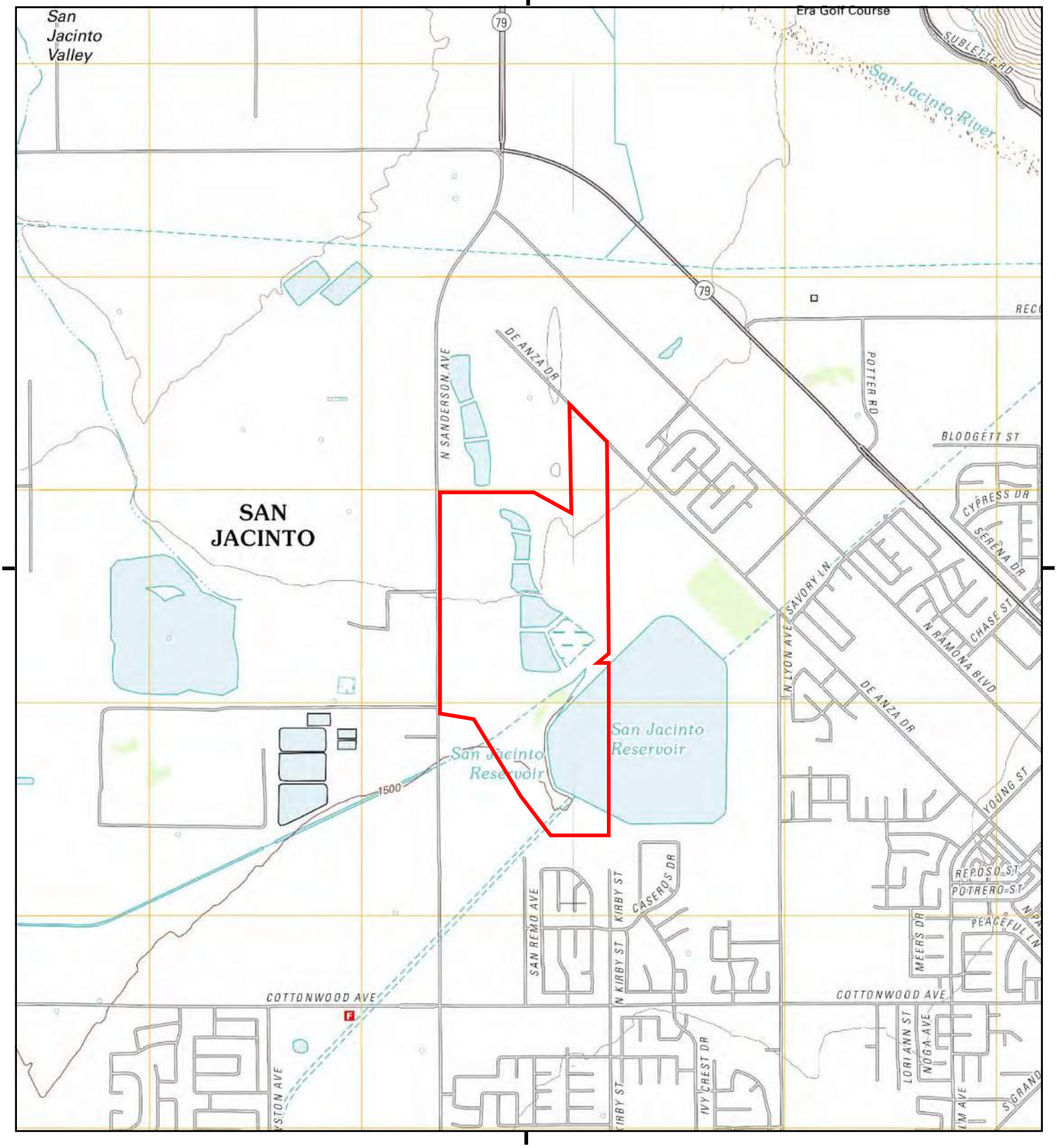
TP, Lakeview, 2015, 7.5-minute
E, San Jacinto, 2015, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

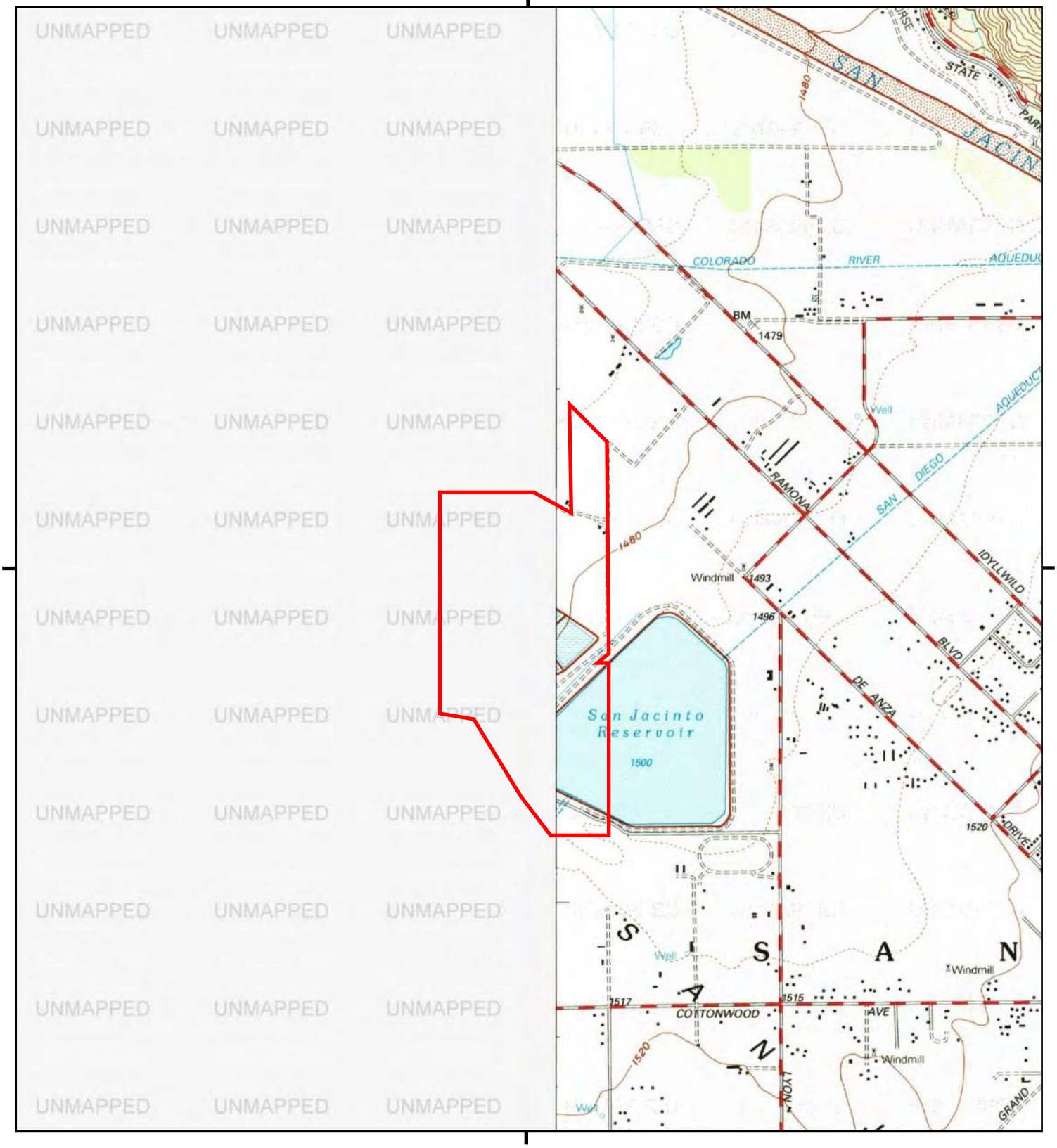
TP, Lakeview, 2012, 7.5-minute
E, San Jacinto, 2012, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

Historical Topo Map

1996



This report includes information from the following map sheet(s).

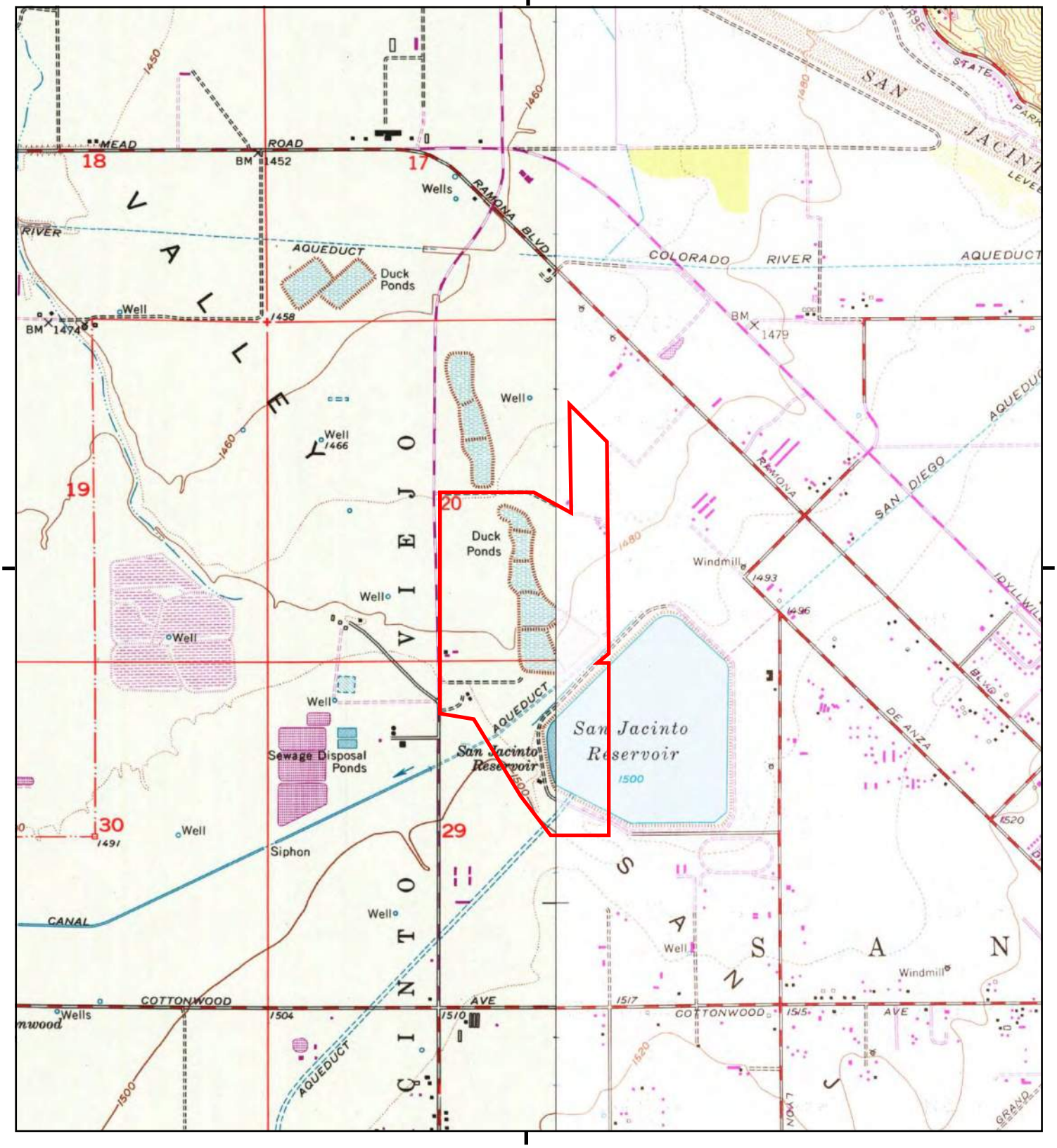
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

E, San Jacinto, 1996, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

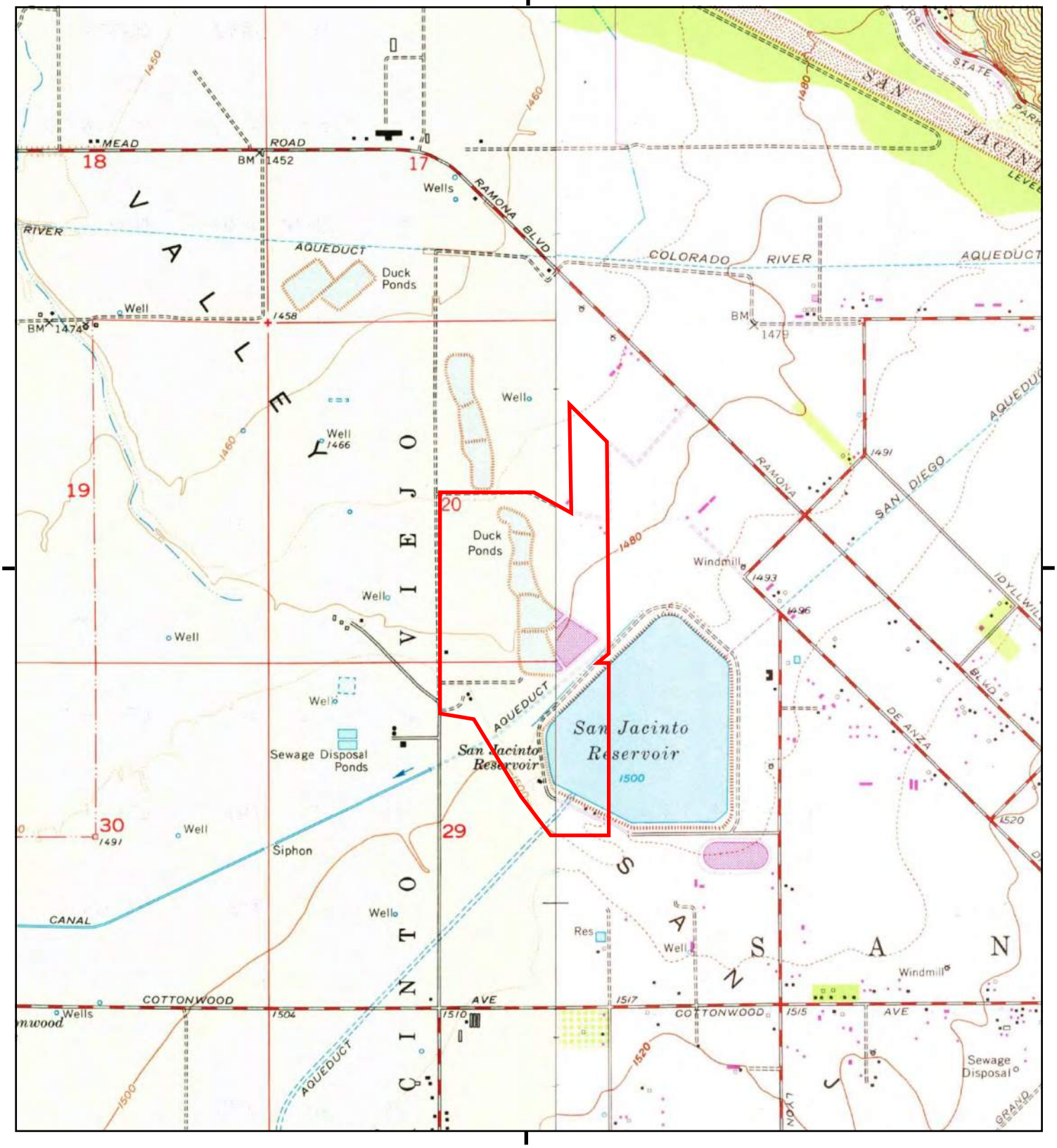
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lakeview, 1979, 7.5-minute
E, San Jacinto, 1979, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

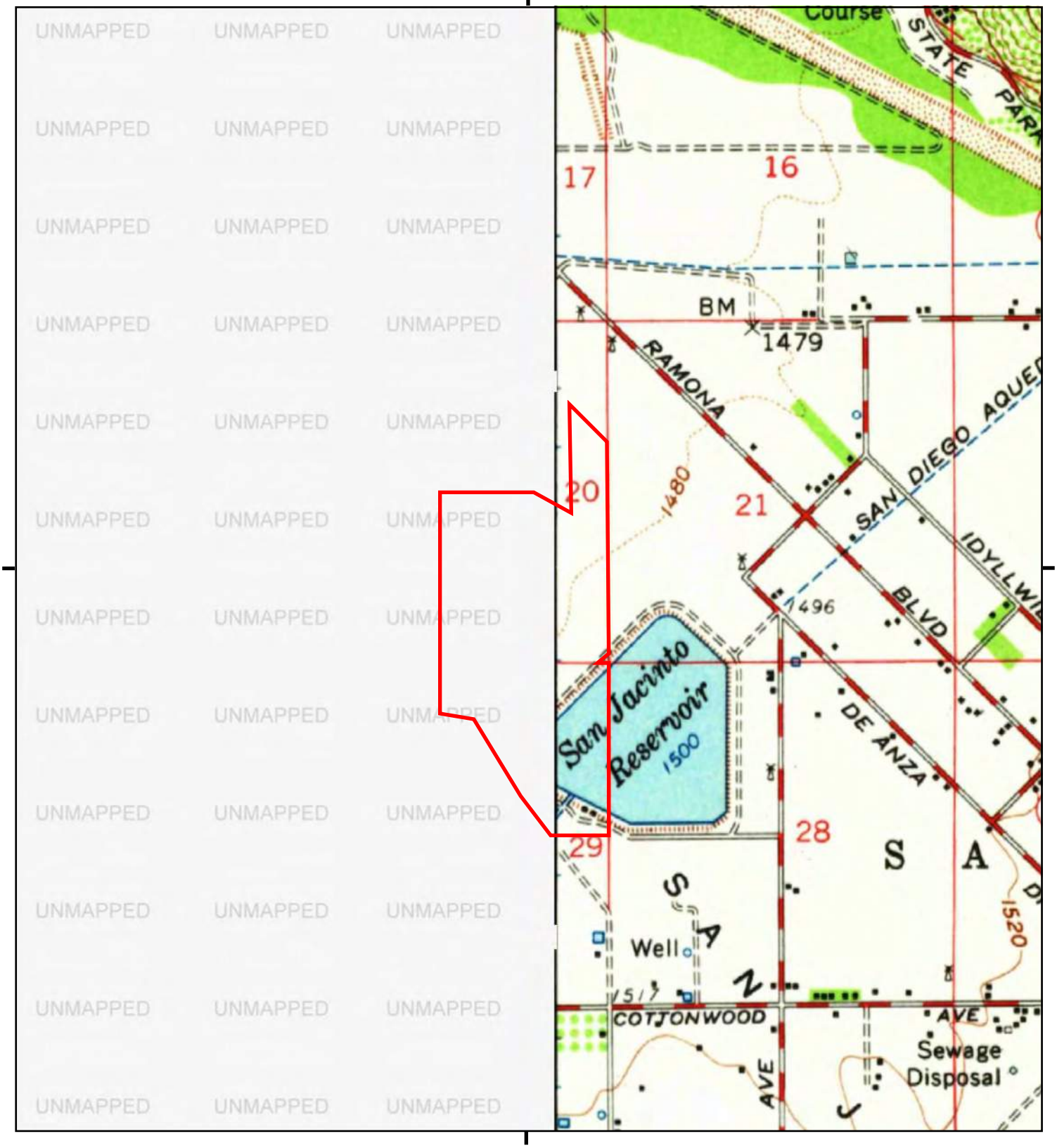
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lakeview, 1967, 7.5-minute
E, San Jacinto, 1972, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

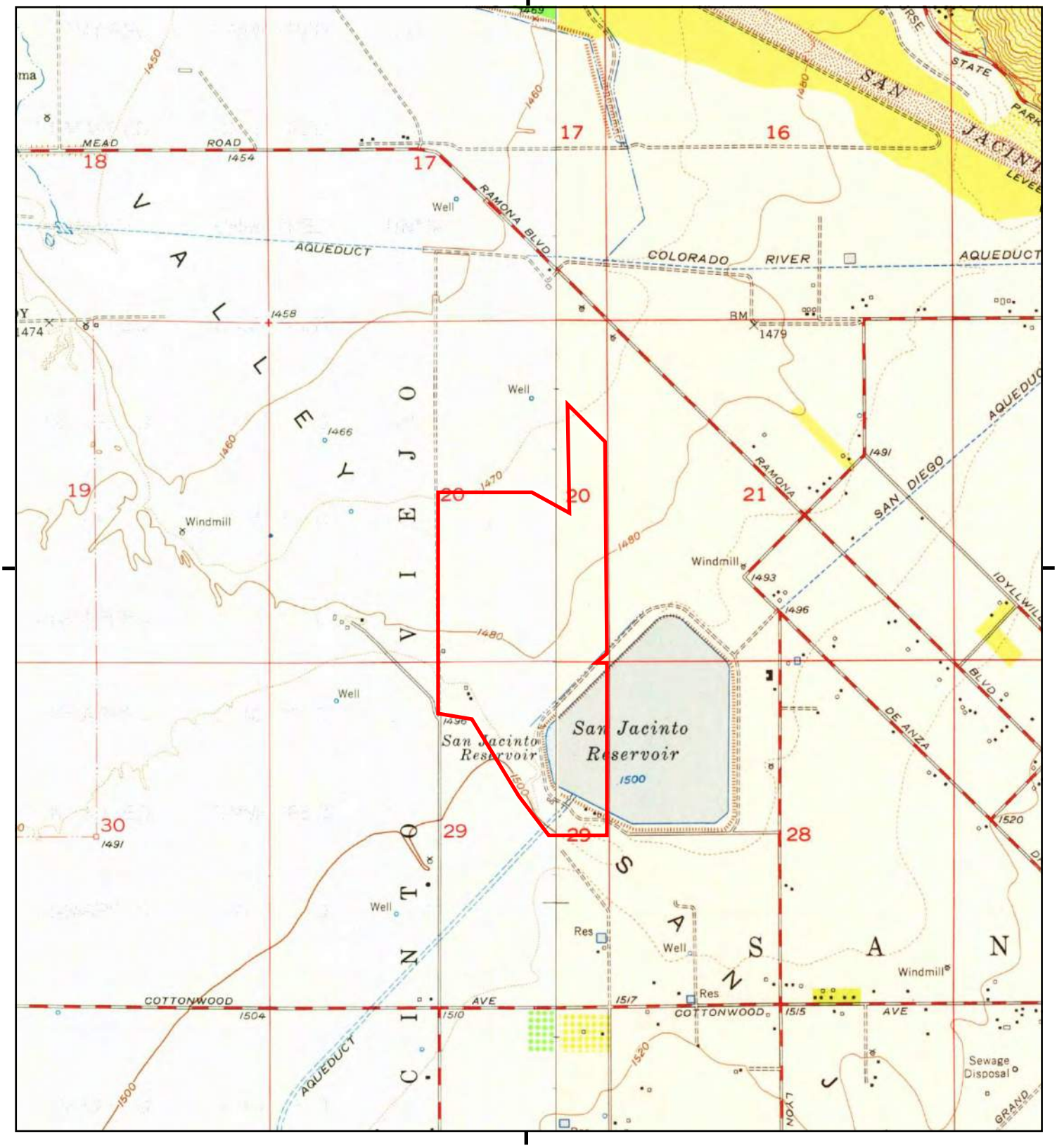
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

NE, Banning, 1956, 15-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

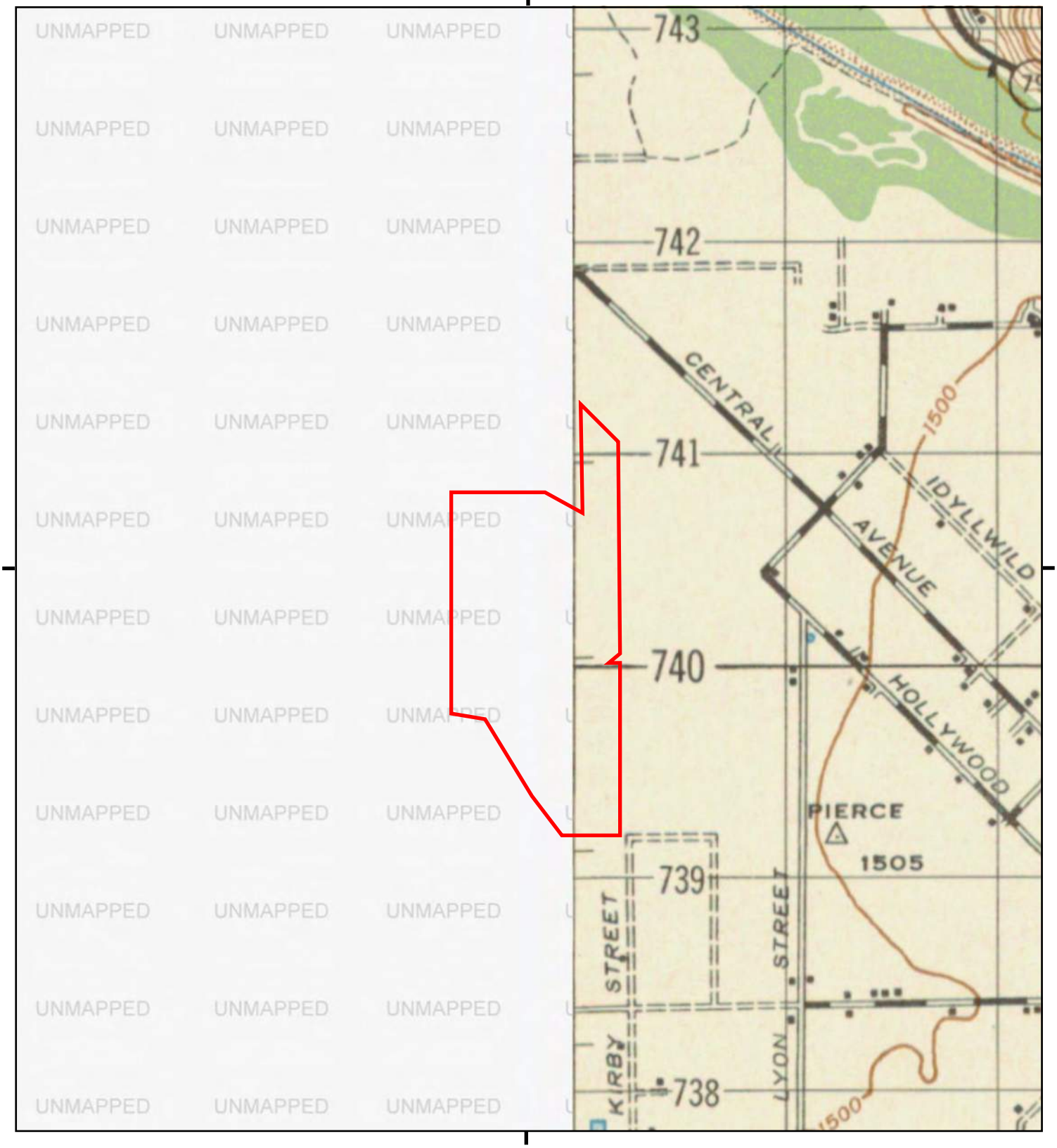
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lakeview, 1953, 7.5-minute
E, San Jacinto, 1953, 7.5-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

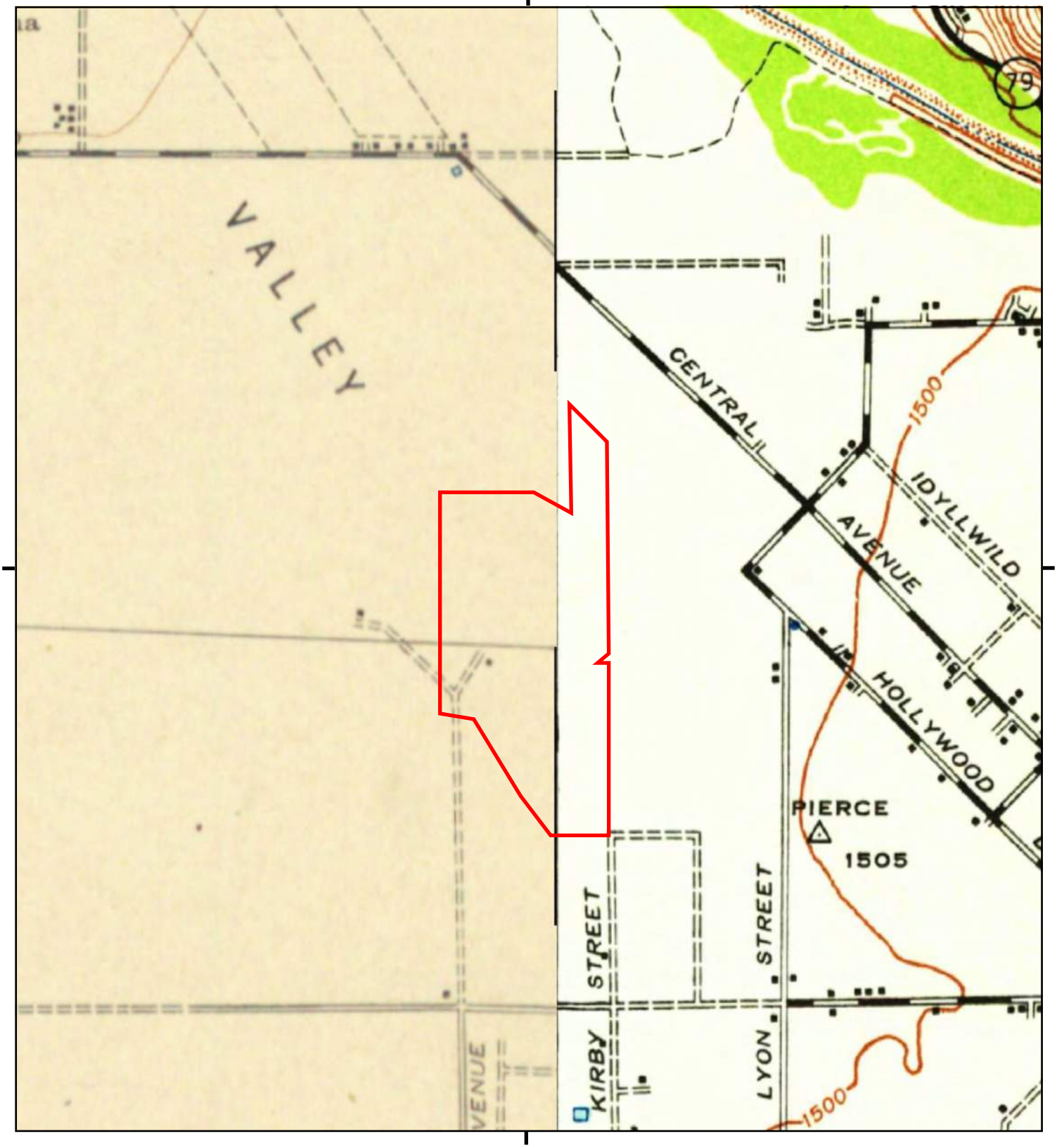
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

NE, BANNING, 1948, 15-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

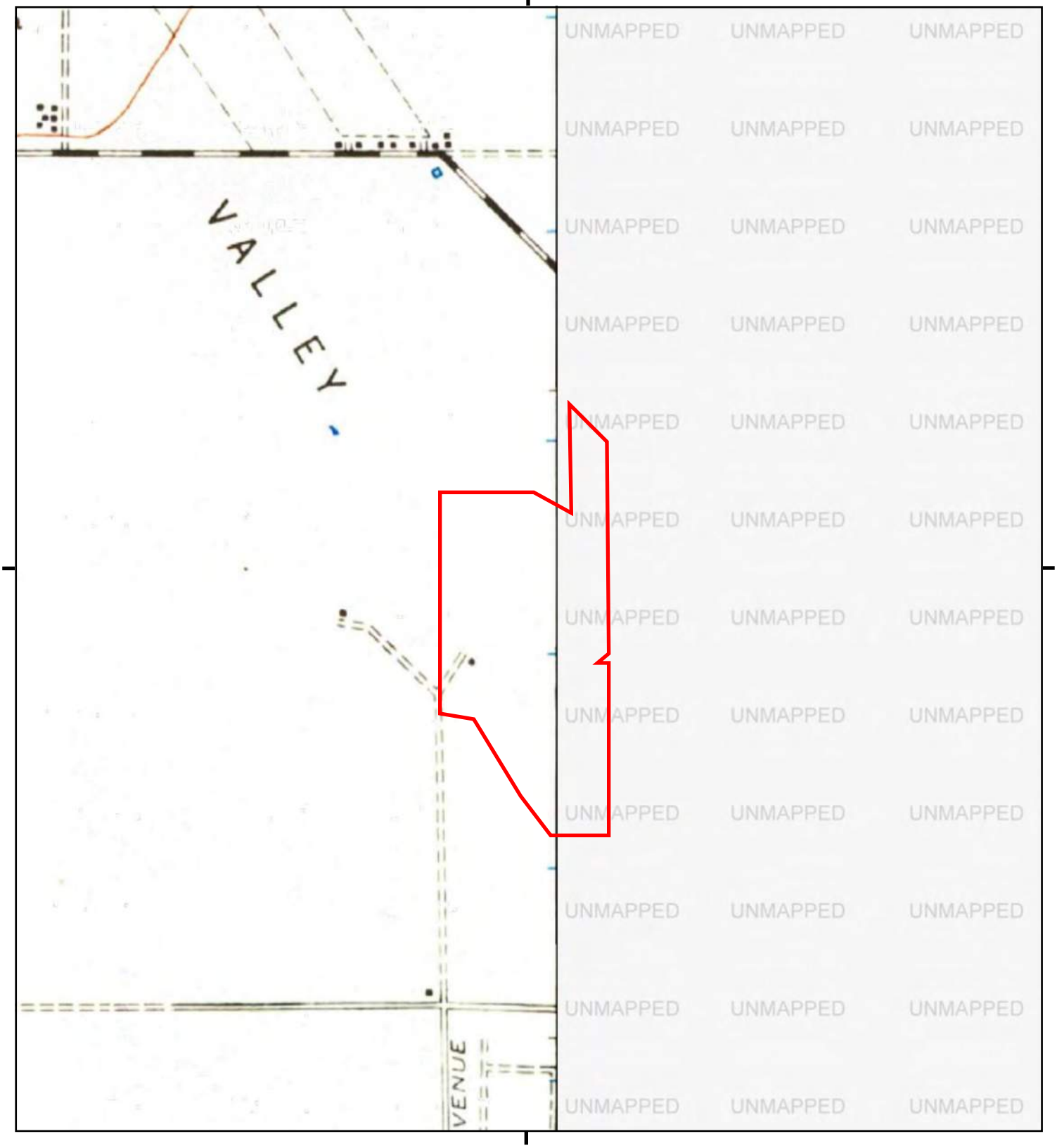
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, PERRIS, 1943, 15-minute
NE, Banning, 1943, 15-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

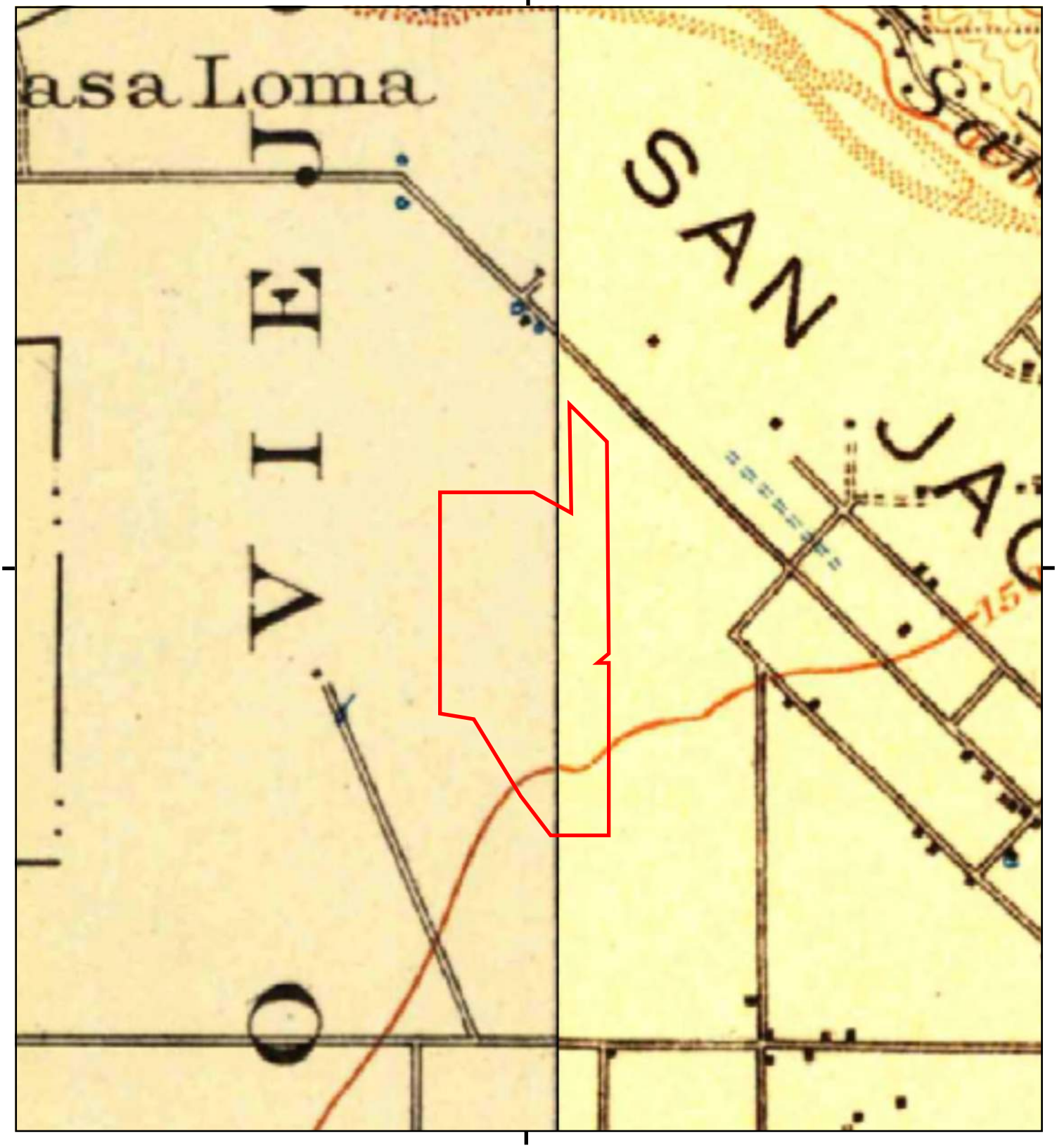
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Perris, 1942, 15-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1901, 30-minute
E, San Jacinto, 1901, 30-minute

SITE NAME: San Jacinto Irrigation Channel
ADDRESS: Not Reported
San Jacinto, CA 92582
CLIENT: Roux Associates

N

APPENDIX C

Historical Aerial Photographs

Proposed Irrigation Channel Orange

Not Reported

San Jacinto, CA 92582

Inquiry Number: 7466753.8

October 11, 2023

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/11/23

Site Name:

Proposed Irrigation Channel O
Not Reported
San Jacinto, CA 92582
EDR Inquiry # 7466753.8

Client Name:

Roux Associates
5150 E Pacific Coast Highway
Long Beach, CA 90804
Contact: Jay Vargas

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Search Results:

Year	Scale	Details	Source
2020	1"=875'	Flight Year: 2020	USDA/NAIP
2012	1"=875'	Flight Year: 2012	USDA/NAIP
2009	1"=875'	Flight Year: 2009	USDA/NAIP
2006	1"=875'	Flight Year: 2006	USDA/NAIP
2002	1"=875'	Acquisition Date: January 01, 2002	USGS/DOQQ
1996	1"=875'	Acquisition Date: September 30, 1996	USGS/DOQQ
1989	1"=875'	Flight Date: August 14, 1989	USDA
1985	1"=875'	Flight Date: February 24, 1985	USDA
1978	1"=875'	Flight Date: September 21, 1978	USDA
1975	1"=875'	Flight Date: September 18, 1975	USGS
1961	1"=875'	Flight Date: June 16, 1961	USDA
1953	1"=875'	Flight Date: August 22, 1953	USDA
1949	1"=875'	Flight Date: May 25, 1949	USDA
1938	1"=875'	Flight Date: June 14, 1938	USDA

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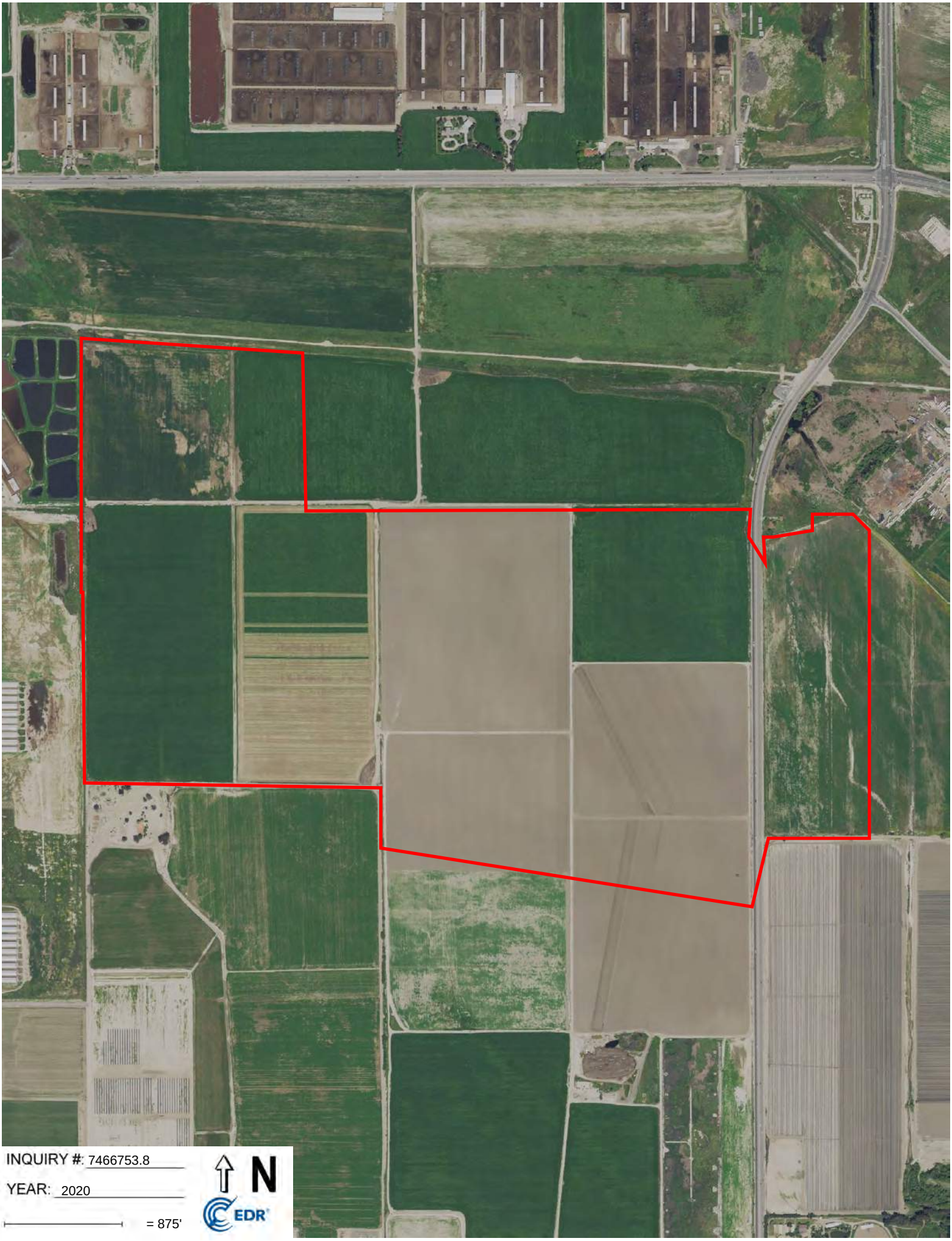
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YEAR: 2020
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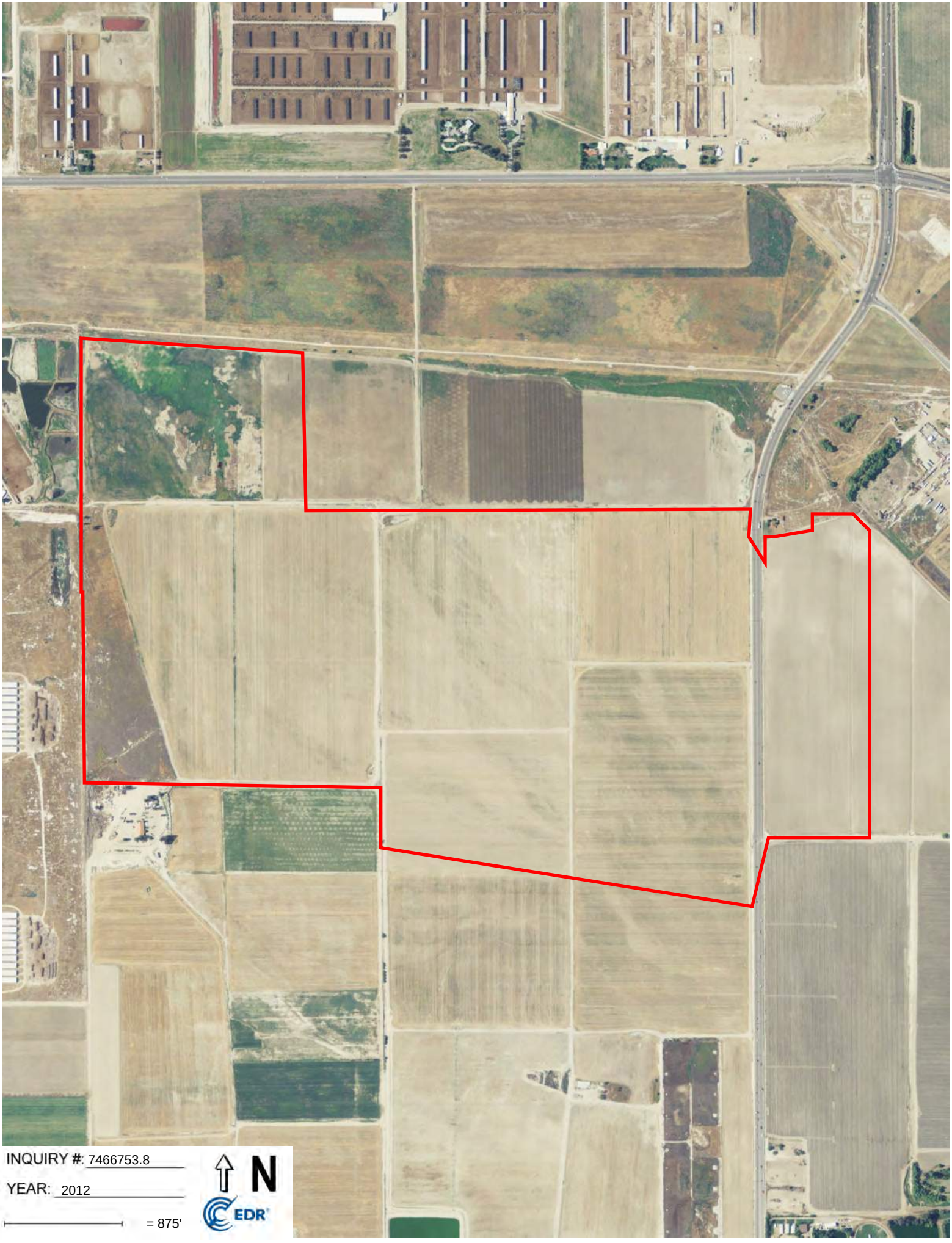
EDR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YEAR: 2012
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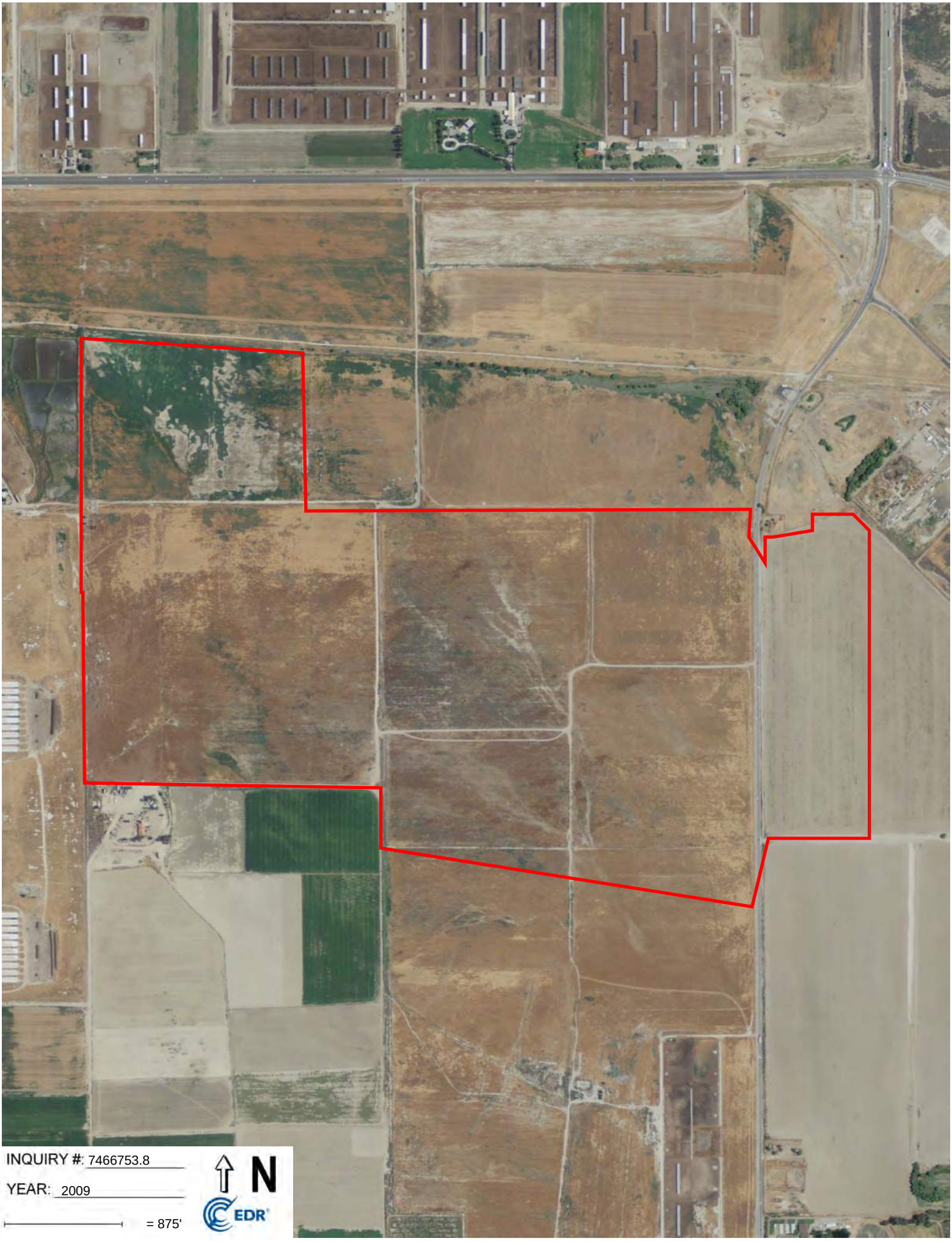
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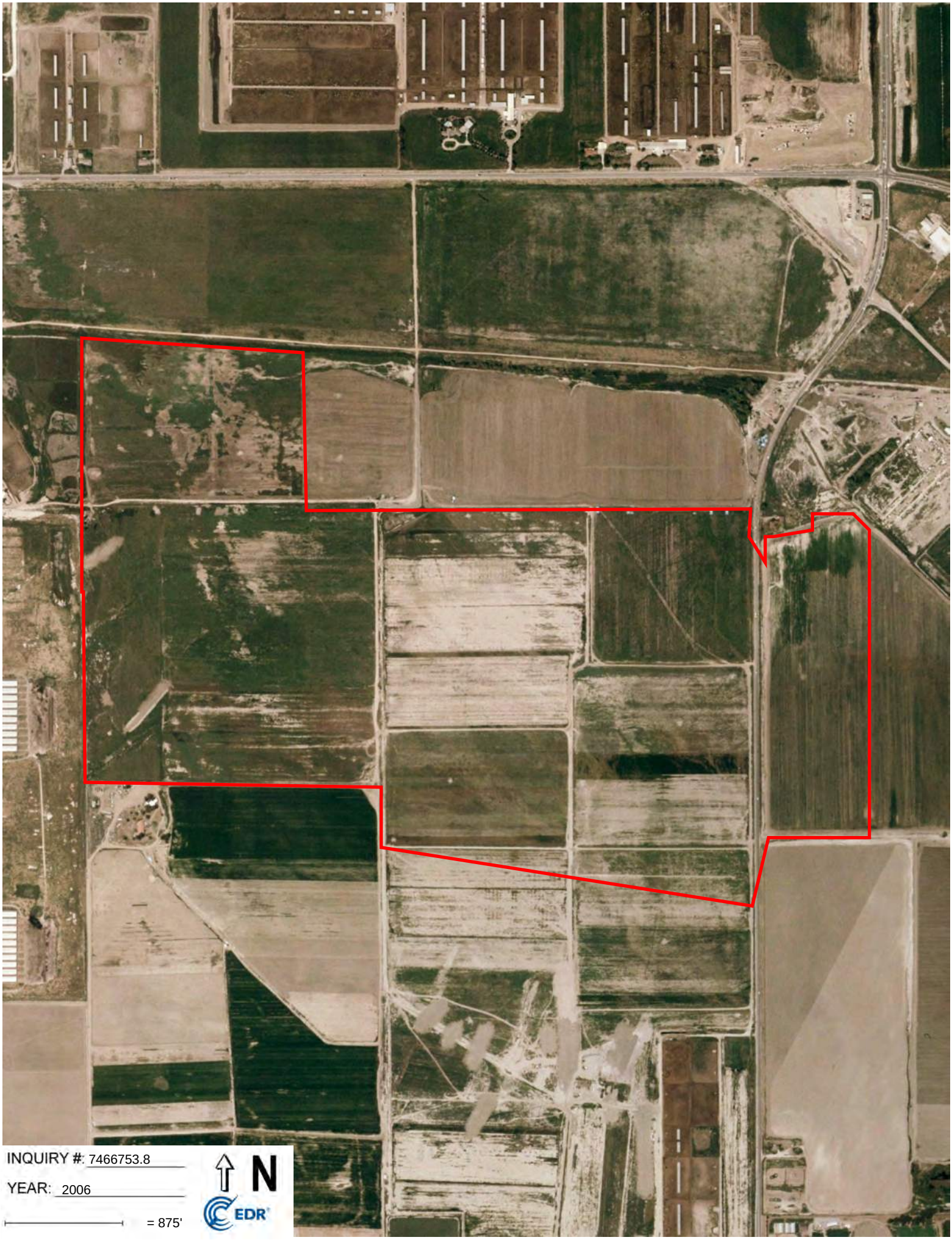
EDR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EDR


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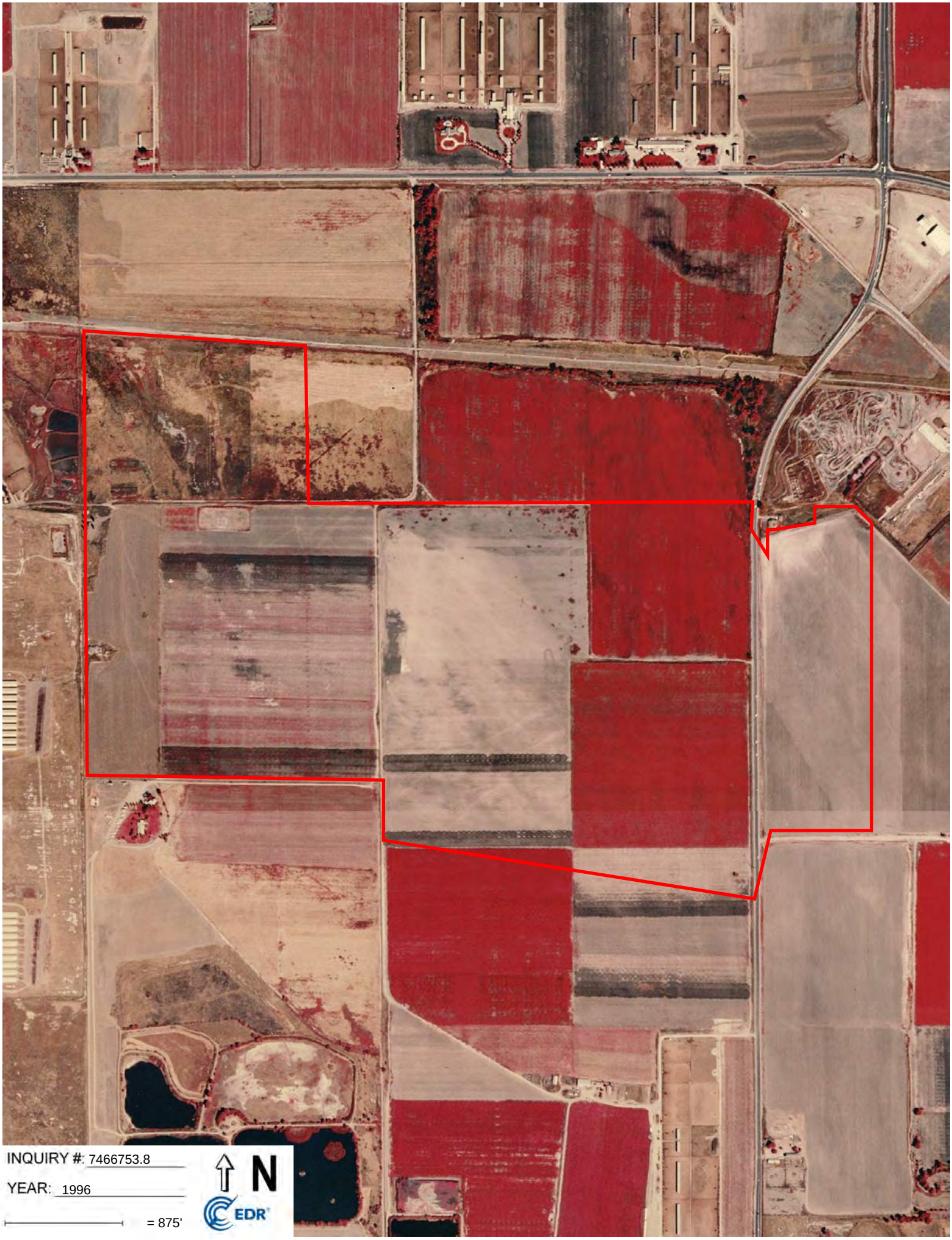
YEAR: 2002
= 875'
N
EDR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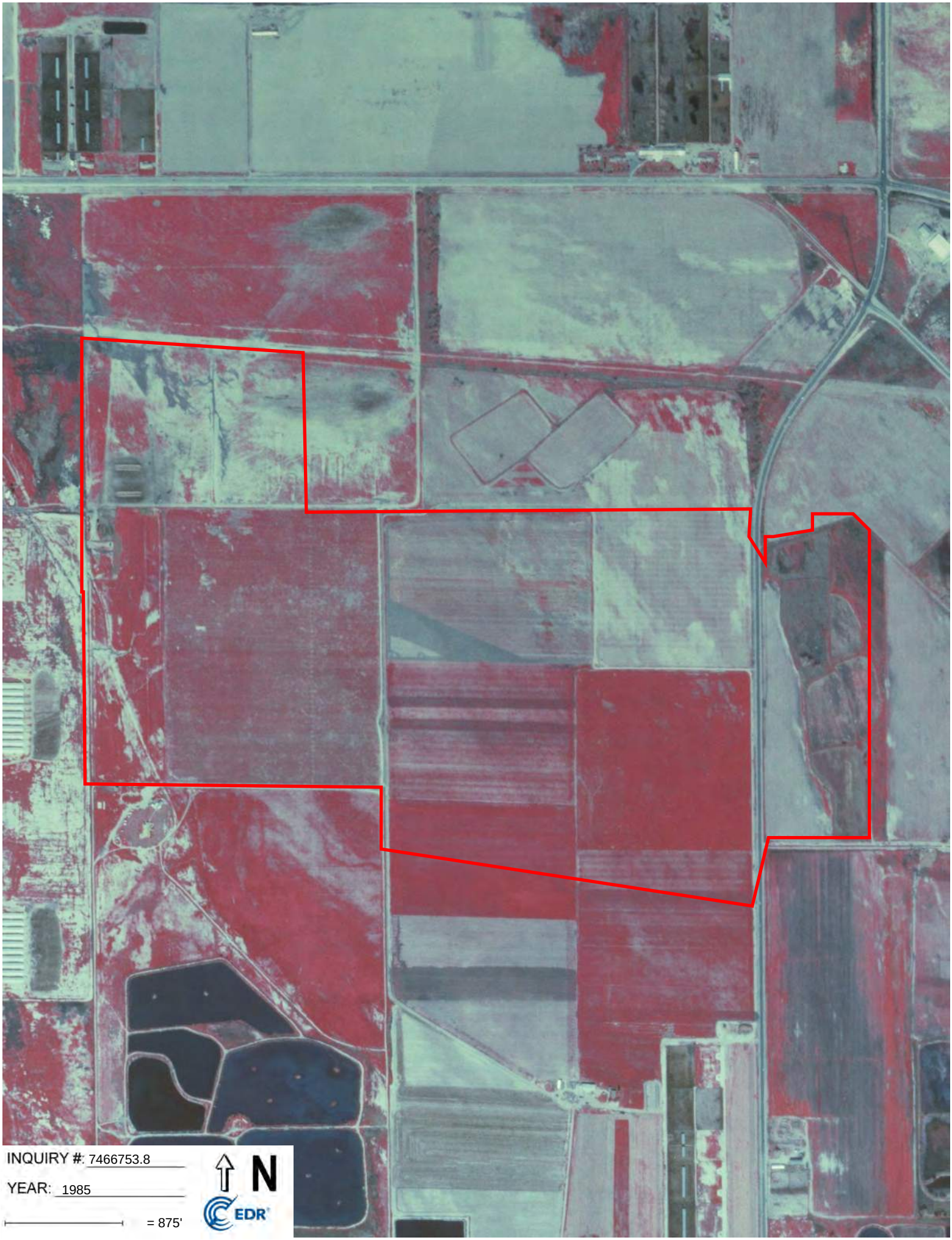
N
EDR


INQUIRY #: 7466753.8
YEAR: 1989
= 875'
N
EDR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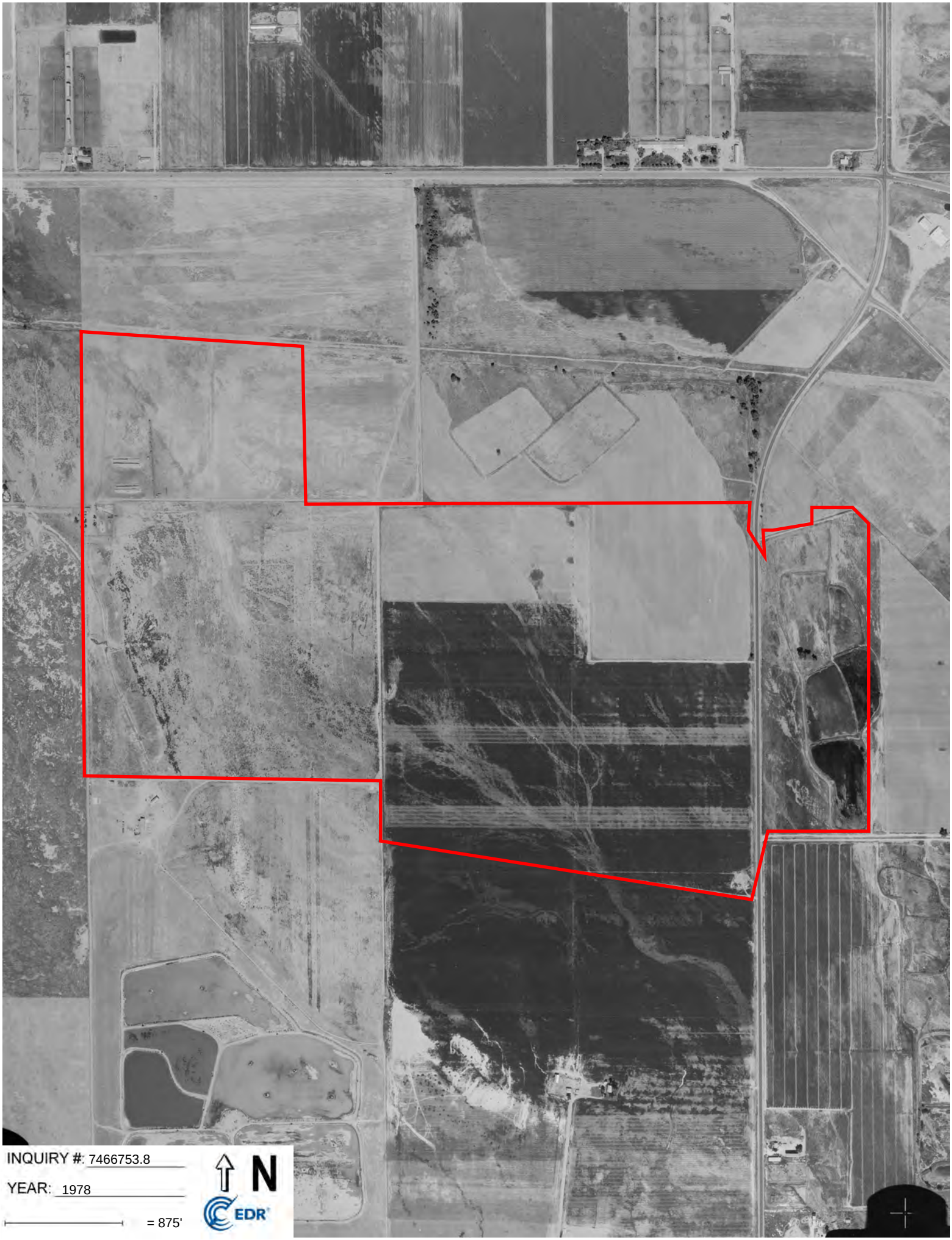
EDR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EDR


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YEAR: 1975
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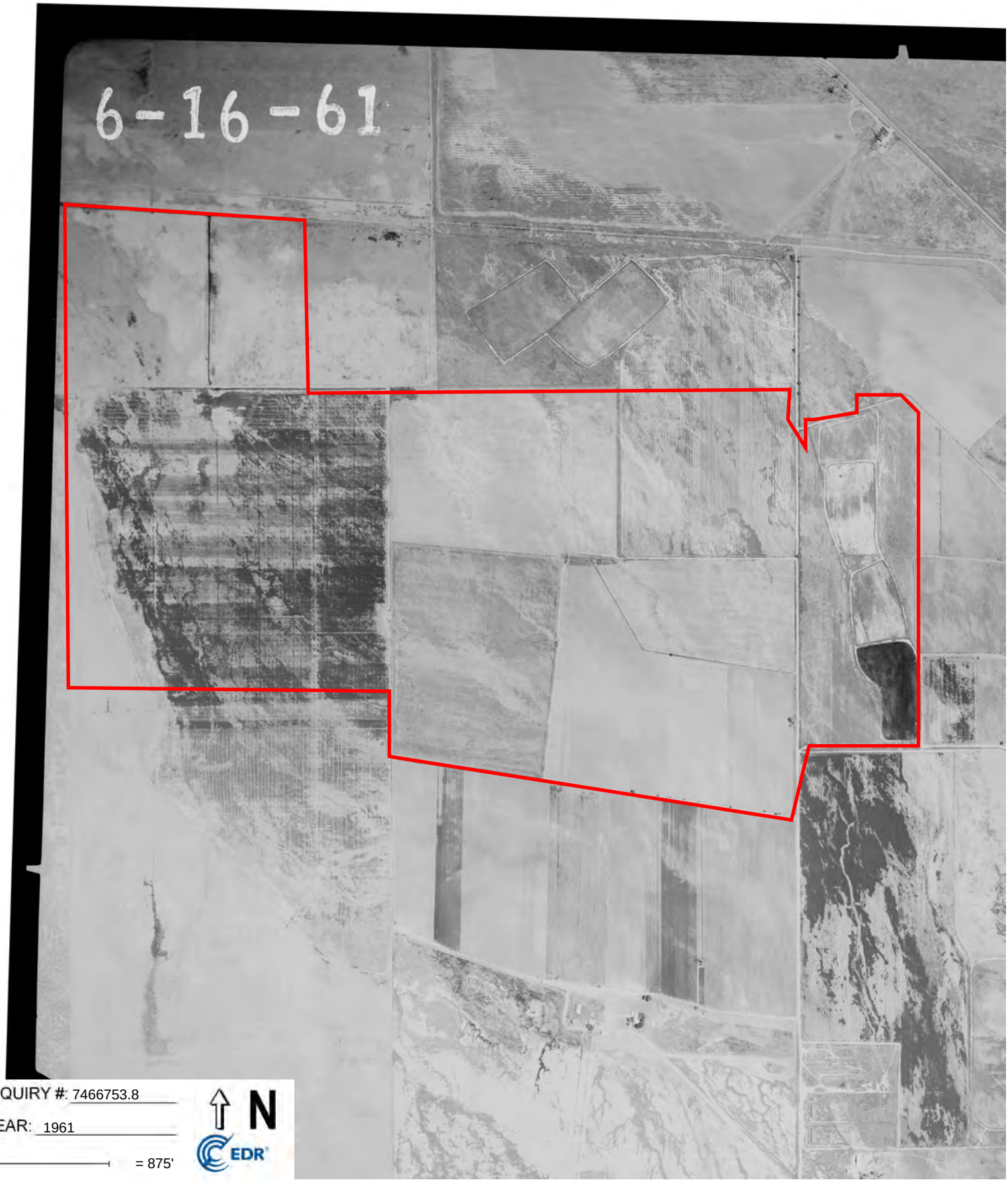
N
EDR



INQUIRY #: 7466753.8

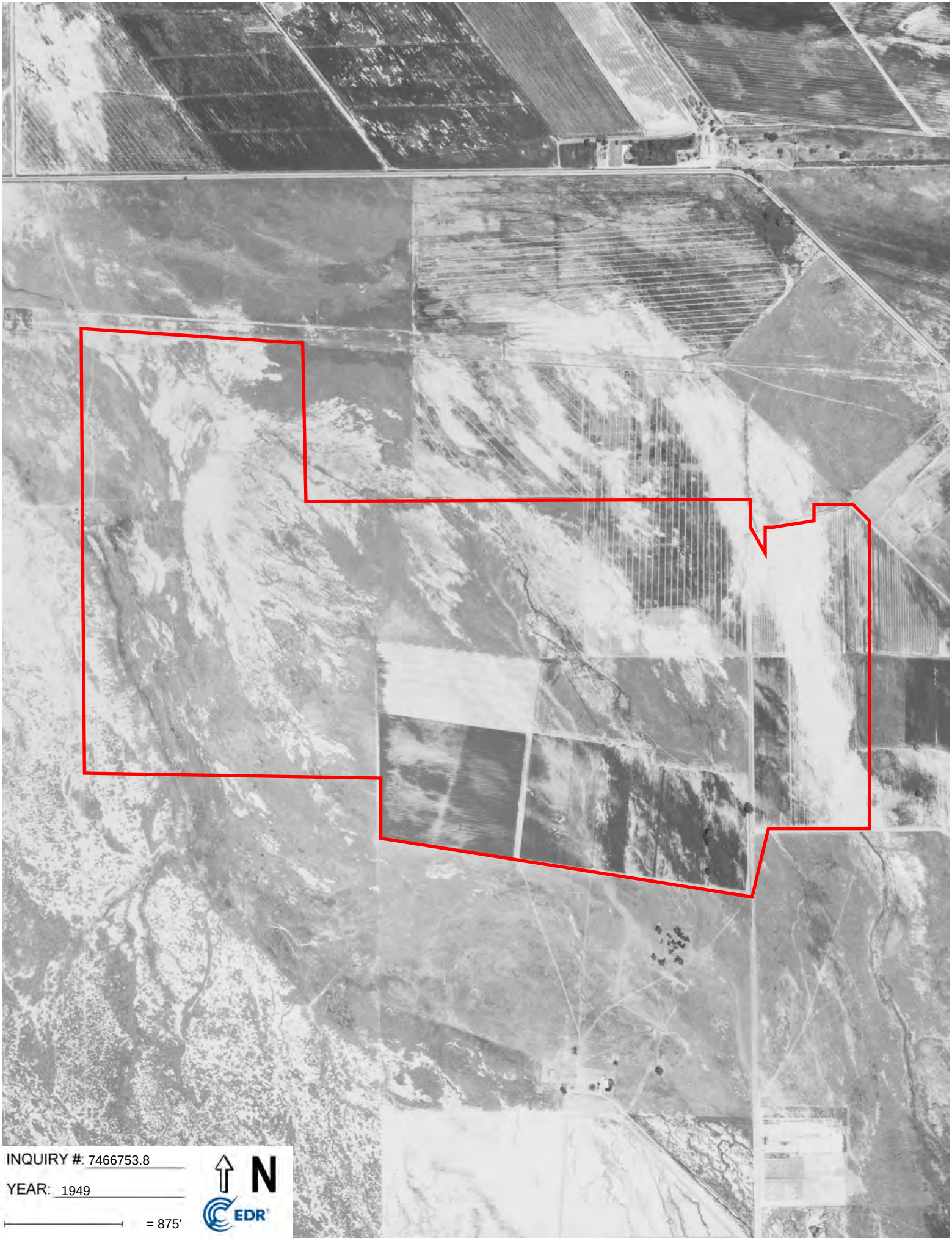
YEAR: 1961

= 875'

N

EDR


INQUIRY #: 7466753.8
YEAR: 1953
= 875'
N
EDR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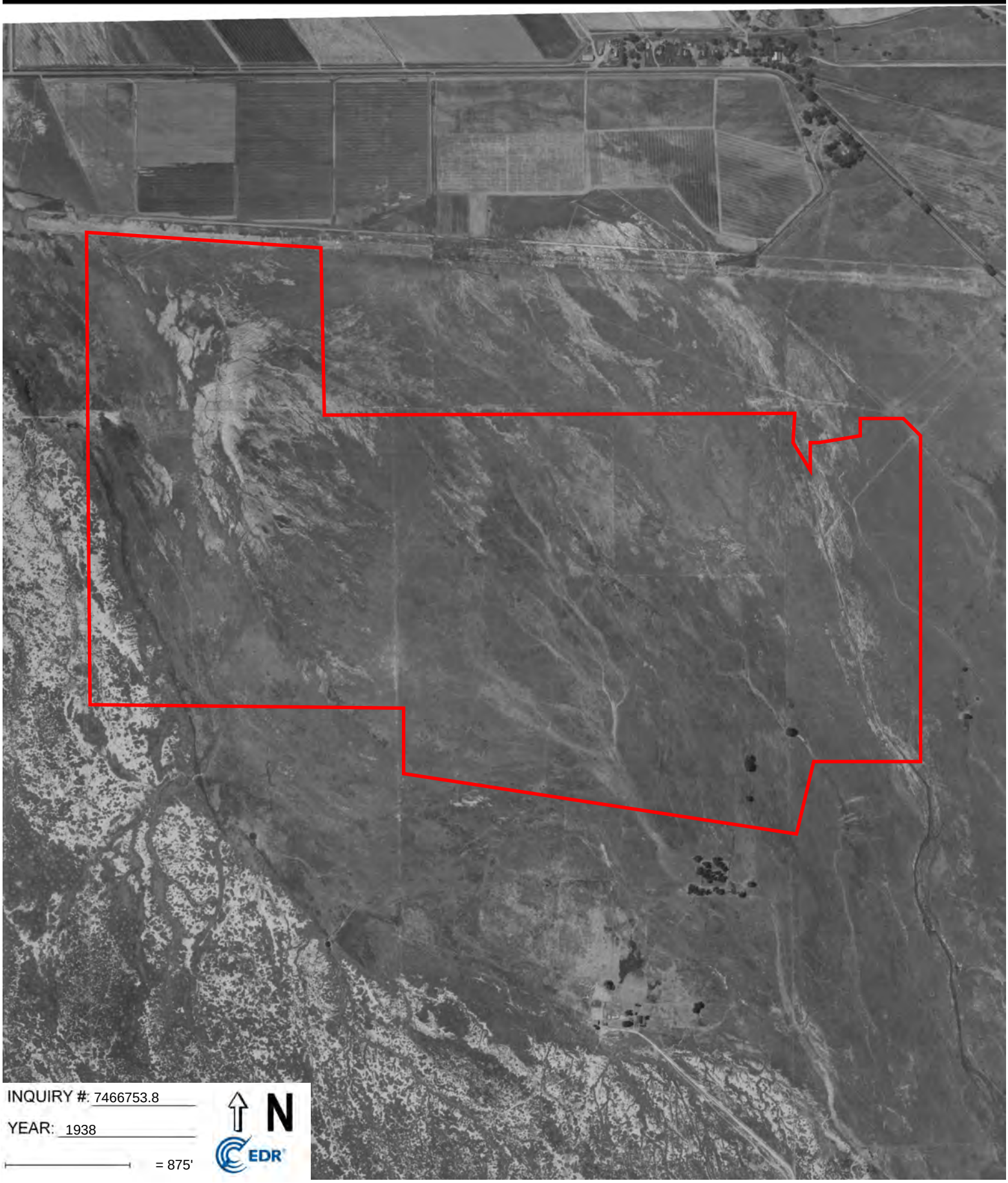
YEAR: 1949
= 875'
N
EDR


INQUIRY #: 7466753.8
YEAR: 1938
= 875'
N
EDR

San Jacinto Irrigation Channel

Not Reported

San Jacinto, CA 92582

Inquiry Number: 7466759.8

October 11, 2023

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/11/23

Site Name:

San Jacinto Irrigation Channel
Not Reported
San Jacinto, CA 92582
EDR Inquiry # 7466759.8

Client Name:

Roux Associates
5150 E Pacific Coast Highway
Long Beach, CA 90804
Contact: Jay Vargas

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2009	1"=1000'	Flight Year: 2009	USDA/NAIP
2006	1"=1000'	Flight Year: 2006	USDA/NAIP
2002	1"=1000'	Acquisition Date: January 01, 2002	USGS/DOQQ
1996	1"=1000'	Acquisition Date: September 30, 1996	USGS/DOQQ
1989	1"=1000'	Flight Date: August 14, 1989	USDA
1985	1"=1000'	Flight Date: July 28, 1985	USDA
1978	1"=1000'	Flight Date: September 21, 1978	USDA
1975	1"=1000'	Flight Date: September 18, 1975	USGS
1967	1"=1000'	Flight Date: May 09, 1967	USDA
1961	1"=1000'	Flight Date: June 16, 1961	USDA
1953	1"=1000'	Flight Date: August 22, 1953	USDA
1949	1"=1000'	Flight Date: May 25, 1949	USDA
1938	1"=1000'	Flight Date: June 14, 1938	USDA

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YEAR: 2020
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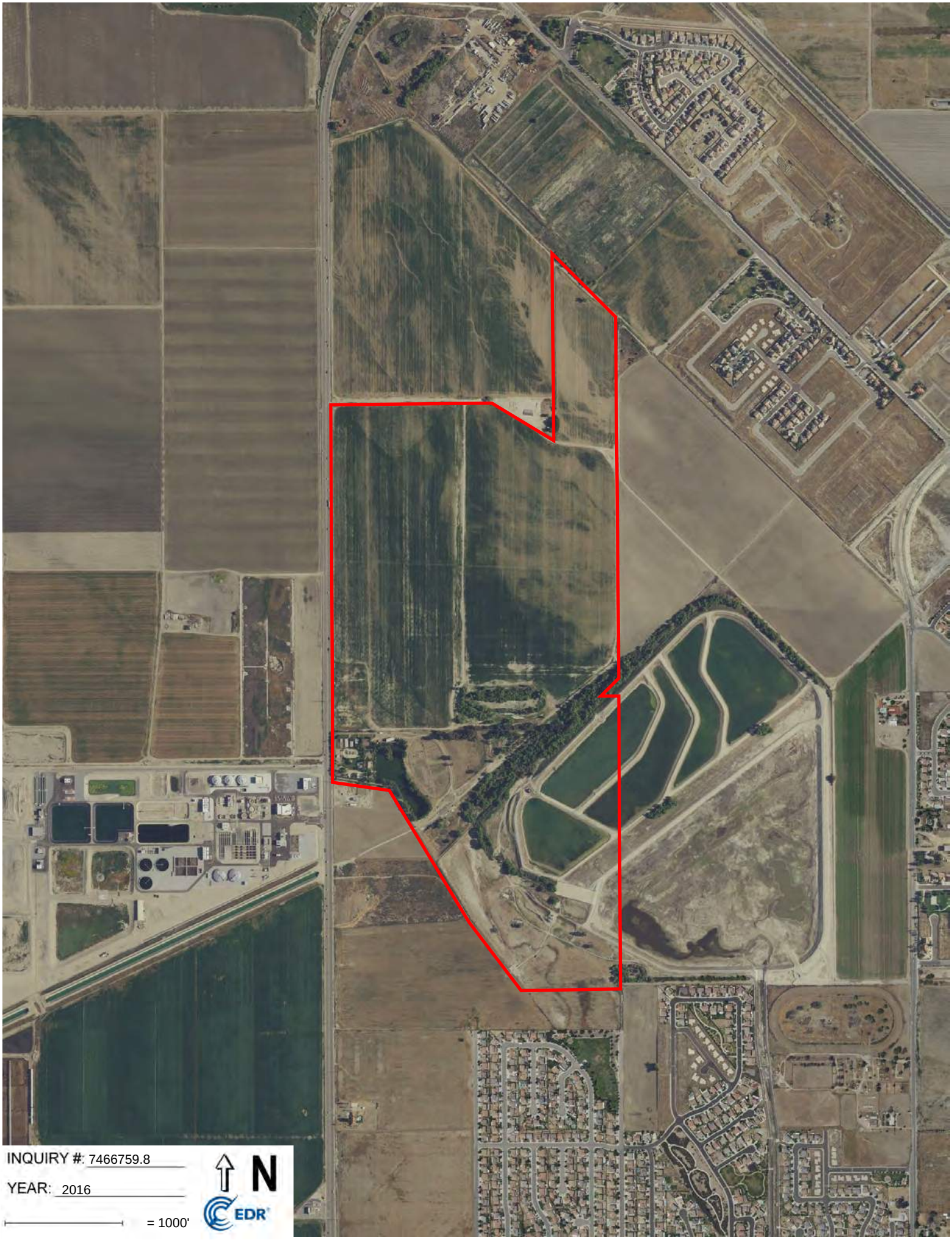
EDR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YEAR: 2016
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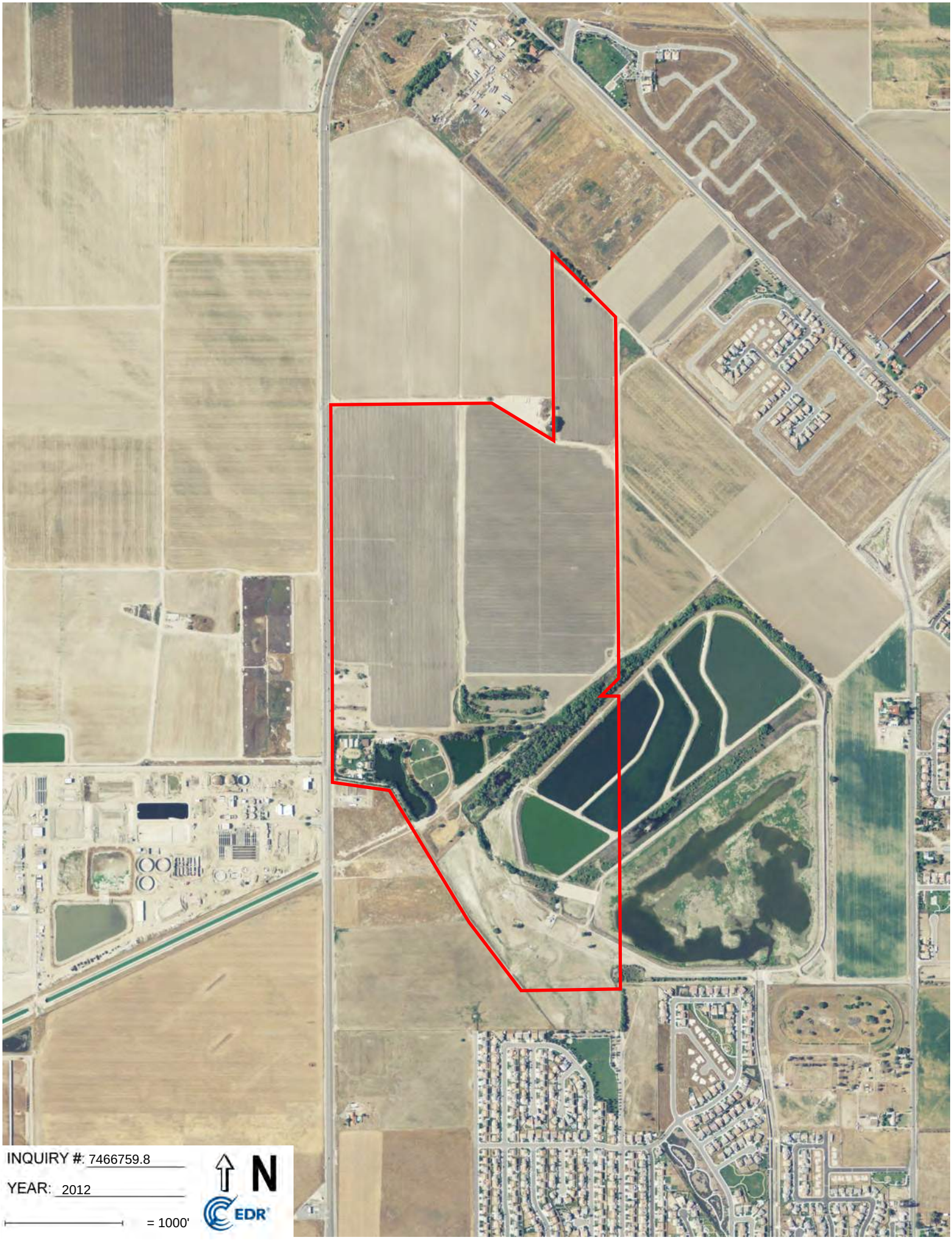
EDR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YEAR: 2009
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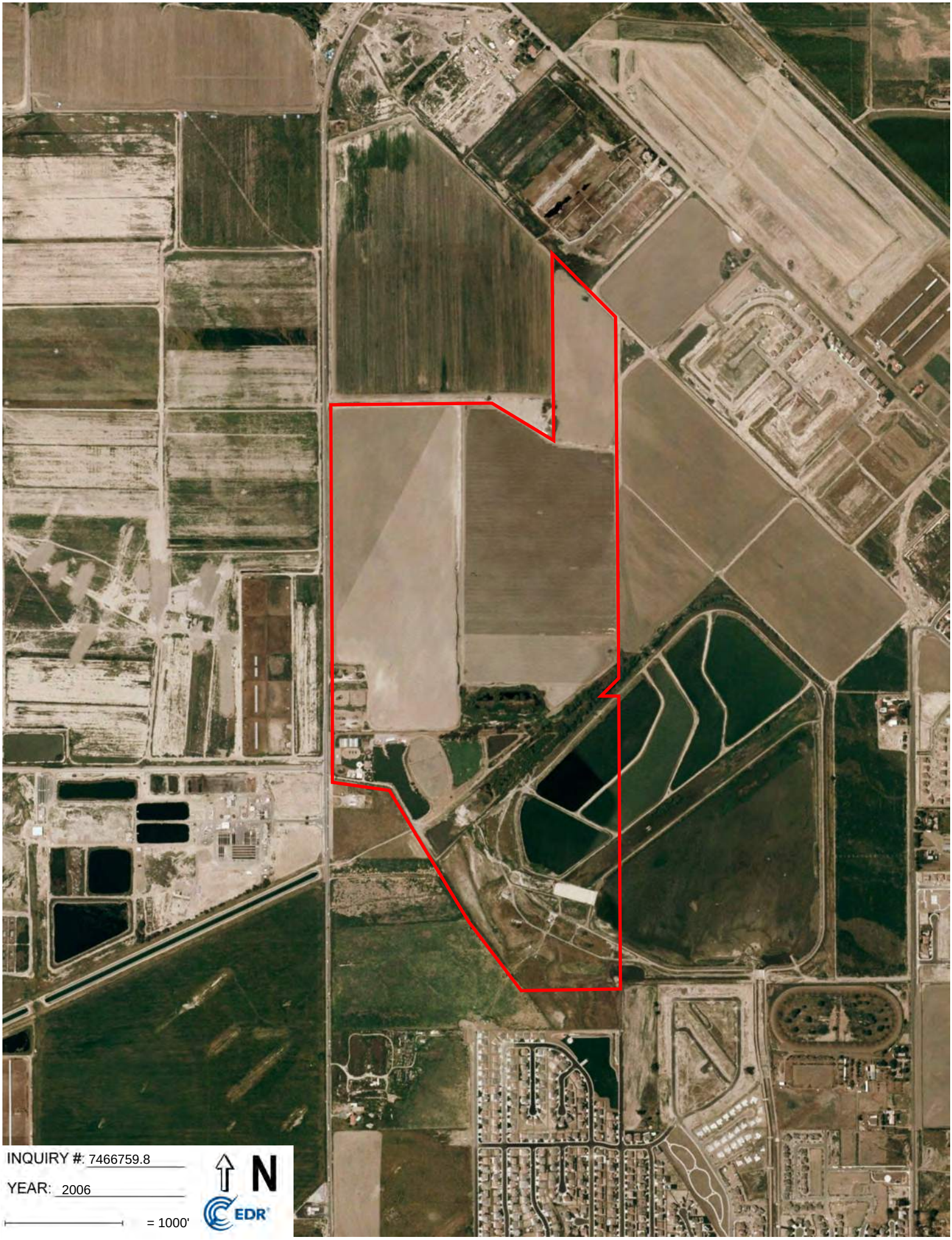
EDR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YEAR: 2002
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N
EDR


INQUIRY #: 7466759.8
YEAR: 1996
= 1000'
N
EDR
Subject boundary not shown because it exceeds image extent or image is not georeferenced.


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EDR


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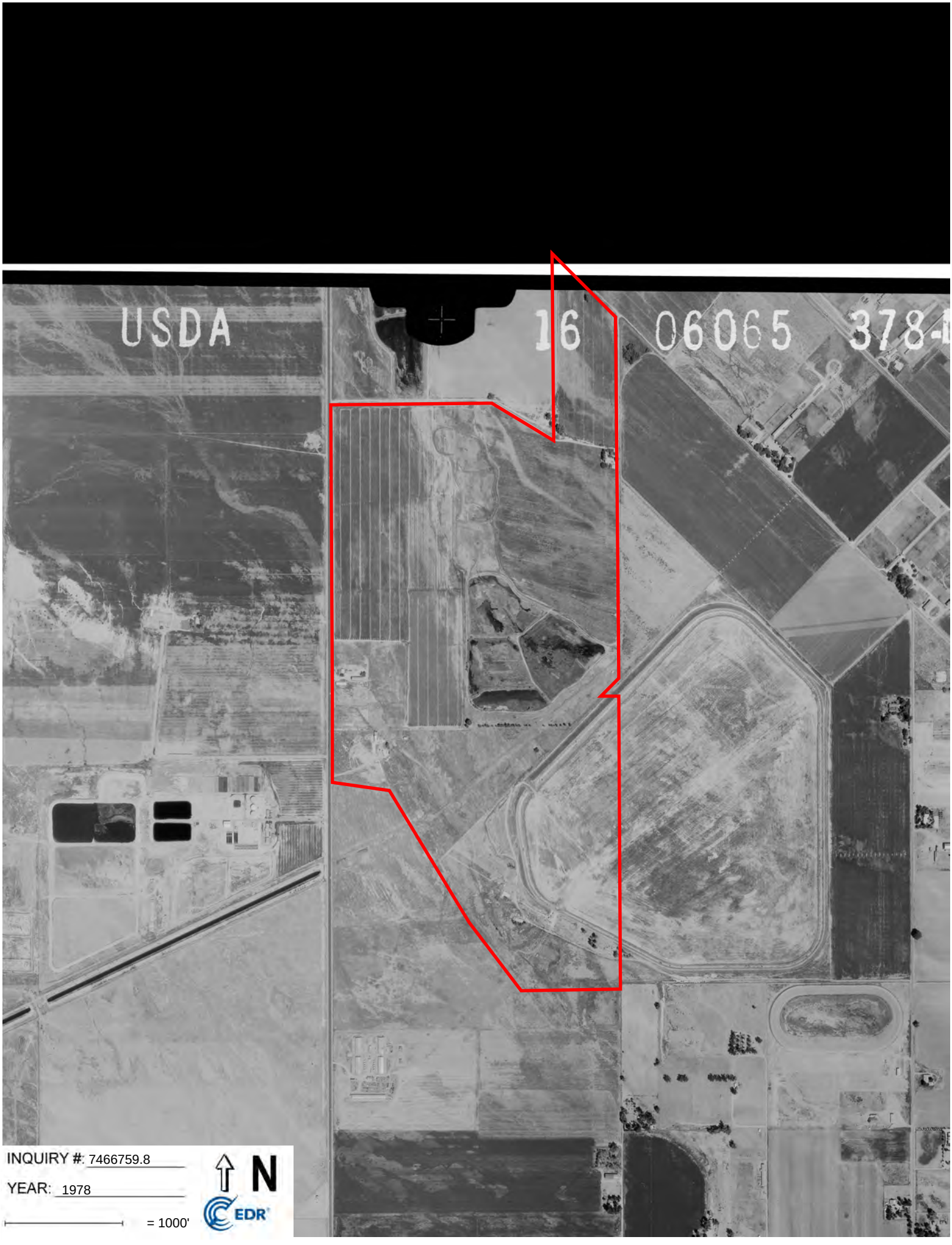
= 1000'
N
EDR



INQUIRY #: 7466759.8

YEAR: 1978

= 1000'

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EDR


INQUIRY #: 7466759.8
YEAR: 1975
= 1000'
N
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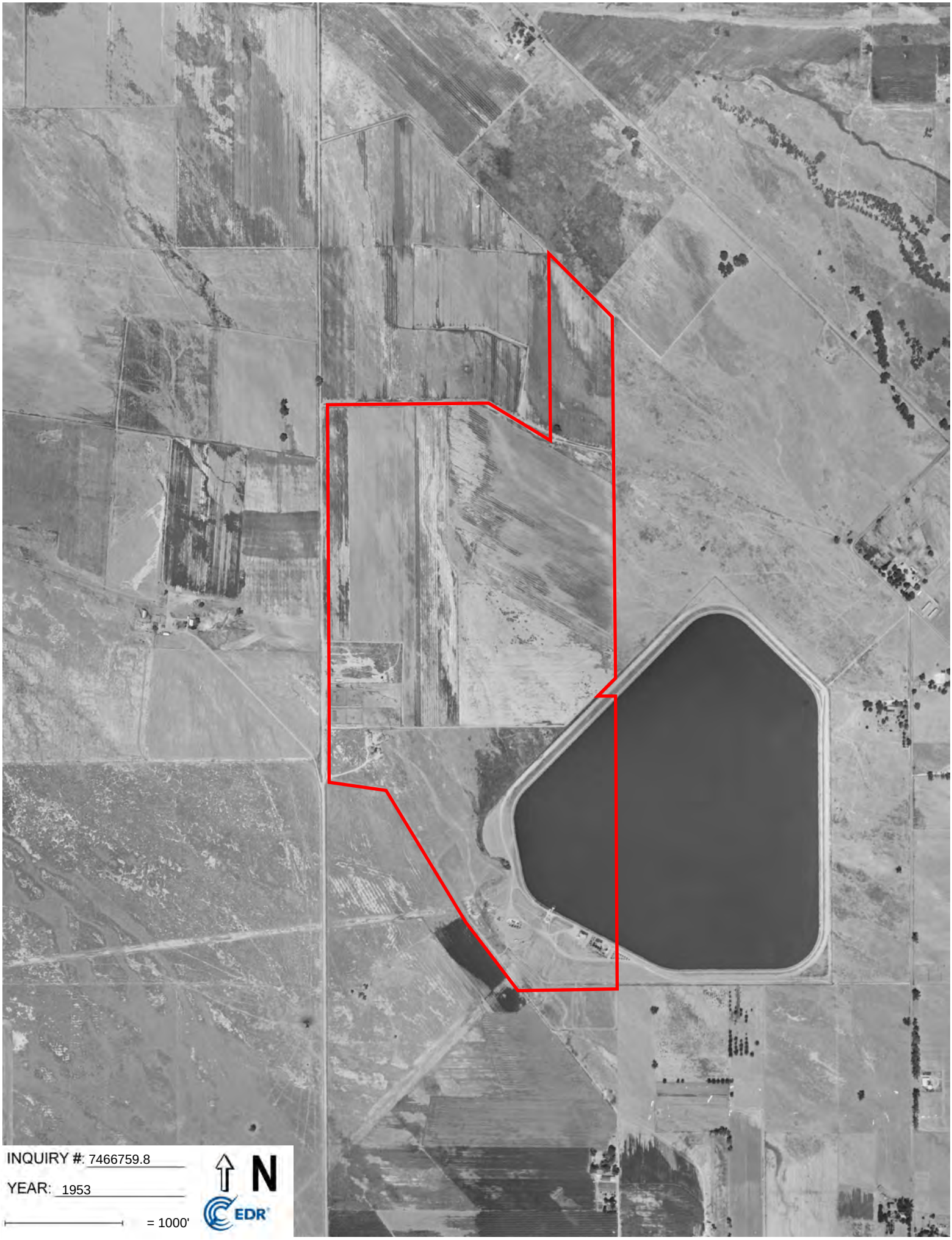
YEAR: 1961
= 1000'
N
EDR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EDR



INQUIRY #: 7466759.8

YEAR: 1949

= 1000'

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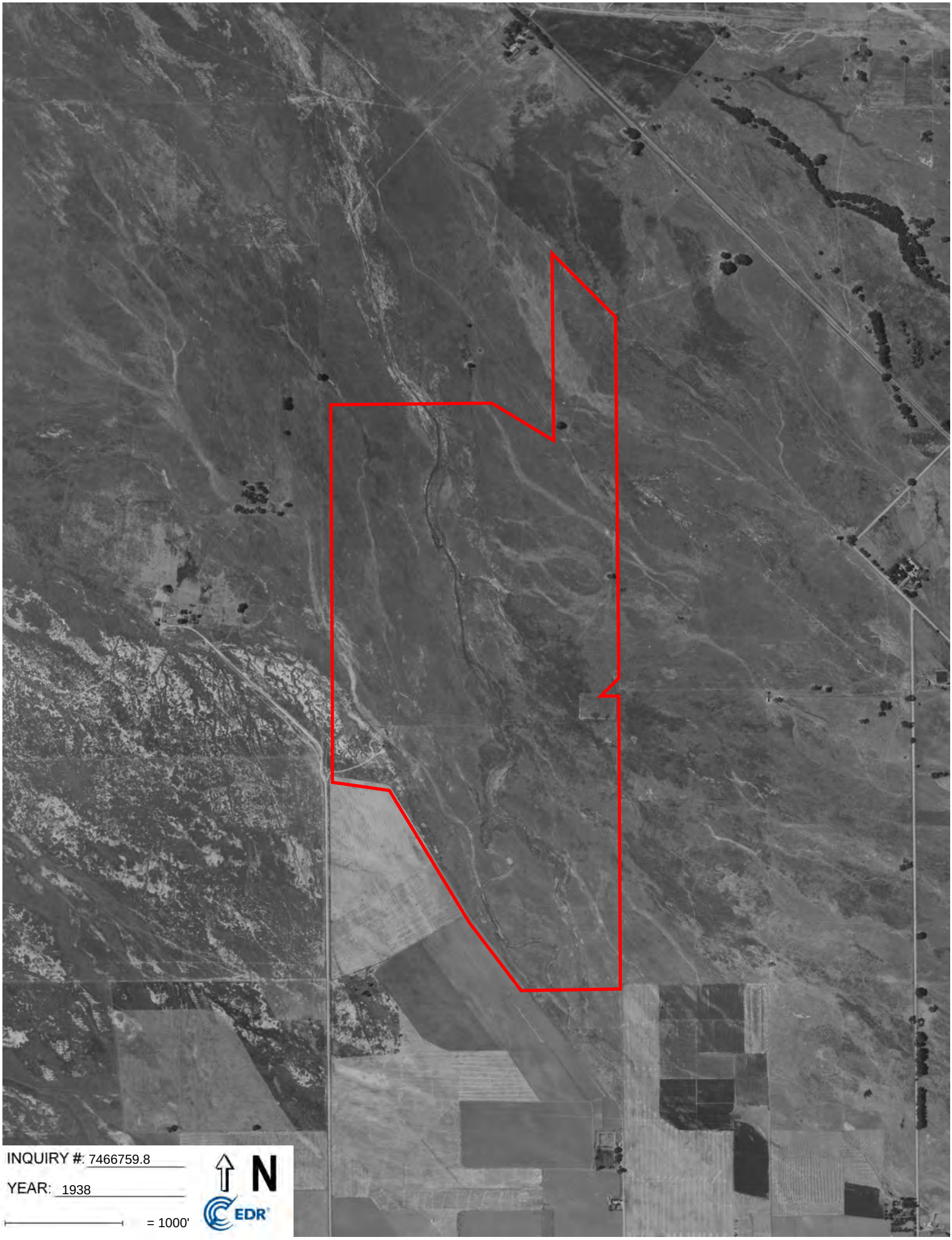
EDR


INQUIRY #: 7466759.8
YEAR: 1938
= 1000'
N
EDR

APPENDIX D

Certified Sanborn Report

Proposed Irrigation Channel Orange

Not Reported

San Jacinto, CA 92582

Inquiry Number: 7466753.3

October 11, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/11/23

Site Name:

Proposed Irrigation Channel O
Not Reported
San Jacinto, CA 92582
EDR Inquiry # 7466753.3

Client Name:

Roux Associates
5150 E Pacific Coast Highway
Long Beach, CA 90804
Contact: Jay Vargas

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Certified Sanborn Results:

Certification # 1D7E-4BD5-A91A

PO # NA

Project Proposed Irrigation Channel

UNMAPPED PROPERTY

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Sanborn® Library search results

Certification #: 1D7E-4BD5-A91A

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- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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San Jacinto Irrigation Channel

Not Reported

San Jacinto, CA 92582

Inquiry Number: 7466759.3

October 11, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/11/23

Site Name:

San Jacinto Irrigation Channel
Not Reported
San Jacinto, CA 92582
EDR Inquiry # 7466759.3

Client Name:

Roux Associates
5150 E Pacific Coast Highway
Long Beach, CA 90804
Contact: Jay Vargas

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Certified Sanborn Results:

Certification # CDE4-4478-BE85

PO # NA

Project Proposed Irrigation Channel

UNMAPPED PROPERTY

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Sanborn® Library search results

Certification #: CDE4-4478-BE85

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- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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APPENDIX E

EDR City Directory Image Report

Proposed Irrigation Channel Orange
Not Reported
San Jacinto, CA 92582

Inquiry Number: 7466753.5
October 13, 2023

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Findings

City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2020	☐	☑	EDR Digital Archive
2017	☐	☑	Cole Information
2014	☐	☑	Cole Information
2010	☐	☑	Cole Information
2005	☐	☑	Cole Information
2000	☐	☑	Cole Information
1995	☐	☑	Cole Information
1992	☐	☑	Cole Information
1990	☐	☑	Haines Criss-Cross Directory
1985	☐	☑	Haines Criss-Cross Directory
1980	☐	☑	Haines Criss-Cross Directory
1976	☐	☑	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Not Reported
San Jacinto, CA 92582

No Addresses Found

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
N RAMONA BLVD			
2020	pg. A2	EDR Digital Archive	
2017	pg. A6	Cole Information	
2014	pg. A10	Cole Information	
2010	pg. A14	Cole Information	
2005	pg. A18	Cole Information	
2000	pg. A22	Cole Information	
1995	pg. A25	Cole Information	
1992	pg. A28	Cole Information	
1990	pg. A31	Haines Criss-Cross Directory	
1990	pg. A32	Haines Criss-Cross Directory	
1985	pg. A34	Haines Criss-Cross Directory	
1985	pg. A35	Haines Criss-Cross Directory	
1980	pg. A37	Haines Criss-Cross Directory	
1980	pg. A38	Haines Criss-Cross Directory	
1976	pg. A40	Haines Criss-Cross Directory	
1976	pg. A41	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source
RECORD RD			
2020	pg. A5	EDR Digital Archive	
2017	pg. A9	Cole Information	
2014	pg. A13	Cole Information	
2010	pg. A17	Cole Information	
2005	pg. A21	Cole Information	
2000	pg. A24	Cole Information	
1995	pg. A27	Cole Information	
1992	pg. A30	Cole Information	
1990	pg. A33	Haines Criss-Cross Directory	
1985	pg. A36	Haines Criss-Cross Directory	

FINDINGS

Year	***CD Image***	***Source***	
1980	pg. A39	Haines Criss-Cross Directory	
1976	pg. A42	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

N RAMONA BLVD 2020

136	SAN JACINTO ELEMENTARY SCHOOL
181	MONTE VISTA MIDDLE SCHOOL
218	DAVID FEHR
264	FAITH HUNTER
	MICHAEL BOBST
284	ERIKA URQUIZA
	JESSICA URQUIZA
332	DIANA RAZO
	ELVIA MUNOZ
	MARIA RAZO
	RAUL RAZO
345	MISTY LAGIMONIERE
385	ANTONIO'S USED FURNITURE
425	JORGE MENDEZ
	JUANITA MENDEZ
501	CARLOS LUCERO
	CHARLES HENRY
	DIANA GARCIA
	EDWARD MCCABE
	GENEVA DURHAM
	JERRY HOLGUIN
	SANDRA FERRILL
525	PAUL SICLARE
537	MANZANITA GARDEN APARTMENTS
539	HEATHER PHELPS
	ILSE FARAJI
543	CONSTANCE RUIZ
	MADELEINE CASTILLO
565	AGUSTINA CANTRELL
624	HACIENDA MOTEL
652	ADILIA CARDONA
	ANTHONY FOUNTAIN
	ARTURO MORA
	BRIAN BEEBE
	CLARICE BRYER
	GRISHELENA MARTINEZ
	MEAGAN THOMAS
	MICHELLE DAVIDSON
	SHANDA BARNES
	YOLANDA FOUNTAIN
691	LAURA'S NUTRITION
	TIGER PLAZA MARKET
782	MARCO SOTO
785	TACO BELL
790	DOUGLAS TEJADA
	MENDY TEJADA
	MIRNA CORTEZ
	OSWALDO ARTEAGA
	OSWALDO TEJADA
794	RAMONA PRODUCE MARKET

N RAMONA BLVD 2020 (Cont'd)

794	WESTERN UNION AGENT LOCATION
833	AMPM
	ARCO
	ATM
861	FERNANDEZ TIRE SHOP
	JAIME BRAZIE
	JUAN'S AUTOMOTIVE
	NIFTY THRIFTY EXCHANGE
950	AYON SANDRA
	CUNNINGHAM MARYCLAIRE
	FADE LOUNGE BARBERSHOP
	HAROUN MARY
	IGLESIA NUEVO PACTO
	MOTAMED MEHRAN MD
	RIVERSIDE AGRICULTURE COMMN
	RIVERSIDE COUNTY MENTAL HEALTH
	WARRIOR ZONE BOOTCAMP
1133	TAYLOR TOMMY PORTABLE WELDING
	TAYLOR UNDERGROUND
	THOMAS TAYLOR
1145	CALVIN SMITH
	DEBORAH SMITH
1160	MARCO DUQUE-NAJERA
	NAJERA DUQUE-NAJERA
	YURAY NOYOLA
1170	CLARICE GERBL
	JACKSON GERBL
	JEFFERSON GEROL
	LEWIS GERBL
	TAMBIA GERBL
	TRI-STATE ACCOMMODATIONS
1175	EVANGELINA GUTIERREZ
	PHYLICIA PALMA
	TRINIDAD GUTIERREZ
1180	CHARLES BOZEMAN
	LINDA BOZEMAN
	PAMELA HOP
1187	JACKSON GERBL
	TAMBIA GERBL
1206	MARJORIE CLARK
1211	EDGAR GODINEZ
	EDGARDO REYNOSO
	HORALIA VELASQUEZ
	MARIA DESAGASTUME
1212	BRIAN EBERHARD
	PEGGY GARCIA
	YASMIN GARCIA
1228	CYNTHIA BARTZ
	DALE BARTZ
	JESSICA BARTZ

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

N RAMONA BLVD 2020 (Cont'd)

1239	CAROL BRANDER
	SIL BRANDER
	SYLVAN BRANDER
1248	CARLOS GOMEZ
	MATTHEW GOMEZ
1251	KENNETH MCDANIEL
	REBECCA GONZALEZ
1261	BRETT LONG
	CAROL LONG
1268	KATHERINE PAVLOVICH
1271	CALEB CARTER
	DAVID CARTER
	TERI CARTER
1281	JUSTIN ROBBINS
	KENNETH COPE
	RACHEL ROBBINS
	SAMANTHA ROBBINS
1291	TERESA GONZALES
1312	DANIELLE HULL
	FORREST KEMNER
	MARTIN HULL
	MICHAEL ORNELLAS
	MICHELLE HULL
	VIRGINIA KEMNER
1342	THOMAS HALL
1410	BARRY MULCOCK
	ELEANOR MULCOCK
1438	RONALD CUMSTAY
1480	LIANG GUO
1543	ASHLEY PEREZ
	CARLOS PEREZ
	KALIFA COLEMAN
	VERONICA PEREZ
1645	JOAN OOSTDAM
	JOHN OOSTDAM
1655	SHALYNN VAN DAM
	SUSAN VANDAM
1996	BETTY GOEDHART
	CORNELIUS GOEDHART
	CORRIE GOEDHART
2008	JACOB WISE
	ZOLENE WISE

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

RECORD RD 2020

38790 ARTURO GUTIERREZ
CHAD BEINGESSNER
GRACIELA JIMENEZ
LIDIA JIMENEZ
SERGIO JIMENEZ
38980 BRETT HARINGA
JULIE HARINGA
REBEKAH HARINGA
RONALD HARINGA
39190 ALEJANDRA LEON
TONI REDIN

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2017

136	SAN JACINTO UNIFIED SCHOOL DISTRICT
218	GASPAR, MAYORAL
264	GUTIERREZ, SOCORRO
	HUNTER, FAITH D
332	RUIZ, CRISTIAN
335	MORENO, MARGARITA
425	ROBLES, MODESTA J
	WIECK, KELLI
501	DURHAM, GENEVA L
	FERRILL, SANDRA
	GUTIERREZ, ELIZABETH
	GYMPH, OLIVIA
	HOLGUIN, GERARDO
	LERRILL, SANDRA
	LOPEZ, RENE
	LUCERO, CARLOS E
	MADDY, JR
525	GLYMPH, OLIVIA
	MADDY, ROBERT
	RATLIFF, ELLEN Y
537	MANZANITA GARDEN APARTMENTS
539	ABDUL-MUHYEE, RASHEEDAH N
	CUCHBERT, SAMARA M
	DIETRICH, TERESA
	DUNNINGTON, DANIEL J
	FARAJI, ILSE
	SICLARE, PAUL
	SIMPSON, LACOYA
543	CASTILLO, LUIS
565	CHAVARRIA, ANDREW
587	BAUMANN, OLIVIA
652	BARAJAS, ANA E
	BARNES, SHANDA D
	BATES, BRUCE
	BOYD, SHERMAINE
	CARDONA, ADILIA
	CHAVEZ, RAMON
	COAKLEY, YOLANDA
	COLLIER, LARRY
	ESQUEDA, ALFREDO
	GARCIA, YOLANDA
	GRAVER, PAULA
	GRODIVANT, DEBRA K
	KUIPER, MELISSA
	LUTHER, CHARLES E
	MARTIN, CANDICE
	MARTINEZ, R
	MIRA, ISABEL D
	NUNEZ, FEDERICO
	RUIZ, CANDACE

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2017 (Cont'd)

652	SCHLEIS, KEITH
	SCOTT, JONTE
	SHEAFFER, RICHARD A
	STANNARD, SAMUEL A
	STONE, AMY
	THOMAS, MEAGAN
	URQUIDIES, JACOB M
	VISTA DE SAN JACINTO APTS
	WHEELER, JACKIE
	WILLIAMS, DENISE A
785	TACO BELL
790	TEJADA, DOUGLAS G
794	RAMONA PRODUCE
833	AMPM
861	FERNANDEZ TIRE SHOP
	JUANS AUTOMOTIVE
	PRIME PERFORMANCE MOTORSPORTS
	RODRIGUEZ SMOG CHECK CLINIC
950	CHAMPIONS BARBER SHOP
	GOT KIDS THRIFT STORE & MORE
	GOT, K T
	IGLESIA NUEVO PACTO
	RASPADOS CUCHIS
1050	AGUILAR, MARIA
1133	TAYLOR TOMMY PORTABLE WELDING
1160	NOYOLA, YURAY
1170	TRISTATE ACCOMMODATIONS
1175	GUTIERREZ, TRINIDAD
1180	HOP, PAMELA S
1187	GERBL, CHERI L
1206	CLARKE, MARJORIE H
1211	FLORES, MARIA C
1212	EBERHARD, JOHN
1228	BARTZ, DALE L
1239	BRANDER, SIL
1248	GOMEZ, CARLOS R
1251	GONZALEZ, ERNESTO
1261	LONG, BRETT C
1268	PAVLOVICH, HONI I
1271	CARTER, DAVID K
1281	RODRIGUEZ, CHRYSTAL
1291	DOUGLAS, TYLER
1312	SMITH, CLEAVE
1342	MORROW, JASON
1410	MULCOCK, BARRY P
1438	GARCIA, JUAN J
1480	OOSTEN, MARK R
1543	PEREZ, CARLOS
1645	OOSTDAM, JOHN A
1996	GOEDHART, CORNELIUS J

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2017 (Cont'd)

2004 HERNANDEZ, MARIA A
2008 WISE, ZOLENE I

Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 2017

38670 LARUE, LINDA S
38750 DE, BECERRA G
38790 CARRILLO, VIRIDIANA
38980 HARINGA, ERIK
39190 LEON, ALEJANDRA

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2014

136	SAN JACINTO UNIFIED SCHOOL DISTRICT
181	SAN JACINTO UNIFIED SCHOOL DISTRICT
218	JIMENEZ, MARIA M
256	HODO, THASIS
264	LEGARDA, RAUL
	LUNA-ESPINOZA, FRANCISCO
304	WELKER, DANIEL
332	OCCUPANT UNKNOWN,
	RAZO, RAUL R
345	LAGIMONIERE, MISTY B
385	BECKYS PLACE
425	PEREZ, ASIARIE
	WIECK, KELLI
501	CRAWFORD, DEJANAE
	GONZALEZ, DAIYANE
	HOLGUIN, JERRY J
	LERRILL, SANDRA
	MADDY, ROBERT
	MCCABE, EDWARD
	MEDINA, MARY
	OROPEZA, LISA M
	POLICE, LASHELL
	RAYMOND, DERRICK
	REYES, FLORINDA
	ROBERSON, ELLEN
	WRIGHT, LOUIS C
525	DIETRICH, TERESA
	JURKOWSKY, W
	MEISEL, ROBERT
	SICLARE, PAUL
	SMITH, ELIOTT S
537	MANZANITA GARDEN APARTMENTS
539	CANTRELL, TERESA L
	DUNNINGTON, DANIEL
	DURHAM, GENEVA L
	LOZOYA, JESUS
	LUCERO, CARLOS E
	MATIAS, FRANCISCO
	PEREZ, JOHN
	PISA, AMANDA
	POLICE, LASHELL
543	CASTILLO, LUIS
	HILL, EMORY C
565	CHAVARRIA, ANDREW
587	SAAVEDRA, J
624	HACIENDA MOTEL
652	ADAMSON, JOHN W
	DANDAN, AYSHA
	ESPINOZA, REYES
	GRAVER, PAULA

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2014 (Cont'd)

652	GRODIVANT, SARAH N
	KICK, RACHELLE
	MARTIN, CANDICE
	MENDEZ, JOSE L
	MIRA, ISABEL
	MOORE, MICHELLE
	MYERS, NAKITA
	PAMA MANAGEMENT
	RUIZ, CANDACE
	SHEAFFER, RICHARD A
	STANNARD, SAMUEL A
	THOMAS, MEAGAN
	TORRES, SAM
	WHITE, VIRGINIA E
	WILBERG, FLOYD
	WILLIAMS, DENISE A
	YAMAMOTO, NAOKI
782	BISHOP, LORRIE
785	TACO BELL
786	WEATHERS, LONNIE E
790	TEJADA, OSWALD
794	RAMONA PRODUCE
861	FERNANDEZ TIRE SHOP
	JUANS AUTOMOTIVE
	PRIME PERFORMANCE
	RODRIGUEZ SMOG CHECK CLINIC
	RODRIGUEZ, RICARDO
950	COUNTY OF RIVERSIDE
	GOT KIDS THRIFT STORE & MORE
	IGLESIA NUEVO PACTO
	T & B DRIVING SCHOOL
	UNITED STATES GOVERNMENT
1050	GALVIN, JOSE
	GUERRERO, RAFAEL
1133	TAYLOR TOMMY PORTABLE WELDING
1160	NOYOLA, YURAY
1170	GERBL, JACK W
	TRI STATE ACCOMMODATIONS
1175	HUBBARD, BECKY L
1180	BOZEMAN, LARRY
1187	GERBL, CHERI L
1206	STEVENS, FLORENCE E
1211	FRANCO, JOSE
1212	GARCIA, IGNACIO
1228	BARTZ, DALE L
1239	BRANDER, SYLVAN L
1248	SANTOS, DANIEL A
1251	VOLLAIRE, EDWARD R
1261	LONG, BRETT C
1268	PAVLOVICH, HONI I

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2014 (Cont'd)

1271	CARTER, DAVID K
1281	COPE, CURTIS
1291	CAMPOS, JORGE O
1312	HULL, MARTIN L
1342	PHILIPPIAN, ELIZABETH
1410	MULCOCK, BARRY P
1438	CUMSTAY, RONALD A
	DIAMOND VALLEY ELECTRIC
1480	OCCUPANT UNKNOWN,
1543	PEREZ, CARLOS
1551	LETCHER, GLENN O
1645	OOSTDAM, JOHN J
1655	OCCUPANT UNKNOWN,
1996	GOEDHART, CORNELIUS J
2004	OCCUPANT UNKNOWN,
2008	WISE, ZOLENE I

Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 2014

1411	SMITH, HAROLD
38680	LARUE, LINDA S
38750	DE, BECERRA G
38790	CARRILLO, VIRIDIANA
38980	HARINGA, ERIK
39190	LEON, A
39200	DUTSON, JEREMY

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2010

136	SAN JACINTO ELEMENTARY SCHOOL
181	MONTE VISTA MIDDLE SCHOOL
218	SOTELO, RAMIREZ S
256	HODO, THASIS
264	RODRIGUEZ, JOSEPH
304	WELKER, DANIEL
332	RAZO, RAUL
335	OCCUPANT UNKNOWN,
345	LAGIMONIERE, MISTY B
425	ANDRADE, ANTONIA
	NDRADE, ANTONIA
	NYDELL, JENNIFER
501	ANDRADE, VERONICA
	CAMACHO, JOSE
	CRAWFORD, DEJANAE
	HENRY, CHARLES
	HOLGUIN, RAFAELA
	LUCERO, CARLOS E
	OROPEZA, LISA M
	STARR, D
	WRIGHT, LOUIS
525	DIETRICH, TERESA
	MEISEL, ROBERT
	RAMIREZ, MONICA
	RATLIFF, ELLEN
	RUIZ, STEPHANIE L
537	MANZANITA GARDEN APARTMENTS
539	CASTILLO, ANGELA F
	DURHAM, GENEVA
	MOREIRA, ROSA
543	ARBUTHNOT, BETTY
	CASTILLO, LUIS R
	HILL, EMORY C
	REYNOSO, GABRIELA
565	CARILLO, JOSEFINA
587	SAAVEDRA, J
624	HACIENDA MOTEL
652	ADAMSON, JOHN W
	BELL, ORLENA
	CASTLE, MARY L
	DICKERSON, VICKY A
	ERLITZ, STEPHANIE
	FREGOSO, ESMERALDA
	GRODIVANT, DEBRA K
	HARPER, FLOYD
	HERNANDEZ, JUAN
	JONES, CALVIN D
	MANFRE, TERI
	MORENA, ELVIRA
	OCONNELL, FRAN

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2010 (Cont'd)

652	PRICE, MARY
	RESENDIZ, IRMA
	SIMMONS, LARRY D
	STANNARD, SAMUEL A
	TORRES, SAM
	VISTA DE SAN JACINTO APTS
691	LITTLE WOMANS CAFE
	TIGER PLAZA MARKET
782	HOMEDEW, JONATHAN
785	TACO BELL
790	ARTEAGA, OSWALDO T
794	RAMONA PRODUCE
833	AMPM
861	JUANS AUTOMOTIVE
	PRIME PERFORMANCE
	SPECIALIZED SOUND & SECURITY
950	ANKA BEHAVIORAL HEALTH
	BETHESDA CHRISTIAN CTR
	CALIFORNIA WATER FOWL ASSN
	FAITH COMMUNITY CHURCH
	GOT KIDS THRIFT STORE & MORE
	IGLESIA NUEVO PACTO
	NATURAL RESOURCES CONSERVATION
	RIVERSIDE AGRICULTURE COMM
	RIVERSIDE COUNTY MENTAL HEALTH
	SAN JACINTO VALLEY VETS
	T & B DRIVING SCHOOL
1000	SAN JACINTO UNIFIED SCHOOL
1050	CAMARILLO, VERONICA
	CORTEZ, BETTY
	FREEMAN, C
	GALVAN, OSCAR
	GUERRERO, RAFAEL
	VARGAS, BENAVENTE E
1133	TAYLOR UNDERGROUND
1160	PEREZ, CARLOS
1170	GERBL, JACK W
	TRISTATE ACCOMMODATIONS
1175	BRANDENBURG, FREDDY C
1180	BOZEMAN, CHARLES L
1187	GERBL, CHERI L
1211	GARCIA, LUIS
1212	GARCIA, PEGGY G
1228	OCCUPANT UNKNOWN,
1239	BRANDER, SYLVAN L
1248	SANTOS, MARGARITA
1251	OCCUPANT UNKNOWN,
1261	LONG, BRETT C
1268	OCCUPANT UNKNOWN,
1271	CARTER, DAVID K

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2010 (Cont'd)

1281	OCCUPANT UNKNOWN,
1291	DIAZ, FRANCISCO
1342	ZELAYA, SILVIA
1410	MULCOCK, BARRY P
1438	GREEN, ONITA L
1480	OOSTEN, MARLA J
1543	HADEN, LINDA R
1551	LETCHER, GLENN O
1645	MO PROPERTIES
	OCCUPANT UNKNOWN,
1655	OOSTDAM, JOHN J
1996	GOEDHART, CORNELIUS J
2004	CHAVEZ, AL
2008	WISE, ZOLENE I

Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 2010

38670 SMITH, HAROLD K
38680 OCCUPANT UNKNOWN,
38750 BLOOM, KENNETH
38790 OCCUPANT UNKNOWN,
38980 HARINGA, RON W

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2005

136	SAN JACINTO ELEMENTARY SCHOOL
181	SAN JACINTO UNIFID SCHOOL DST
187	WELLS, KARI
264	MONSIVAIS, JOSEPH
284	VALLEY BLIND CENTER INC
	VALLEY BLIND CENTER THRIFT STORE
304	VAENE, PHAY
319	VICTORY IN CHRIST FAITH CENTER
345	READ, MIKE
385	EL PLEVE PARTY SUPPLIES
425	RAMIREZ, RAQUEL D
501	CAMACHO, JOSE
	HAMMONS, HEATHER
	HOETING, MELISSA S
	NOVOSAD, MARYA
	SCHUETTE, KATHLEEN S
	STARR, DAWN M
	TATUM, NICHOLAS
	VEGA, ANTHONY
	WRIGHT, LOUIS
	YERMAKOV, ALEKSEY V
525	CASTILLO, ANGELA
	DIETRICH, TERESA
	FAVARELLA, TRISHA
	GRIFFIN, ANTHONY
	HUNGATE, K
	JENKINS, CHARLES
	NORWOOD, GLYNNEISHA
	RUIZ, STEPHANIE L
	SICLARE, PAUL
	STARR, JASON A
537	MANZANITA GARDEN APARTMENTS
539	CARDONA, MIRNA
	DURHAM, GENEVA L
	GARCIA, DENNISE
	GUTIERREZ, MANUEL
	HERNANDEZ, L
	RICH, VICKIE
	THIBODEAUX, JAMES
	WHITAKER, JANICE A
543	CASTILLO, LUIS R
	ORELLANA, HERCILIA
	RUIZ, CONNIE
565	CHAVARRIA, AUGUSTINE
624	HACIENDA MOTEL
652	BRYER, CLARICE A
	CALDERON, MICHAEL
	CALLAHAN, DOROTHY E
	CARLISLE, JOANNE S
	FINCH, LEANA L

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2005 (Cont'd)

652	FORMHALS, DONALD W
	GOODSON, SABRINA D
	HAMPTON, M
	HEBERT, MARY
	JEFFRIES, MARY
	LOHS, RAENETTE
	MONTANO, FELICITAS
	MORENO, VINCENT B
	RANGEL, JOSE
	SHEAFFER, RICHARD A
	SKELTON, VIRGINIA M
	STANNARD, SAMUEL A
	STOLTZ, ETHEL J
	WHITE, VIRGINIA T
691	TIGER PLAZA MARKET
720	CHEVRON STATIONS INC
	THE RIB PIT BBQ
782	OCCUPANT UNKNOWN,
790	HORST, K
794	RAMONA PRODUCE
861	PRIME PERFORMANCE
	RAMONA FLOORS
	RAMONA FLOORS WAREHO
	WT TRANSMISSIONS
950	BETHESDA CHRISTIAN FELLOWSHIP
	FAITH COMMUNITY CHURCH
	NATURAL RSRCES CNSERVTN SERVICE
	NEIGHBORHOOD BUSINESS CENTER
	ROBERTS DRAPERIES
	SAN JACINTO VALLEY VETERINARIANS
1050	CELAYA, JESUS D
	FRAIRE, OBDULIA
	GALLEGOS, VIRGINIA
	HERNANDEZ, R
	PANTOJA, RAQUEL
1133	TAYLOR TOMMY PORTABLE WELDING
1159	SIGALA, CHARLES F
1160	CAMPOS, SERGIO
1170	GERBL, JACK W
	TRI STATE ACCOMMODATIONS
1175	BRANDENBURG, FREDDY C
1206	STEVENS, FLORENCE E
1211	GARCIA, LUIS
1212	EBERHARD, JOHN F
1228	DALE BARTZ WELDING & REPAIR
1239	BRANDER, SYLVAN L
	TEXAS DONUTS LLC
1248	WILLAHAN, CLAIRE S
1251	OCCUPANT UNKNOWN,
1261	LONG, BRETT C

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2005 (Cont'd)

1268	PAVLOVICH, BOGOLIJUB
1271	CARTER, DAVID K
1281	COPE, KENNETH B
1291	SMITH, CALVIN L
1312	OCCUPANT UNKNOWN,
1342	MEREDITH, HOMER R
1410	MULCOCK, BARRY P
1438	OCCUPANT UNKNOWN,
1480	OOSTEN, MARLA J
1543	HADEN, LINDA R
	MOUNTAIN SHADOWS PET RESORT
	RAMONA BOARDING KENNELS
1551	URRUTIA, CARLOS R
1645	MO PROPERTIES
	OOSTDAM, ART J
1655	OOSTDAM, JOHN J
1775	OCCUPANT UNKNOWN,
	SD FARM
1790	DEAN, DENNY
1870	OCCUPANT UNKNOWN,
1882	OCCUPANT UNKNOWN,
1996	GOEDHART, CORNELIUS J
2004	CHAVEZ, AL
	COMPETITION PARK MOTOCROSS SPORTS IN
	GANN DOOR CO

Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 2005

1411 SMITH, HAROLD
38670 SMITH, HAROLD K
38680 ISIORDIA, CONCEPCION
38750 VALADEZ, SILVIA
38790 OCCUPANT UNKNOWN,
38980 HARINGA, RON W
SIERRA VISTA DAIRY
39190 CRUZ, ANA
39200 HINOJOSA, ELIZABETH

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 2000

109	SAN JACINTO UNIFIED SCHOOL DIST
136	SAN JACINTO UNIFIED SCHOOL DISTRICT SAN JACINTO MH CLA
181	SAN JACINTO UNIFIED SCHOOL DIST
	SAN JACINTO UNIFIED SCHOOL DISTRICT CENTRAL KITCHEN
	SAN JACINTO UNIFIED SCHOOL DISTRICT FOOD SERVICES
218	FEHR, DAVID
284	VALLEY BLIND CENTER INCORPORATED
332	OCCUPANT UNKNOWN,
335	OCCUPANT UNKNOWN,
345	OCCUPANT UNKNOWN,
425	MILLER, B R
501	BRACAMONTE, CYNTHIA M
	WALKER, TONI
525	CASTILLO, ANGELA
537	MANZANITA GARDEN APARTMENTS
539	RUIZ, CONNIE
543	CASTILLO, LUIS
	REYES, GLORIA
587	OCCUPANT UNKNOWN,
624	HACIENDA MOTEL
652	ACOSTA, VIOLA
	AUBUCHON, JACK
	COFFMAN, EMMA S
	DERIVER, ISABEL D
	DURAN, G
	MCCLAFFERTY, WILLIAM A
	MONTANO, F
	OVERS, M
	RENNER, GRACE T
	SMITH, P
	SWEENEY, A
	TUCKER, L
	VISTA DESAN JACINTO APARTMENTS
	VONCHRISTIERSON, ALICE
685	KING, ELAINE
691	MI MEXICO ALEGRE
	PLAZA MEAT MARKET
720	CHEVRON USA INCORPORATED
794	J & W FRUIT MARKET
	RAMONA PRODUCE
861	FASHION OUTLET
	HAIR EXPRESS
	RAMONA FLOORS
	RAMONA FLOORS WAREHOUSE
	ST PAULS CHARISMATIC
	VANHORN, L S
950	A VISION PRINTING & GRAPHICS
	BETHESDA CHRISTIAN ACADEMY
	COLLEGE BOOK EXCHANGE
	DRUG ABUSE PROGRAM RIVERSIDE COUNTY

950	FAITH COMMUNITY CHURCH
	RAMONA CENTER
	RAMONA PHYSICAL THERAPY
	RIVERSIDE COUNTY OF MENTAL HEALTH
	ROBERTS DRAPERIES
	VISION GRAPHICS
991	OCCUPANT UNKNOWN,
1000	SAN JACINTO UNIFIED SCHOOL DISTRICT MOUNTAIN VIEW HIGH SCHOO
1050	GUERENA, CLAUDIA
	GUTIERREZ, JUAN
	SANTOS, TRUDY
1073	OCCUPANT UNKNOWN,
1093	OCCUPANT UNKNOWN,
1133	TAYLOR TOMMY PORTABLE WELDING
1159	SIGALA, CHARLES F
1170	GERBL, JACK
	TRI STATE ACCOMMODATIONS
1175	BAKER, CECIL E
1180	HULL, MARTIN
1211	TAPIA, SYLVIA
1212	FISHER, LEWIS J
1228	BARTZ, DALE L
1239	BRANDER, SYLVAN L
1248	WILLAHAN, CLAIRE
1251	JEFFRIES, BRIAN
1261	LONG, BRETT
1312	ORNELLAS, MARITZA N
1330	BECK RICK DVM WINNERS CIRCLE EQUINE CLINIC
	SAN JACINTO VALLEY VETERINARIANS
1342	MEREDITH, MURIEL R
1410	MULCOCK, BARRY
1438	HARRISON, DOROTHY C
1543	MIYAGAWA, MOE M
	RAMONA BOARDING KENNELS
1565	ALDERTON, DONNA R
1645	OOSTDAM, ART
1655	OOSTDAM, JOHN
1775	S & D DAIRY
1790	DEAN RICK TREE SERVICE
1882	HARINGA, RON
1996	GOEDHART, C
2004	COMPETITION PARK MOTOCROSS
	MERCADO, JUDY

Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 2000

1411 SMITH, HAROLD
38750 CALDERON, SERGIO
38980 JACK TULS & SONS DAIRY
TULS, JACK
39190 OCCUPANT UNKNOWN,
39200 ALDANA, JOSE
HERNANDEZ, MARIA E
MCDONALD, DUANE

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 1995

136	SAN JACINTO MH CLASS
264	OCCUPANT UNKNOWNN
284	VALLEY BLIND CTR INC
332	FISHER, WILLIAM J
335	LONGWELL, LOY
345	OCCUPANT UNKNOWNN
385	HEMACINTO TRAILER SUPPLY
501	GARCIA, TERESA
	HART, STEEN
	STARR, DAWN
525	MARIN, BAYAROO A
	VASQUEZ, CARMEN
537	MANZANITA GARDEN APARTMENTS
539	FERREL, WILLIAM
	JOYNER, NAKIA
	NEUBECKER, BONNIE
543	BERNAL, MANUEL
	CASTILLO, LUIS
	VALENZUELA, DANIEL
565	CHAVARRIA, TINA
587	OCCUPANT UNKNOWNN
624	HACIENDA MOTEL
	PREMMA, VINNY
652	BARNES, GERALD
	CARLISLE, JOANNE
	COURTNEY, JOETTA
	DEBRUYN, MARY
	EDWARDS, M
	EMERSON, L
	ERCHICK, CHARLES
	FITZGERALD, JANE
	GARRETT, LOUISE
	HEIBNER, V J
	HILDEBRAND, G
	JACKSON, E J
	KATONA, LES
	LOPEZ, TYNE
	MCCLAFFERTY, LIAM A
	MIELKE, C
	MITCHELL, GILBERT E
	OCONNELL, FRAN
	OVERS, M
	PATTON, G
	RAMIREZ, LEO
	ROTICCI, M J
	SWEENEY, ADELINE
	TUCKER, L
	VASQUEZ, CONRADO
	WASIK, DOUGLAS
	WHITE, LEONE

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 1995 (Cont'd)

658	OCCUPANT UNKNOWNN
685	KING, ELAINE
691	A M DONUTS
782	BAKER, BRIAN
786	OCCUPANT UNKNOWNN
790	ZARATE, A
794	7 ELEVEN FOOD STORE
861	MT SAN JACINTO BAPTIST CHURCH
	MT SAN JACINTO BAPTIST TEMPLE
	RAMONA FLOORS
950	BETHESDA CHRISTIAN CTR
	FAITH COMMUNITY CHURCH
	RAMONA PHYSICAL THERAPY
	RIVERSIDE COUNTY OF DRUG ABUSE
	ROBERTS DRAPERIES
	SAN JACINTO ALCOHOL CONTROL
	VISION GRAPHICS
971	WILLIAMS, SANDRA
1050	LOPEZ, LOURDES
	ROMERO, MICHAEL
1073	GARCIA, B
1093	OCCUPANT UNKNOWNN
1211	CARRILLO, DAVID
1312	OCCUPANT UNKNOWNN
1330	DANIEL E SENESTRARO DVM
	REGINALD R RASNER DVM
	SAN JACINTO VALLEY VETS
1342	SENESTRARO, DAN
1410	MULCOCK, BARRY
1438	HARRISON, LORAN
1543	RAMONA BOARDING KENNELS
1551	PHILLIPS, JAMES
1882	HARINGA, RON
2008	GANN DOOR CO
	PEREZ, BENITO

Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 1995

1411 SMITH, HAROLD
38980 ESTRADA, EFRAIN
JACK TULS & SONS DAIRY
JACK TULS FRIESIAN HORSE
PADILLA, CARLOS
TULS, JACK
39190 MALDONADO, JULIO
39200 ALDANA, ANTONIO
ARANA, MIGUEL
FUNSTON, D
VANPERUSEM, ARDEN

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 1992

136	SAN JACINTO SC ELEM
181	SAN JACINTO SC DIST
264	PHILLIPS, WINNIE M
284	VALLEY BLIND CENTER
335	LONGWELL, LOY
385	HEMACINTO TRLR SPLY
425	GOW, SEAN
501	BROWN, BARRY S
	EISENBRAUN, HEATH
525	AGUILAR, DANIEL
	MARIN, BAYAROO A
537	MANZANITA GRDN APTS
539	ESTANISLAO, SAL
	FERREL, WILLIAM
543	BURKETT, MARK
	DURHAM, P
	VALENZUELA, DANIEL
624	HACIENDA MOTEL
652	BARNES, GERALD
	BLANCHARD, M
	BODLE, EMMA C
	CARTER, CHARLES
	CASSELL, ELEANOR
	EDWARDS, M
	ERCHICK, CHARLES
	FITZGERALD, JANE
	GARRETT, LOUISE
	GUINN, HUGH C
	HEIBNER, V J
	HILDEBRAND, G
	JACKSON, E J
	KILLY, B
	LINK, MAYME
	LOPEZ, T A
	MCCLAFFERTY, LIAM A
	MITCHELL, GILBERT E
	NAFTAL, MAX
	OVERS, M
	ROTICCI, M J
	SWEENEY, ADELINE
	TUCKER, L
	VALVERDE, MARY
	VASQUEZ, CONRADO
	VISTA DE SN JCNTO
	WHITE, LEONE
685	FLETCHER, GENE
	KING, ELAINE
	TRASTER, M
786	ALEXANDRU, ADRIAN
790	ZARATE, A

Target Street	Cross Street	Source
-	✓	Cole Information

N RAMONA BLVD 1992 (Cont'd)

794	SEVEN 11 FOOD 26054
861	ALL GLASS&METAL
	BEAR CONSTRUCTION
	HEMET DOOR CO
	RAMONA FLOORS
950	BETHESDA CHRSTN CTR
	FAITH COMMUNITY CH
	PAC VIDEO
	RAMONA CENTER
	RIVRSD CO MNTL ALCH
	ROBERTS DRAPERIES
	VISION GRAPHICS
1000	SAN JACINTO SC EDUC
1015	IGLESIA SANTA CH
1050	LOPEZ, LOURDES
	MARTINEZ, RAFAELA
1073	GARCIA, B
1133	MELLOR RACING PRODS
	TAYLOR TOMMY WLDNG
1330	BECK RICK DVM
	RASNER REGINALD DVM
	SENESTRARO DANL DVM
1342	SENESTRARO, DAN
1438	HARRISON, DOROTHY C
1543	RAMONA BRDNG KENNEL
5434	CASTILLO, LUIS
6524	MIELKE, C

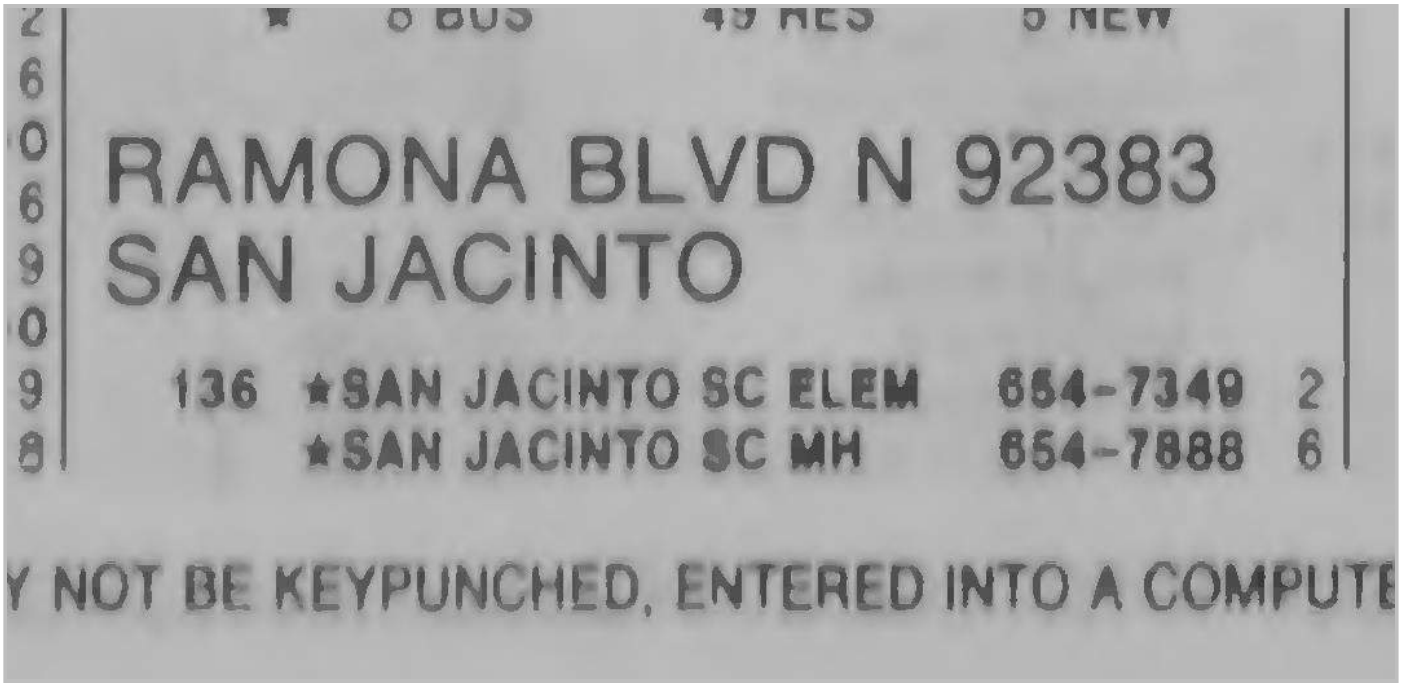
Target Street	Cross Street	Source
-	✓	Cole Information

RECORD RD 1992

1411 SMITH, HAROLD
38980 JACK TULS HORSES
LAZO, GERALDO
TULS, JACK
39200 ALDANA, ANTONIO
ARANA, MIGUEL

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N RAMONA BLVD 1990



Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N RAMONA BLVD 1990



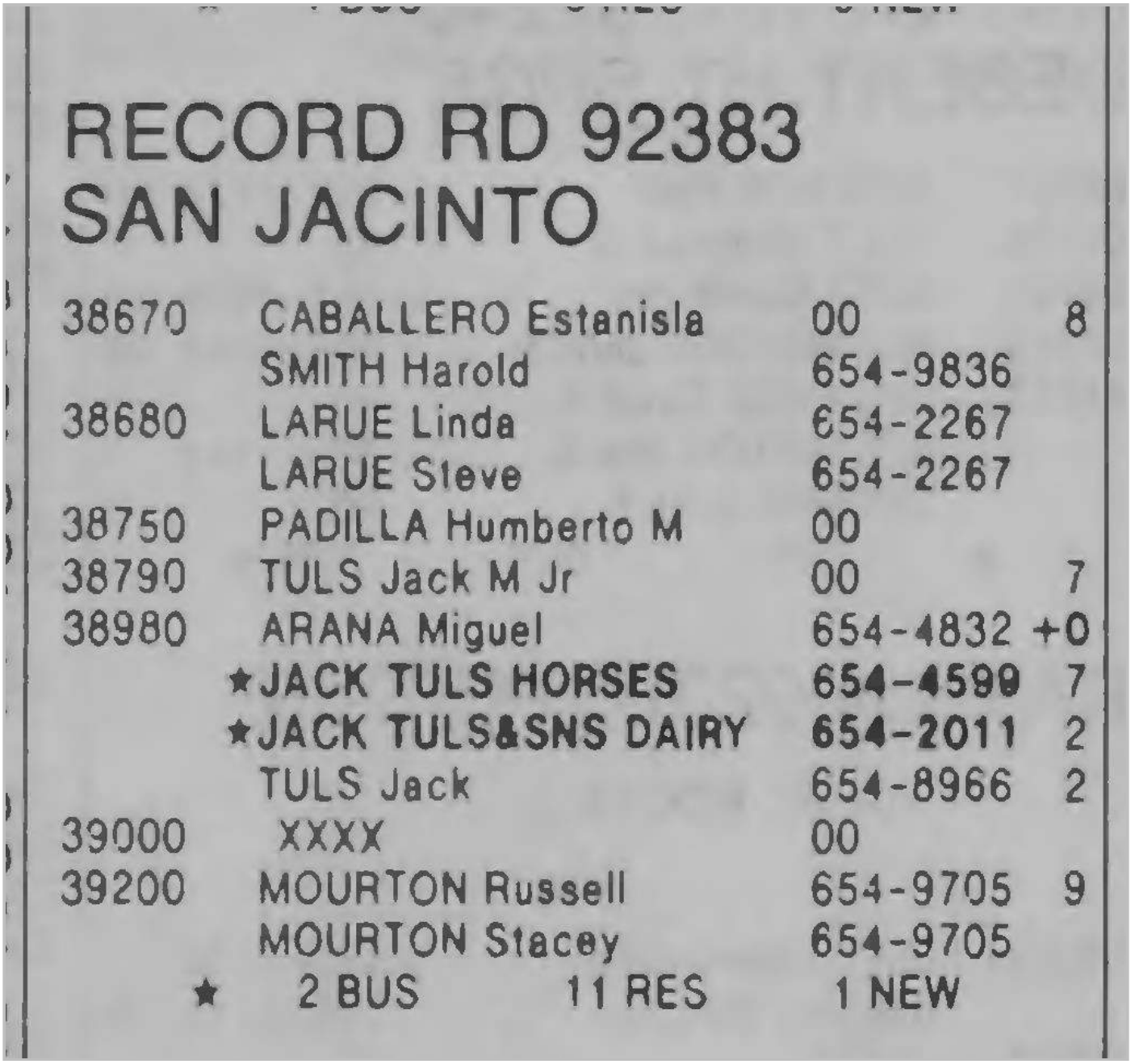
RAMONA BLVD N 92383 CONT

	★SAN JACINTO SC SPCH	654-0206	4
181	FITE Betty J	00	
	★SAN JACINTO SC EDUC	654-2169	9
	★SAN JACINTO SC KCHN	654-8151	5
	★SAN JACINTO SC MDDL	654-9361	2
	TROOST William	00	5
218	XXXX	00	
264	PHILLIPS Winnie M	654-2641	
284	★BLIND CNTR VLY INC	654-3167	5
304	MUTZ Brenda	654-3640	+0
319	XXXX	00	
332	FISHER Catherine	654-9177	
333	XXXX	00	
335	LONGWELL Loy	654-2630	1
345	XXXX	00	
385	★HEMACINTO TRLR SPLY	654-3722	6
420	LOPEZ Jose	654-3950	
	LOPEZ Sharo	654-3950	3
424	XXXX	00	
425	XXXX	00	
501	CHADWELL Laura	654-1665	9
	GONZALEZ Miguel	654-4198	+0
	GUTIERREZ M	654-8542	7
	QUIROZ Walter D	00	4
525	DONLEY Esther	00	4
	NAGY Patricia J	654-8010	+0
	RUSSELL Roy	00	4
537	★MANZANITA GRDN APTS	654-7474	9
539	FERREL Yolanda	654-3986	+0
	HARPER Anise A	00	
	MARTINEZ Gina R	00	4
	RUIZ Marcia L	00	5
543	ARMENDARIZ Maria E	00	4
	CASTILLO Luis	654-8774	9
	DURHAM G	00	+0
565	CHAVARRIA Jose	654-4797	6
587	WADLEIGH Lisa	00	+0
624	★HACIENDA MOTEL	654-9168	
633	ROMERO Ignacio V	00	7
652	VISTA DE SN JCNTO		
	AREGOOD Lucille I	00	5
	BARRETT Regine C	00	5
	BARRY James J	00	+0
	BEARDEN L	654-4476	5
	BERETISH C	654-8661	5
	BLANCHARD Mattie L	654-2979	
	BOTTOMS Ruth E	00	6
	BUZZA F E	654-1125	5
	DEPRIEST Juanita L	00	+0
	EISENBARTH A V	654-7129	
	ERCHICK Chas	654-1385	6
	FARR Gary	00	4
	FIELDS B C	654-9065	
	FITZGERALD Jane	654-4036	+0
	GILLSPIE Jessie A	654-9520	1
	GREEN Norma G	00	
	GUINN Hugh C	654-8914	3
	HEIBNER V J	654-1022	6
	HILDEBRAND G	654-9521	
	HILDEBRAND J	654-9521	9
	KILLY Bernhardina	654-1381	4
	LINK Mayme	00	+0
	MAYSTEDT E P	654-1376	4
	MCBRIDE Barbara A	00	
	MCCLAFFERTY Liam A	654-9004	3
	MITCHELL Gilbert E	654-6009	7
	OVERS M	654-3603	+0
	REIMER Milton E	00	
	ROTICCI M J	654-9037	
	SVAST Zvonko K	00	
	SWEENEY A	654-0990	+0
	TUCKER L	654-8692	3
	★VISTA DE SN JCNTO	654-9897	5
	YOST William S	00	6
652			
685	KING Elaine	654-3335	5
	STEFFER D M	654-3169	6
	TRASTER Margaret	654-0989	6
691	XXXX	00	
782	XXXX	00	
786	ALEXANDRU Adrian	654-8837	9
790	ZARATE A	654-4820	1
794	★SEVEN 11 FOOD 26054	654-1540	7
799	★CIRCLE B DEVELOPMNT	654-9319	
801	BROCK Ronald E	00	
814	XXXX	00	
816	SEEK Judy L	00	
817	XXXX	00	
824	XXXX	00	
861	★ALL GLASS&METAL	654-9455	+0
	★BEAR CONSTRUCTION	654-5351	+0
	BROCK Ronald E	00	
	★FRATERNAL ORDR EAGL	654-4735	9
	FRISCHKNECHT A	00	
	★RAMONA FLOORS	654-3988	+0
	★RAMONA FLOORS WRHS	654-1742	9
911	PEREZ Salvador	654-0950	6
	ZAVALA Salvador	00	5
950	BUILDING		
	★A VISN PRNTG&GRPHCS	654-8069	+0
	★DEANS DONUT HOUSE	654-8331	4
	★PRIME MARKET REAL	654-8077	4
	★RAMONA PHYSCL THRPY	654-1877	6
	★RIVRSD CO MNTL ALCH	654-6075	+0
	★ROBERTS DRAPERIES	323-9634	7
	★ROBERTS DRAPERIES	654-0444	9
	★SAN JACINTO SC INFT	654-0188	5
	★SAN JACINTO SC MNTN	654-4926	+0
	★SO CA SC MASSAGE	654-3540	6
	★SOUTHRN CA SC MSSGE	781-2171	9
	★TEEN MOTHER PROGRAM	654-7347	5
	★VISION GRAPHICS	654-8069	5
	★WACHHOLZ PAM	00	4
950			
971	XXXX	00	
991	MILLER Jas	654-4898	+0
1073	GARCIA B Pastr	654-7157	
1093	SALVERDA Anna	654-2865	5
1133	★SAN JACINTO RV	654-0681	6
	★TAYLOR T PRTBL WLDG	654-9605	5
1150	ALFARO Audon	00	7
	HERNANDEZ Gloria	654-9664	+0
	HORACEK Bill	654-8006	9
	RINCON Jose M	00	4
	SAUSEDO Teresa	654-8919	6
1283	XXXX	00	

★ 34 BUS 90 RES 20 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

RECORD RD 1990

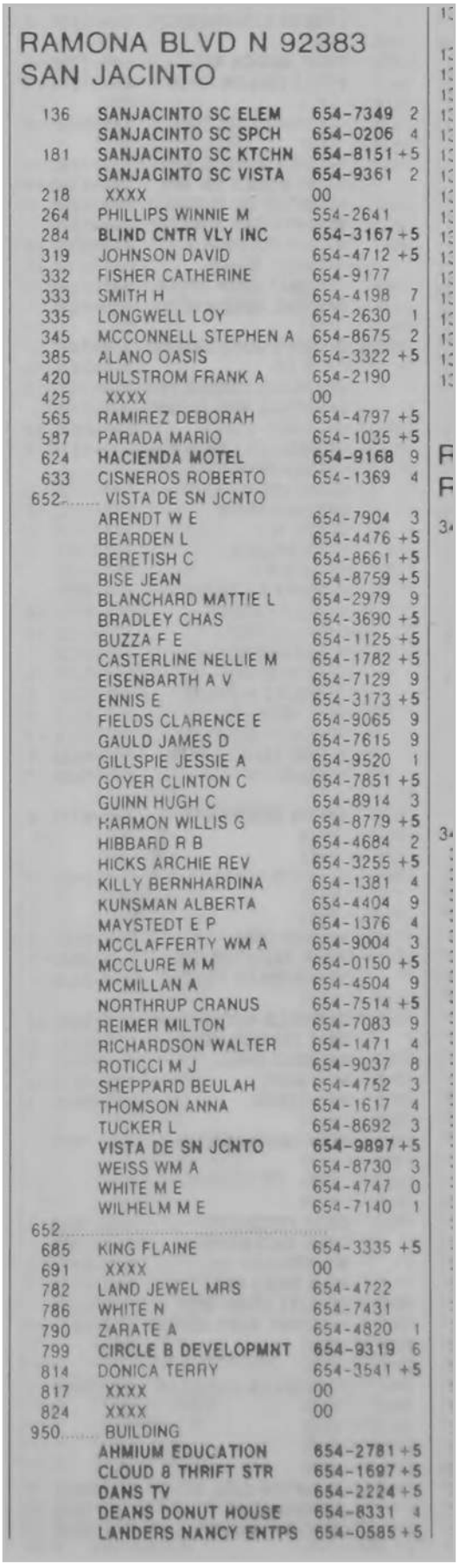


RECORD RD 92383
SAN JACINTO

38670	CABALLERO Estanisla	00	8
	SMITH Harold	654-9836	
38680	LARUE Linda	654-2267	
	LARUE Steve	654-2267	
38750	PADILLA Humberto M	00	
38790	TULS Jack M Jr	00	7
38980	ARANA Miguel	654-4832	+0
	★JACK TULS HORSES	654-4599	7
	★JACK TULS&SNS DAIRY	654-2011	2
	TULS Jack	654-8966	2
39000	XXXX	00	
39200	MOURTON Russell	654-9705	9
	MOURTON Stacey	654-9705	
	★ 2 BUS 11 RES	1 NEW	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N RAMONA BLVD 1985

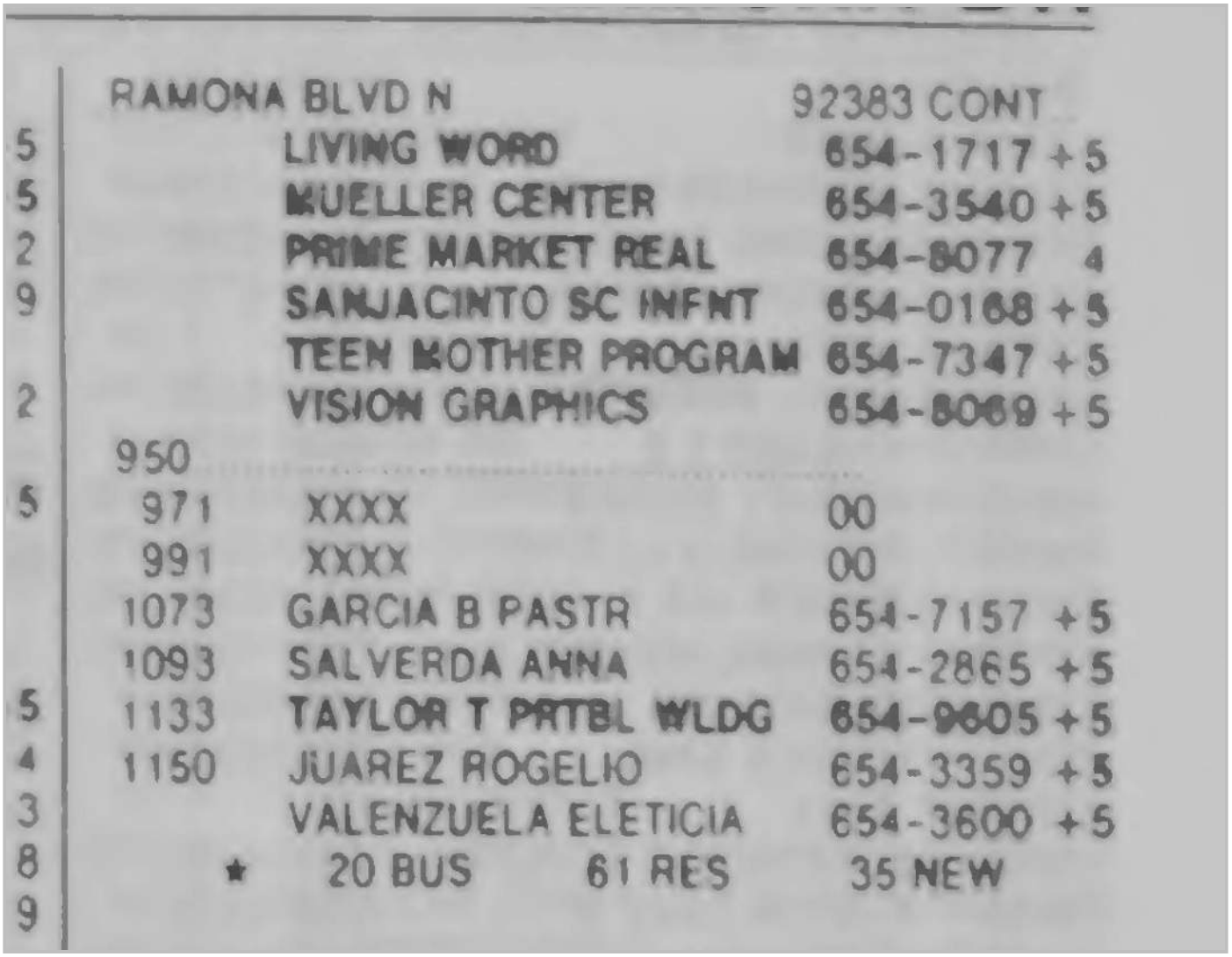


RAMONA BLVD N 92383
SAN JACINTO

136	SANJACINTO SC ELEM	654-7349	2
	SANJACINTO SC SPCH	654-0206	4
181	SANJACINTO SC KTCHN	654-8151	+5
	SANJAGINTO SC VISTA	654-9361	2
218	XXXX	00	
264	PHILLIPS WINNIE M	554-2641	
284	BLIND CNTR VLY INC	654-3167	+5
319	JOHNSON DAVID	654-4712	+5
332	FISHER CATHERINE	654-9177	
333	SMITH H	654-4198	7
335	LONGWELL LOY	654-2630	1
345	MCCONNELL STEPHEN A	654-8675	2
385	ALANO OASIS	654-3322	+5
420	HULSTROM FRANK A	654-2190	
425	XXXX	00	
565	RAMIREZ DEBORAH	654-4797	+5
587	PARADA MARIO	654-1035	+5
624	HACIENDA MOTEL	654-9168	9
633	CISNEROS ROBERTO	654-1369	4
652	VISTA DE SN JCNTO		
	ARENDT W E	654-7904	3
	BEARDEN L	654-4476	+5
	BERETISH C	654-8661	+5
	BISE JEAN	654-8759	+5
	BLANCHARD MATTIE L	654-2979	9
	BRADLEY CHAS	654-3690	+5
	BUZZA F E	654-1125	+5
	CASTERLINE NELLIE M	654-1782	+5
	EISENBARTH A V	654-7129	9
	ENNIS E	654-3173	+5
	FIELDS CLARENCE E	654-9065	9
	GAULD JAMES D	654-7615	9
	GILLSPIE JESSIE A	654-9520	1
	GOYER CLINTON C	654-7851	+5
	GUINN HUGH C	654-8914	3
	HARMON WILLIS G	654-8779	+5
	HIBBARD R B	654-4684	2
	HICKS ARCHIE REV	654-3255	+5
	KILLY BERNHARDINA	654-1381	4
	KUNSMAN ALBERTA	654-4404	9
	MAYSTEDT E P	654-1376	4
	MCCLAFFERTY WM A	654-9004	3
	MCCLURE M M	654-0150	+5
	MCMILLAN A	654-4504	9
	NORTHRUP CRANUS	654-7514	+5
	REIMER MILTON	654-7083	9
	RICHARDSON WALTER	654-1471	4
	ROTICCI M J	654-9037	8
	SHEPPARD BEULAH	654-4752	3
	THOMSON ANNA	654-1617	4
	TUCKER L	654-8692	3
	VISTA DE SN JCNTO	654-9897	+5
	WEISS WM A	654-8730	3
	WHITE M E	654-4747	0
	WILHELM M E	654-7140	1
652			
685	KING FLAINE	654-3335	+5
691	XXXX	00	
782	LAND JEWEL MRS	654-4722	
786	WHITE N	654-7431	
790	ZARATE A	654-4820	1
799	CIRCLE B DEVELOPMNT	654-9319	6
814	DONICA TERRY	654-3541	+5
817	XXXX	00	
824	XXXX	00	
950	BUILDING		
	AHMIUM EDUCATION	654-2781	+5
	CLOUD 8 THRIFT STR	654-1697	+5
	DANS TV	654-2224	+5
	DEANS DONUT HOUSE	654-8331	4
	LANDERS NANCY ENTPS	654-0585	+5

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

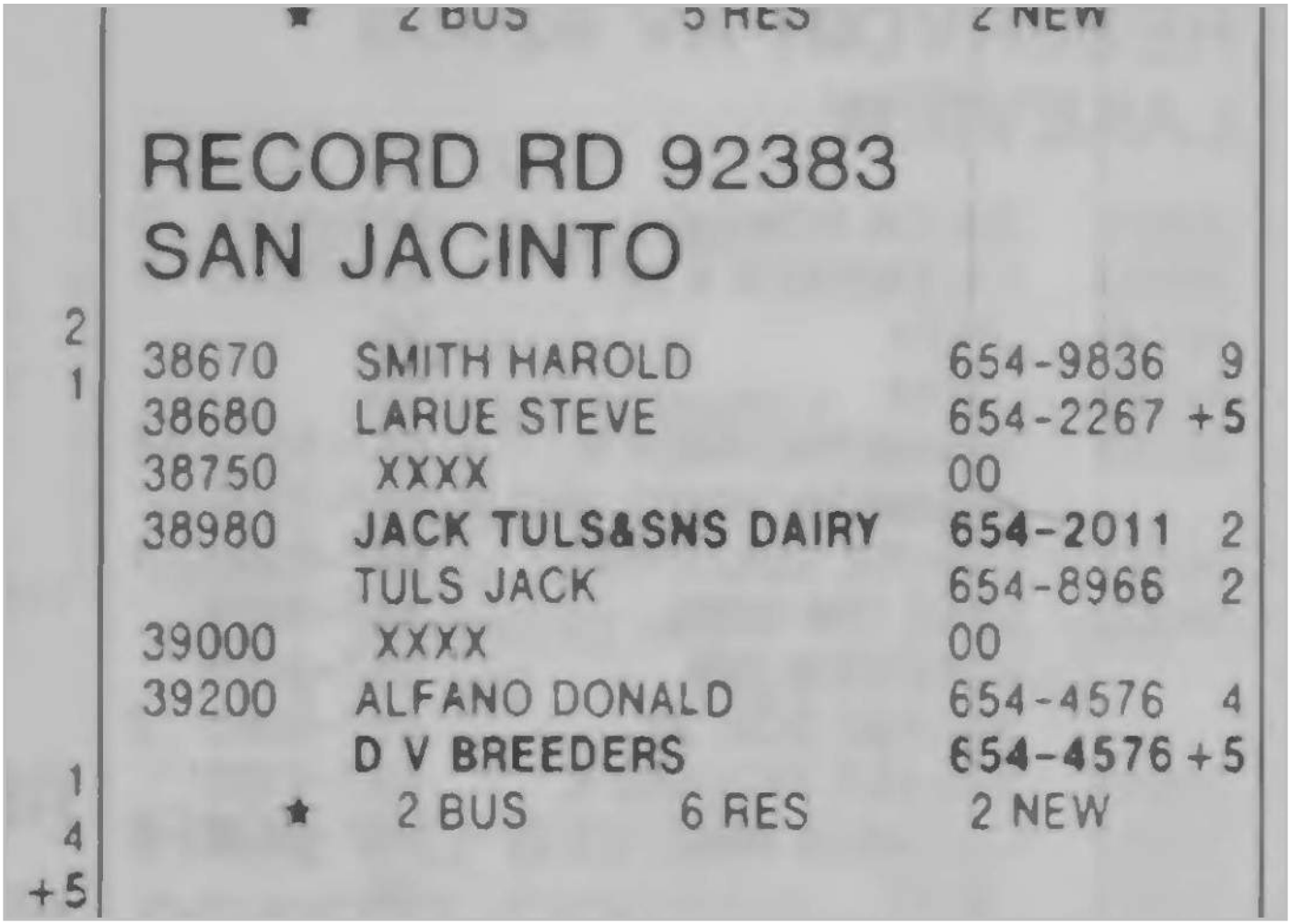
N RAMONA BLVD 1985



	RAMONA BLVD N		92383 CONT
5		LIVING WORD	654-1717 +5
5		MUELLER CENTER	654-3540 +5
2		PRIME MARKET REAL	654-8077 4
9		SANJACINTO SC INFNT	654-0168 +5
		TEEN MOTHER PROGRAM	654-7347 +5
2		VISION GRAPHICS	654-8069 +5
	950		
5	971	XXXX	00
	991	XXXX	00
	1073	GARCIA B PASTR	654-7157 +5
	1093	SALVERDA ANNA	654-2865 +5
5	1133	TAYLOR T PRTBL WLDG	654-9605 +5
4	1150	JUAREZ ROGELIO	654-3359 +5
3		VALENZUELA ELETICIA	654-3600 +5
8	★	20 BUS 61 RES	35 NEW
9			

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

RECORD RD 1985



★ 2 BUS 5 RES 2 NEW

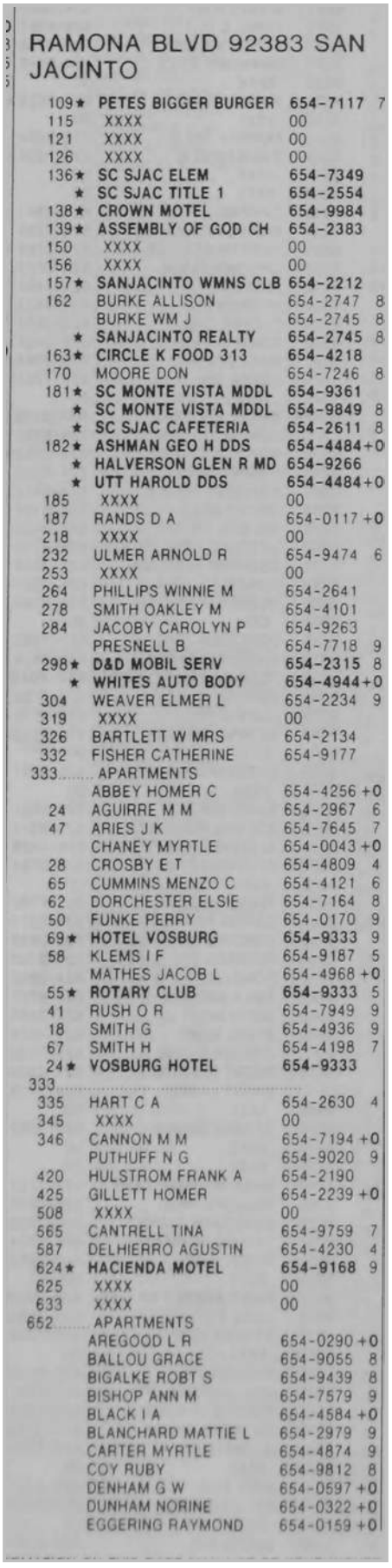
RECORD RD 92383
SAN JACINTO

38670	SMITH HAROLD	654-9836	9
38680	LARUE STEVE	654-2267	+5
38750	XXXX	00	
38980	JACK TULS&SNS DAIRY	654-2011	2
	TULS JACK	654-8966	2
39000	XXXX	00	
39200	ALFANO DONALD	654-4576	4
	D V BREEDERS	654-4576	+5

★ 2 BUS 6 RES 2 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N RAMONA BLVD 1980

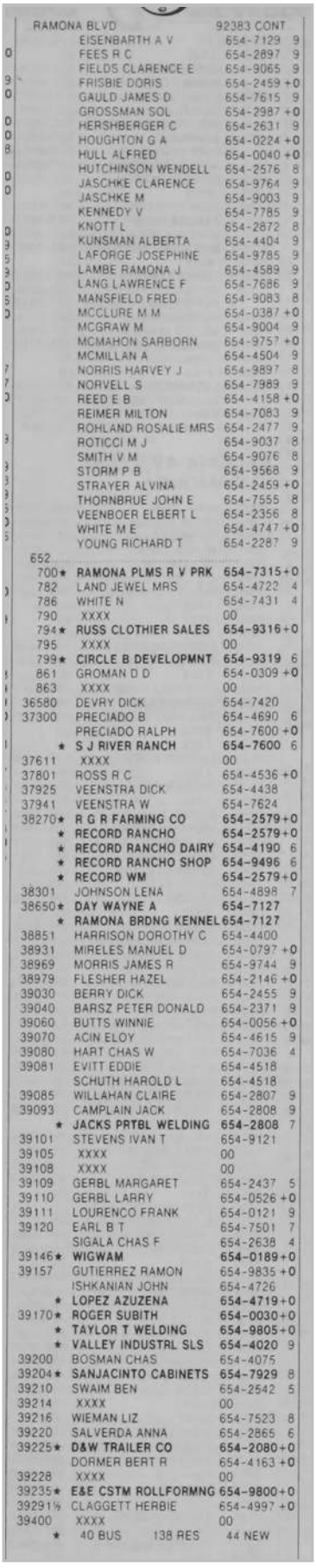


RAMONA BLVD 92383 SAN JACINTO

109★	**PETES BIGGER BURGER**	**654-7117**	7
115	XXXX	00	
121	XXXX	00	
126	XXXX	00	
136★	**SC SJAC ELEM**	**654-7349**	
★	**SC SJAC TITLE 1**	**654-2554**	
138★	**CROWN MOTEL**	**654-9984**	
139★	**ASSEMBLY OF GOD CH**	**654-2383**	
150	XXXX	00	
156	XXXX	00	
157★	**SANJACINTO WMNS CLB**	**654-2212**	
162	BURKE ALLISON	654-2747	8
	BURKE WM J	654-2745	8
★	**SANJACINTO REALTY**	**654-2745**	8
163★	**CIRCLE K FOOD 313**	**654-4218**	
170	MOORE DON	654-7246	8
181★	**SC MONTE VISTA MDDL**	**654-9361**	
★	**SC MONTE VISTA MDDL**	**654-9849**	8
★	**SC SJAC CAFETERIA**	**654-2611**	8
182★	**ASHMAN GEO H DDS**	**654-4484**	+0
★	**HALVERSON GLEN R MD**	**654-9266**	
★	**UTT HAROLD DDS**	**654-4484**	+0
185	XXXX	00	
187	RANDS D A	654-0117	+0
218	XXXX	00	
232	ULMER ARNOLD R	654-9474	6
253	XXXX	00	
264	PHILLIPS WINNIE M	654-2641	
278	SMITH OAKLEY M	654-4101	
284	JACOBY CAROLYN P	654-9263	
	PRESNELL B	654-7718	9
298★	**D&D MOBIL SERV**	**654-2315**	8
★	**WHITES AUTO BODY**	**654-4944**	+0
304	WEAVER ELMER L	654-2234	9
319	XXXX	00	
326	BARTLETT W MRS	654-2134	
332	FISHER CATHERINE	654-9177	
333	APARTMENTS		
	ABBEY HOMER C	654-4256	+0
24	AGUIRRE M M	654-2967	6
47	ARIES J K	654-7645	7
	CHANEY MYRTLE	654-0043	+0
28	CROSBY E T	654-4809	4
65	CUMMINS MENZO C	654-4121	6
62	DORCHESTER ELSIE	654-7164	8
50	FUNKE PERRY	654-0170	9
69★	**HOTEL VOSBURG**	**654-9333**	9
58	KLEMS I F	654-9187	5
	MATHES JACOB L	654-4968	+0
55★	**ROTARY CLUB**	**654-9333**	5
41	RUSH O R	654-7949	9
18	SMITH G	654-4936	9
67	SMITH H	654-4198	7
24★	**VOSBURG HOTEL**	**654-9333**	
333			
335	HART C A	654-2630	4
345	XXXX	00	
346	CANNON M M	654-7194	+0
	PUTHUFF N G	654-9020	9
420	HULSTROM FRANK A	654-2190	
425	GILLETT HOMER	654-2239	+0
508	XXXX	00	
565	CANTRELL TINA	654-9759	7
587	DELHIERRO AGUSTIN	654-4230	4
624★	**HACIENDA MOTEL**	**654-9168**	9
625	XXXX	00	
633	XXXX	00	
652	APARTMENTS		
	AREGOOD L R	654-0290	+0
	BALLOU GRACE	654-9055	8
	BIGALKE ROBT S	654-9439	8
	BISHOP ANN M	654-7579	9
	BLACK I A	654-4584	+0
	BLANCHARD MATTIE L	654-2979	9
	CARTER MYRTLE	654-4874	9
	COY RUBY	654-9812	8
	DENHAM G W	654-0597	+0
	DUNHAM NORINE	654-0322	+0
	EGGERING RAYMOND	654-0159	+0

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N RAMONA BLVD 1980

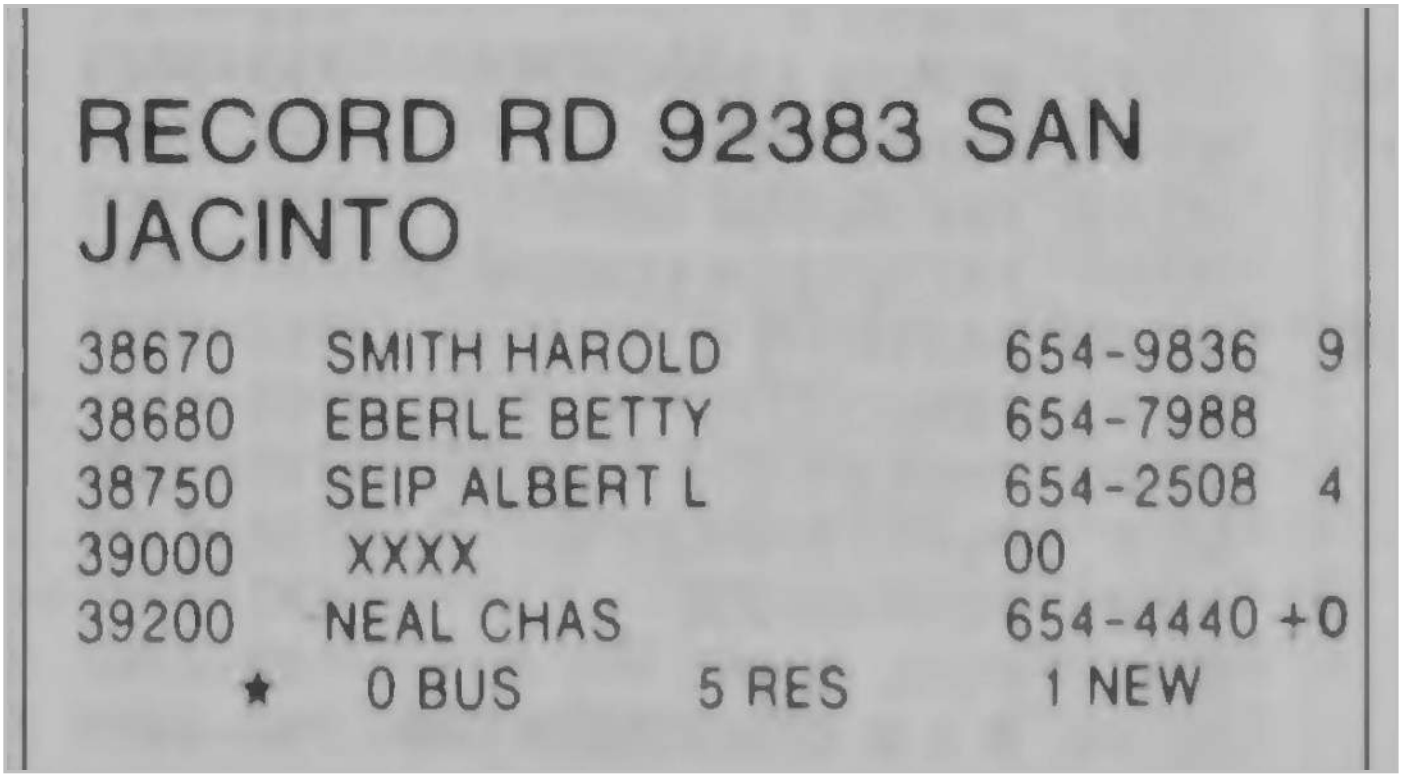


RAMONA BLVD 92383 CONT

	EISENBARTH A V	654-7129	9
	FEES R C	654-2897	9
	FIELDS CLARENCE E	654-9065	9
	FRISBIE DORIS	654-2459	+0
	GAULD JAMES D	654-7615	9
	GROSSMAN SOL	654-2987	+0
	HERSHBERGER C	654-2631	9
	HOUGHTON G A	654-0224	+0
	HULL ALFRED	654-0040	+0
	HUTCHINSON WENDELL	654-2576	8
	JASCHKE CLARENCE	654-9764	9
	JASCHKE M	654-9003	9
	KENNEDY V	654-7785	9
	KNOTT L	654-2872	8
	KUNSMAN ALBERTA	654-4404	9
	LAFORGE JOSEPHINE	654-9785	9
	LAMBE RAMONA J	654-4589	9
	LANG LAWRENCE F	654-7686	9
	MANSFIELD FRED	654-9083	8
	MCCLURE M M	654-0387	+0
	MCGRAW M	654-9004	9
	MCMAHON SARBORN	654-9757	+0
	MCMILLAN A	654-4504	9
	NORRIS HARVEY J	654-9897	8
	NORVELL S	654-7989	9
	REED E B	654-4158	+0
	REIMER MILTON	654-7083	9
	ROHLAND ROSALIE MRS	654-2477	9
	ROTICCI M J	654-9037	8
	SMITH V M	654-9076	8
	STORM P B	654-9568	9
	STRAYER ALVINA	654-2459	+0
	THORNBRUE JOHN E	654-7555	8
	VEENBOER ELBERT L	654-2356	8
	WHITE M E	654-4747	+0
	YOUNG RICHARD T	654-2287	9
652			
700★	**RAMONA PLMS R V PRK**	**654-7315**	**+0**
782	LAND JEWEL MRS	654-4722	4
786	WHITE N	654-7431	4
790	XXXX	00	
794★	**RUSS CLOTHIER SALES**	**654-9316**	**+0**
795	XXXX	00	
799★	**CIRCLE B DEVELOPMNT**	**654-9319**	**6**
861	GROMAN D D	654-0309	+0
863	XXXX	00	
36580	DEVRY DICK	654-7420	
37300	PRECIADO B	654-4690	6
	PRECIADO RALPH	654-7600	+0
★	**S J RIVER RANCH**	**654-7600**	**6**
37611	XXXX	00	
37801	ROSS R C	654-4536	+0
37925	VEENSTRA DICK	654-4438	
37941	VEENSTRA W	654-7624	
38270★	**R G R FARMING CO**	**654-2579**	**+0**
★	**RECORD RANCHO**	**654-2579**	**+0**
★	**RECORD RANCHO DAIRY**	**654-4190**	**6**
★	**RECORD RANCHO SHOP**	**654-9496**	**6**
★	**RECORD WM**	**654-2579**	**+0**
38301	JOHNSON LENA	654-4898	7
38650★	**DAY WAYNE A**	**654-7127**	
★	**RAMONA BRDNG KENNEL**	**654-7127**	
38851	HARRISON DOROTHY C	654-4400	
38931	MIRELES MANUEL D	654-0797	+0
38969	MORRIS JAMES R	654-9744	9
38979	FLESHER HAZEL	654-2146	+0
39030	BERRY DICK	654-2455	9
39040	BARSZ PETER DONALD	654-2371	9
39060	BUTTS WINNIE	654-0056	+0
39070	ACIN ELOY	654-4615	9
39080	HART CHAS W	654-7036	4
39081	EVITT EDDIE	654-4518	
	SCHUTH HAROLD L	654-4518	
39085	WILLAHAN CLAIRE	654-2807	9
39093	CAMPLAIN JACK	654-2808	9
★	**JACKS PRTBL WELDING**	**654-2808**	**7**
39101	STEVENS IVAN T	654-9121	
39105	XXXX	00	
39108	XXXX	00	
39109	GERBL MARGARET	654-2437	5
39110	GERBL LARRY	654-0526	+0
39111	LOURENCO FRANK	654-0121	9
39120	EARL B T	654-7501	7
	SIGALA CHAS F	654-2638	4
39146★	**WIGWAM**	**654-0189**	**+0**
39157	GUTIERREZ RAMON	654-9835	+0
	ISHKANIAN JOHN	654-4726	
★	**LOPEZ AZUZENA**	**654-4719**	**+0**
39170★	**ROGER SUBITH**	**654-0030**	**+0**
★	**TAYLOR T WELDING**	**654-9805**	**+0**
★	**VALLEY INDUSTRL SLS**	**654-4020**	**9**
39200	BOSMAN CHAS	654-4075	
39204★	**SANJACINTO CABINETS**	**654-7929**	**8**
39210	SWAIM BEN	654-2542	5
39214	XXXX	00	
39216	WIEMAN LIZ	654-7523	8
39220	SALVERDA ANNA	654-2865	6
39225★	**D&W TRAILER CO**	**654-2080**	**+0**
	DORMER BERT R	654-4163	+0
39228	XXXX	00	
39235★	**E&E CSTM ROLLFORMNG**	**654-9800**	**+0**
39291½	CLAGGETT HERBIE	654-4997	+0
39400	XXXX	00	
★	40 BUS 138 RES	44 NEW	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

RECORD RD 1980



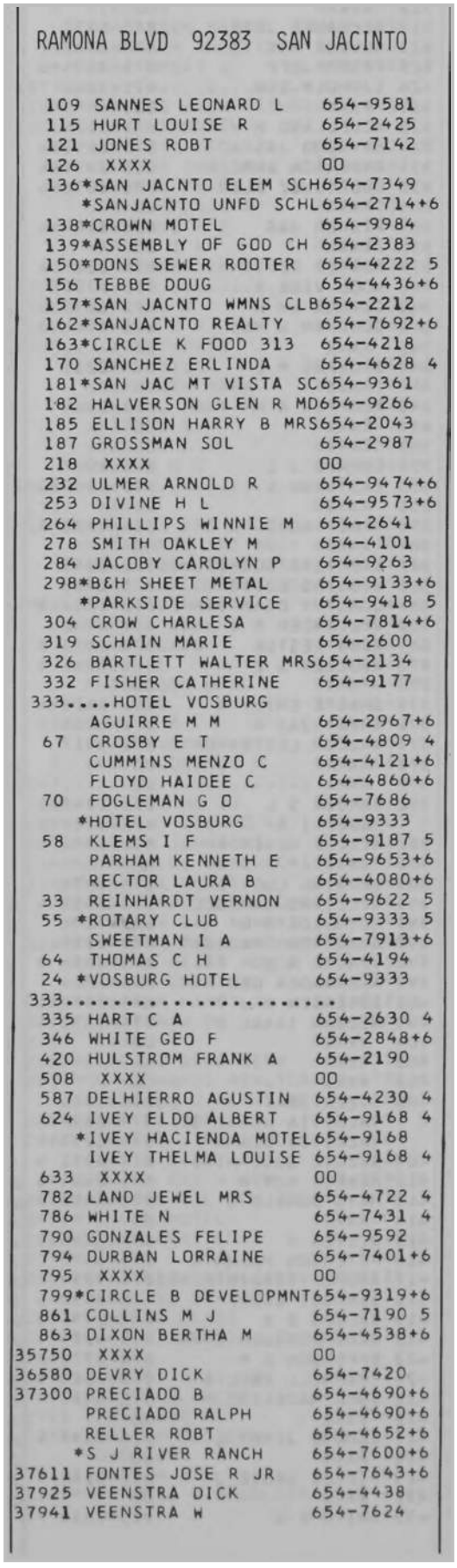
RECORD RD 92383 SAN JACINTO

38670	SMITH HAROLD	654-9836	9
38680	EBERLE BETTY	654-7988	
38750	SEIP ALBERT L	654-2508	4
39000	XXXX	00	
39200	NEAL CHAS	654-4440	+0

★ 0 BUS 5 RES 1 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N RAMONA BLVD 1976

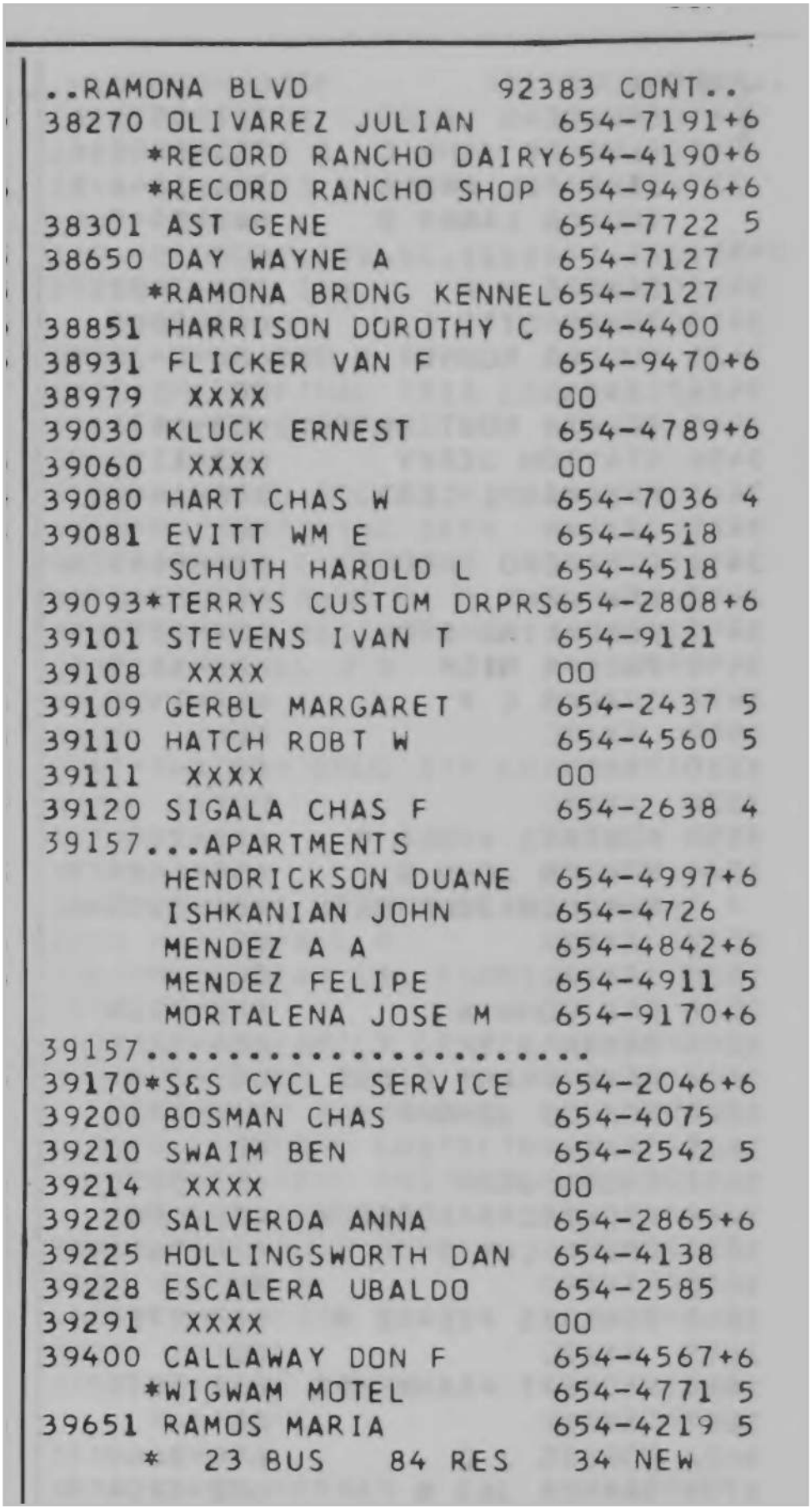


RAMONA BLVD 92383 SAN JACINTO

```
  109 SANNES LEONARD L    654-9581
  115 HURT LOUISE R       654-2425
  121 JONES ROBT          654-7142
  126  XXXX               OO
  136*SAN JACNTO ELEM SCH654-7349
     *SANJACNTO UNFD SCHL654-2714+6
  138*CROWN MOTEL         654-9984
  139*ASSEMBLY OF GOD CH  654-2383
  150*DONS SEWER ROOTER   654-4222 5
  156 TEBBE DOUG          654-4436+6
  157*SAN JACNTO WMNS CLB654-2212
  162*SANJACNTO REALTY    654-7692+6
  163*CIRCLE K FOOD 313   654-4218
  170 SANCHEZ ERLINDA     654-4628 4
  181*SAN JAC MT VISTA SC654-9361
  182 HALVERSON GLEN R MD654-9266
  185 ELLISON HARRY B MRS654-2043
  187 GROSSMAN SOL        654-2987
  218  XXXX               OO
  232 ULMER ARNOLD R      654-9474+6
  253 DIVINE H L          654-9573+6
  264 PHILLIPS WINNIE M   654-2641
  278 SMITH OAKLEY M      654-4101
  284 JACOBY CAROLYN P    654-9263
  298*B&H SHEET METAL     654-9133+6
     *PARKSIDE SERVICE    654-9418 5
  304 CROW CHARLESA       654-7814+6
  319 SCHAIN MARIE        654-2600
  326 BARTLETT WALTER MRS654-2134
  332 FISHER CATHERINE    654-9177
333....HOTEL VOSBURG
      AGUIRRE M M         654-2967+6
   67 CROSBY E T          654-4809 4
      CUMMINS MENZO C     654-4121+6
      FLOYD HAIDEE C      654-4860+6
   70 FOGLEMAN G O        654-7686
     *HOTEL VOSBURG       654-9333
   58 KLEMS I F           654-9187 5
      PARHAM KENNETH E    654-9653+6
      RECTOR LAURA B      654-4080+6
   33 REINHARDT VERNON    654-9622 5
   55 *ROTARY CLUB        654-9333 5
      SWEETMAN I A        654-7913+6
   64 THOMAS C H          654-4194
   24 *VOSBURG HOTEL      654-9333
333.........................
  335 HART C A            654-2630 4
  346 WHITE GEO F         654-2848+6
  420 HULSTROM FRANK A    654-2190
  508  XXXX               OO
  587 DELHIERRO AGUSTIN   654-4230 4
  624 IVEY ELDO ALBERT    654-9168 4
     *IVEY HACIENDA MOTEL654-9168
      IVEY THELMA LOUISE 654-9168 4
  633  XXXX               OO
  782 LAND JEWEL MRS      654-4722 4
  786 WHITE N             654-7431 4
  790 GONZALES FELIPE     654-9592
  794 DURBAN LORRAINE     654-7401+6
  795  XXXX               OO
  799*CIRCLE B DEVELOPMNT654-9319+6
  861 COLLINS M J         654-7190 5
  863 DIXON BERTHA M      654-4538+6
35750  XXXX               OO
36580 DEVRY DICK          654-7420
37300 PRECIADO B          654-4690+6
      PRECIADO RALPH      654-4690+6
      RELLER ROBT         654-4652+6
     *S J RIVER RANCH     654-7600+6
37611 FONTES JOSE R JR    654-7643+6
37925 VEENSTRA DICK       654-4438
37941 VEENSTRA W          654-7624
```

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

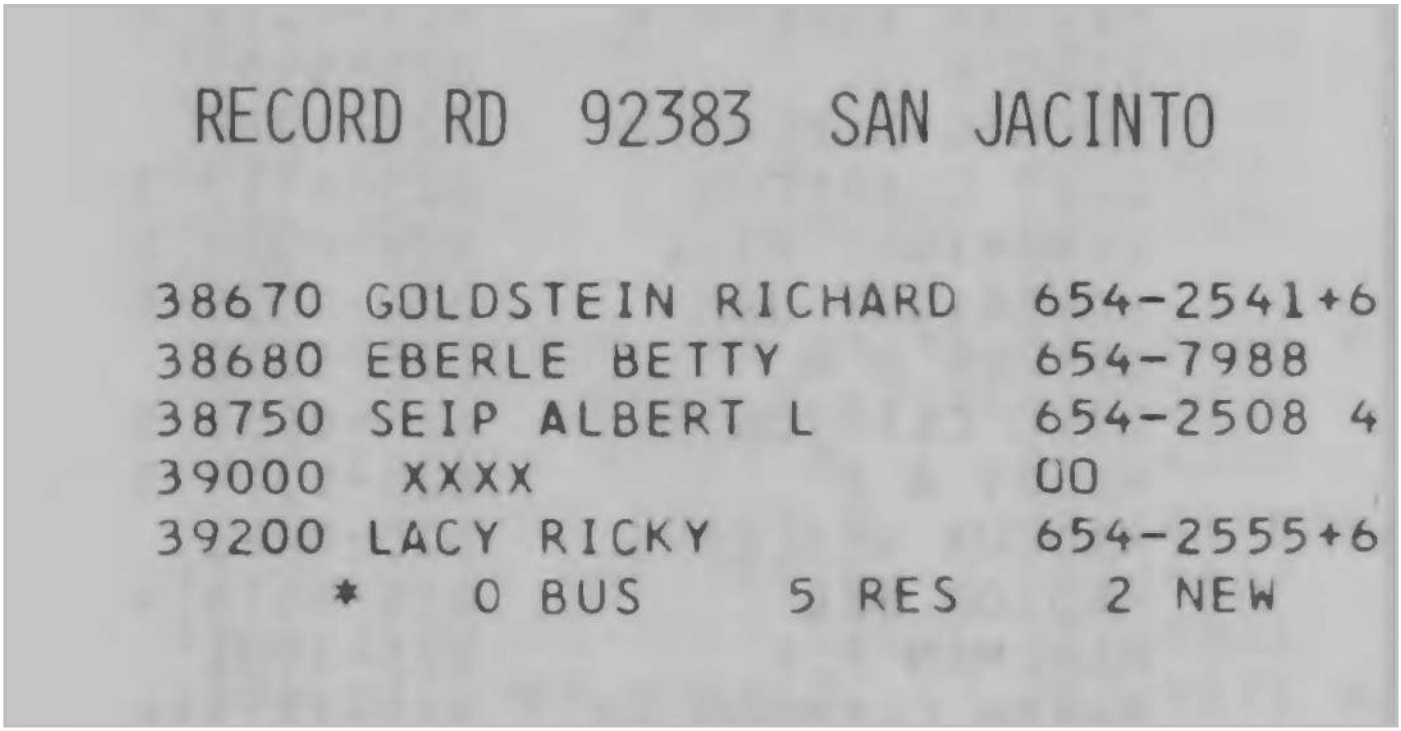
N RAMONA BLVD 1976



```
..RAMONA BLVD              92383 CONT..
38270 OLIVAREZ JULIAN      654-7191+6
     *RECORD RANCHO DAIRY  654-4190+6
     *RECORD RANCHO SHOP   654-9496+6
38301 AST GENE             654-7722 5
38650 DAY WAYNE A          654-7127
     *RAMONA BRDNG KENNEL  654-7127
38851 HARRISON DOROTHY C   654-4400
38931 FLICKER VAN F        654-9470+6
38979  XXXX                OO
39030 KLUCK ERNEST         654-4789+6
39060  XXXX                OO
39080 HART CHAS W          654-7036 4
39081 EVITT WM E           654-4518
      SCHUTH HAROLD L      654-4518
39093*TERRYS CUSTOM DRPRS  654-2808+6
39101 STEVENS IVAN T       654-9121
39108  XXXX                OO
39109 GERBL MARGARET       654-2437 5
39110 HATCH ROBT W         654-4560 5
39111  XXXX                OO
39120 SIGALA CHAS F        654-2638 4
39157...APARTMENTS
      HENDRICKSON DUANE    654-4997+6
      ISHKANIAN JOHN       654-4726
      MENDEZ A A           654-4842+6
      MENDEZ FELIPE        654-4911 5
      MORTALENA JOSE M     654-9170+6
39157.....................
39170*S&S CYCLE SERVICE    654-2046+6
39200 BOSMAN CHAS          654-4075
39210 SWAIM BEN            654-2542 5
39214  XXXX                OO
39220 SALVERDA ANNA        654-2865+6
39225 HOLLINGSWORTH DAN    654-4138
39228 ESCALERA UBALDO      654-2585
39291  XXXX                OO
39400 CALLAWAY DON F       654-4567+6
     *WIGWAM MOTEL         654-4771 5
39651 RAMOS MARIA          654-4219 5
     *  23 BUS   84 RES   34 NEW
```

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

RECORD RD 1976



RECORD RD 92383 SAN JACINTO

38670 GOLDSTEIN RICHARD 654-2541+6
38680 EBERLE BETTY 654-7988
38750 SEIP ALBERT L 654-2508 4
39000 XXXX 00
39200 LACY RICKY 654-2555+6
* 0 BUS 5 RES 2 NEW

San Jacinto Irrigation Channel
Not Reported
San Jacinto, CA 92582

Inquiry Number: 7466759.5
October 13, 2023

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2020	☑	☐	EDR Digital Archive
2017	☑	☐	Cole Information
2014	☑	☐	Cole Information
2010	☑	☐	Cole Information
2005	☑	☐	Cole Information
2000	☑	☐	Cole Information
1995	☑	☐	Cole Information
1992	☐	☐	Cole Information
1990	☐	☐	Haines Criss-Cross Directory
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1976	☐	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Not Reported
San Jacinto, CA 92582

Year	*CD Image*	*Source*	

N SANDERSON AVE

2020	pg A1	EDR Digital Archive	
2017	pg A2	Cole Information	
2014	pg A3	Cole Information	
2010	pg A4	Cole Information	
2005	pg A5	Cole Information	
2000	pg A6	Cole Information	
1995	pg A7	Cole Information	
1992	-	Cole Information	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1985	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1980	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1976	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

N SANDERSON AVE 2020

327	HORTENCIA SANDOVAL
	TARI TORRES
	TARIACURI AVALOS
775	BOB IPARAGUIRRE
	JENNIE IPARAGUIRRE
805	CALIFORNIA EQUINE RETIRE FNDTN
1727	KAREN BROWNE
	KENNETH BROWNE
2070	ATM

Target Street	Cross Street	Source
✓	-	Cole Information

N SANDERSON AVE 2017

327	AVALOS, TARIACURI T
805	ARD, CAROLINE L
	THE CALIFORNIA EQUINE RETIREMENT FOU
1727	BROWNE, KENNETH A

Target Street	Cross Street	Source
✓	-	Cole Information

N SANDERSON AVE 2014

327	SANDOVAL, HORTENCIA
805	MATOS, GERARDO
1225	OCCUPANT UNKNOWN,
1315	PEREZ, S
1727	BROWNE, KENNETH A

Target Street	Cross Street	Source
✓	-	Cole Information

N SANDERSON AVE 2010

327	WILLIAMS, LINDA S
775	IPARAGUIRRE, BOB
	JO LAND & CATTLE CO
805	OCCUPANT UNKNOWN,
981	CARRERA, SJAC
	DUNCAN, KATHARINE R
1225	HENRY, RONDA S
1315	PEREZ, HILARIO

Target Street	Cross Street	Source
✓	-	Cole Information

N SANDERSON AVE 2005

775	OCCUPANT UNKNOWN,
870	WESTRA, JOHN J
981	CARRERA, MARIA M
	DUNCAN, KATHARINE R
1225	HENRY, RONDA S
1315	PEREZ, HILARIO
1380	WESTRA, JOHN J
2070	MIA VIA PIZZA
	MOBIL SUBWAY
	SANDERSON MOBIL

Target Street	Cross Street	Source
✓	-	Cole Information

N SANDERSON AVE 2000

327 HURST, GORDON D
2070 MIA VIA PIZZA
SANDERSON MOBIL
SANDERSONS SUBWAY

Target Street	Cross Street	Source
✓	-	Cole Information

N SANDERSON AVE 1995

327	HURST, CATHY
805	WIND MACHINE SALES & SVC

APPENDIX F

EDR Radius Map Report with GeoCheck®

Proposed Irrigation Channel Orange
Not Reported
San Jacinto, CA 92582

Inquiry Number: 7466753.2s
October 11, 2023

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NOT REPORTED
SAN JACINTO, CA 92582

COORDINATES

Latitude (North):	33.8135990 - 33° 48' 48.95''
Longitude (West):	117.0207350 - 117° 1' 14.64''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	498080.9
UTM Y (Meters):	3741294.8
Elevation:	1460 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12015891 LAKEVIEW, CA
Version Date:	2018
East Map:	12002892 SAN JACINTO, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20200422
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NOT REPORTED
SAN JACINTO, CA 92582

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	PROPOSED HIGH SCHOOL	RAMONA BOULEVARD/CAW	ENVIROSTOR, SCH	Higher	1 ft.
A2	PROPOSED HIGH SCHOOL	RAMONA BOULEVARD/CAW	CERS	Higher	1 ft.
B3	EASTERN MUN WATER DI	22251 SANDERSON	FINDS, ECHO	Higher	1 ft.
B4	EASTERN MUN WATER DI	22251 SANDERSON	CERS	Higher	1 ft.
5	BETTY GOEDHART	2004 N. RAMONA BLVD.	RCRA NonGen / NLR	Higher	521, 0.099, ENE
C6	QUALITY TURF INC	2720 W RAMONA EXPY	RCRA NonGen / NLR	Lower	1260, 0.239, North
C7	QUALITY TURF	2720 W RAMONA EXPRES	AST	Lower	1260, 0.239, North
D8	MOBIL SAN JACINTO	2070 SANDERSON	LUST	Higher	2439, 0.462, ENE
D9	SAN JACINTO MOBIL	2070 N SANDERSON AVE	LUST, Cortese, CERS	Higher	2439, 0.462, ENE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE	California Environmental Reporting System Hazardous Waste
US CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations

EXECUTIVE SUMMARY

FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
MINES MRDS	Mineral Resources Data System
ABANDONED MINES	Abandoned Mines
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TRIS	List of PFAS Added to the TRI
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
BIOSOLIDS	ICIS-NPDES Biosolids Facility Data
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CHROME PLATING	Chrome Plating Facilities Listing
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	Inspection, Compliance and Enforcement
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HWTS	Hazardous Waste Tracking System
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
HAZMAT	Hazardous Material Facilities
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)

OTHER OIL GAS..... OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS..... PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT..... SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ..... Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR Hist Auto..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/24/2023 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PROPOSED HIGH SCHOOL	***RAMONA BOULEVARD/CAW***	***0 - 1/8 (0.000 mi.)***	***A1***	***9***
Status: No Further Action Facility Id: 60000906				

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOBIL SAN JACINTO	2070 SANDERSON	ENE 1/4 - 1/2 (0.462 mi.)	D8	18
Database: RIVERSIDE CO. LUST, Date of Government Version: 07/10/2023 Facility Id: 200824216 Facility Status: 9				
SAN JACINTO MOBIL	***2070 N SANDERSON AVE***	***ENE 1/4 - 1/2 (0.462 mi.)***	***D9***	***18***
Database: LUST, Date of Government Version: 06/05/2023 Status: Completed - Case Closed Global Id: T0606559384				

Lists of state and tribal registered storage tanks

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
QUALITY TURF	2720 W RAMONA EXPRES	N 1/8 - 1/4 (0.239 mi.)	C7	17
Database: AST, Date of Government Version: 07/06/2016				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

SCH: This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category. depending on the level of threat to public health and safety or the. environment they pose.

A review of the SCH list, as provided by EDR, and dated 04/24/2023 has revealed that there is 1 SCH

site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PROPOSED HIGH SCHOOL	***RAMONA BOULEVARD/CAW***	***0 - 1/8 (0.000 mi.)***	***A1***	***9***
Facility Id: 60000906				
Status: No Further Action				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 07/24/2023 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
BETTY GOEDHART	2004 N. RAMONA BLVD.	ENE 0 - 1/8 (0.099 mi.)	5	13
EPA ID:: CAC003186284				

Lower Elevation	Address	Direction / Distance	Map ID	Page
QUALITY TURF INC	2720 W RAMONA EXPY	N 1/8 - 1/4 (0.239 mi.)	C6	15
EPA ID:: CAL000257542				

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 05/04/2023 has revealed that there is 1 FINDS site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EASTERN MUN WATER DI	***22251 SANDERSON***	***0 - 1/8 (0.000 mi.)***	***B3***	***12***
Registry ID:: 110000517664				

ECHO: ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

A review of the ECHO list, as provided by EDR, and dated 06/24/2023 has revealed that there is 1 ECHO site within approximately 0.001 miles of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EASTERN MUN WATER DI	***22251 SANDERSON***	***0 - 1/8 (0.000 mi.)***	***B3***	***12***
Registry ID: 110000517664				

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 06/14/2023 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SAN JACINTO MOBIL	***2070 N SANDERSON AVE***	***ENE 1/4 - 1/2 (0.462 mi.)***	***D9***	***18***
Cleanup Status: COMPLETED - CASE CLOSED				

CERS: The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

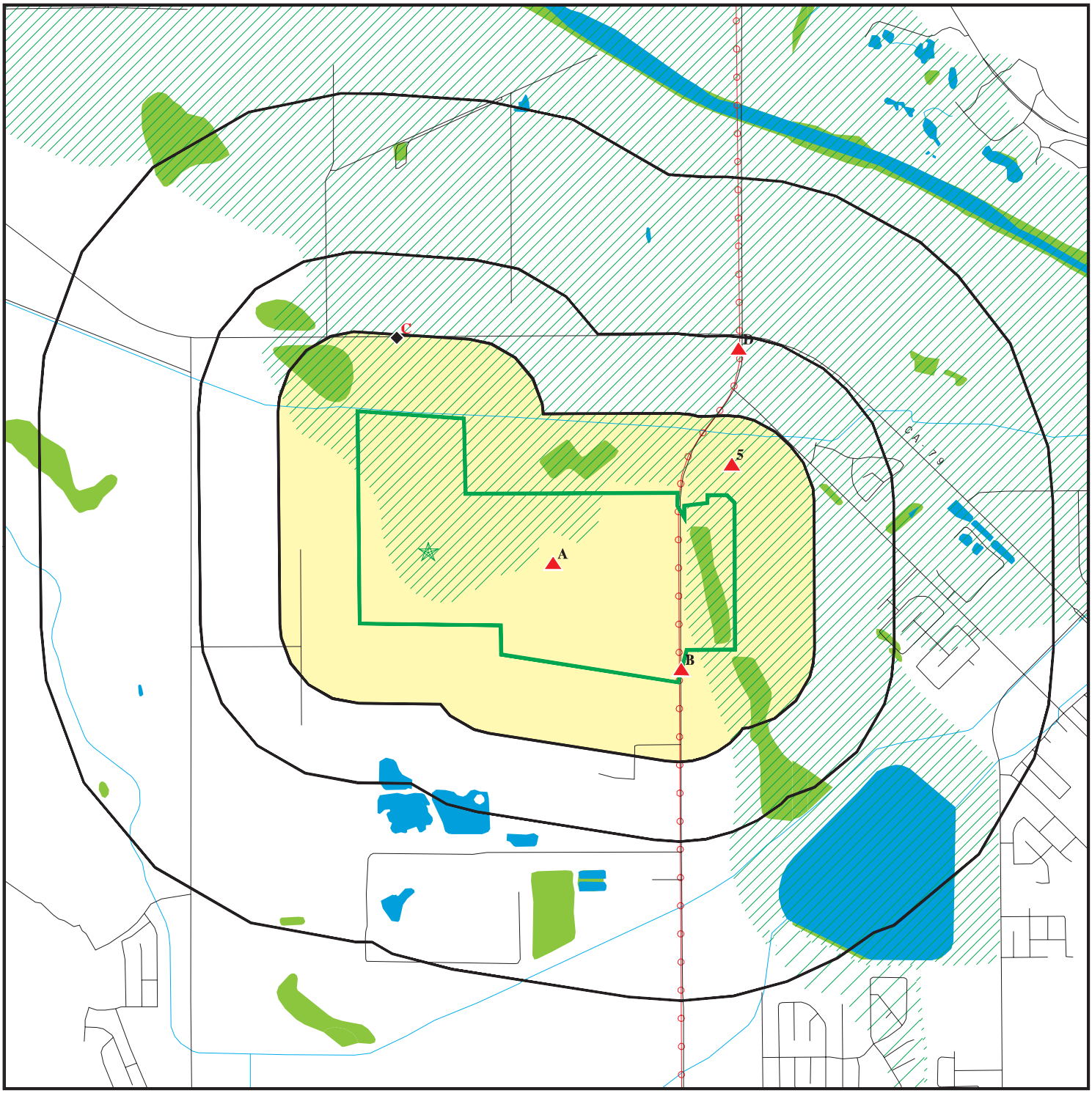
A review of the CERS list, as provided by EDR, and dated 07/17/2023 has revealed that there are 2 CERS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PROPOSED HIGH SCHOOL	RAMONA BOULEVARD/CAW	0 - 1/8 (0.000 mi.)	A2	12
EASTERN MUN WATER DI	22251 SANDERSON	0 - 1/8 (0.000 mi.)	B4	13

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7466753.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Proposed Irrigation Channel Orange	CLIENT:	Roux Associates
ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
LAT/LONG:	33.813599 / 117.020735	INQUIRY #:	7466753.2s
		DATE:	October 11, 2023 9:18 am

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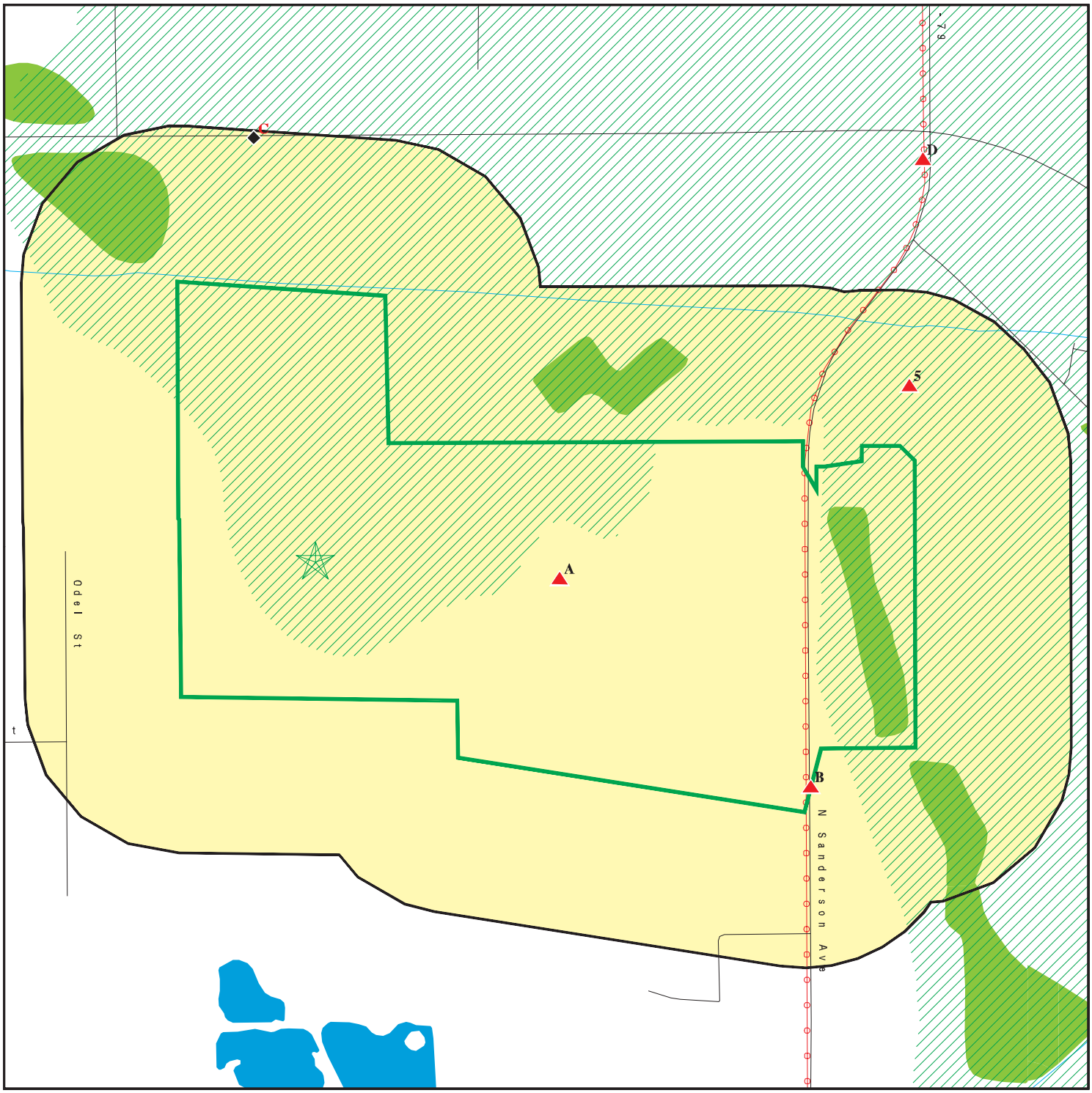
DETAIL MAP - 7466753.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

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ADDRESS: Not Reported San Jacinto CA 92582	CONTACT: Jay Vargas
LAT/LONG: 33.813599 / 117.020735	INQUIRY #: 7466753.2s DATE: October 11, 2023 9:19 am

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		1	0	0	0	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	2	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	1	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		1	0	NR	NR	NR	1
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	1	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
MINES MRDS	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		1	NR	NR	NR	NR	1
ECHO	0.001		1	NR	NR	NR	NR	1
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS TRIS	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
BIOSOLIDS	0.001		0	NR	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
CHROME PLATING	0.500		0	0	0	NR	NR	0
Cortese	0.500		0	0	1	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWTS	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		2	NR	NR	NR	NR	2
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	7	2	3	0	0	12

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT** **ENVIROSTOR** **S109149563**
RAMONA BOULEVARD/CAWSTON AVENUE **SCH** **N/A**
< 1/8 **SAN JACINTO, CA 92582**
1 ft.

Site 1 of 2 in cluster A

Relative: **Higher**

Actual: **1463 ft.**

ENVIROSTOR:

Name:	PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO
Address:	RAMONA BOULEVARD/CAWSTON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Facility ID:	60000906
Status:	No Further Action
Status Date:	09/24/2008
Site Code:	404801
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	61
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.81317
Longitude:	-117.0139
APN:	432-030-006, 432-030-010, 432030006, 432030010
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Under Investigation
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE
Alias Name:	432-030-006
Alias Type:	APN
Alias Name:	432-030-010
Alias Type:	APN
Alias Name:	432030006
Alias Type:	APN
Alias Name:	432030010
Alias Type:	APN
Alias Name:	404801
Alias Type:	Project Code (Site Code)
Alias Name:	60000906
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	07/02/2008
Comments:	DTSC approved the Workplan for implementation provided DTSC comments are incorporated in future work/reports.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report

PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO (Continued) **S109149563**

Completed Date:	09/17/2008
Comments:	DTSC approved the PEA with a No Further Action determination
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	06/09/2008
Comments:	Signed agreement sent (FedEx) to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	09/18/2008
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO
Address:	RAMONA BOULEVARD/CAWSTON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Facility ID:	60000906
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	61
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404801
Assembly:	60
Senate:	31
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	09/24/2008
Restricted Use:	NO
Funding:	School District
Latitude:	33.81317
Longitude:	-117.0139
APN:	432-030-006, 432-030-010, 432030006, 432030010
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Under Investigation
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE

PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO (Continued) **S109149563**

Alias Name: 432-030-006
Alias Type: APN
Alias Name: 432-030-010
Alias Type: APN
Alias Name: 432030006
Alias Type: APN
Alias Name: 432030010
Alias Type: APN
Alias Name: 404801
Alias Type: Project Code (Site Code)
Alias Name: 60000906
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 07/02/2008
Comments: DTSC approved the Workplan for implementation provided DTSC comments are incorporated in future work/reports.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/17/2008
Comments: DTSC approved the PEA with a No Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 06/09/2008
Comments: Signed agreement sent (FedEx) to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 09/18/2008
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

A2 **PROPOSED HIGH SCHOOL** **CERS** **S128629885**
RAMONA BOULEVARD/CAWSTON AVENUE **N/A**
< 1/8 **SAN JACINTO, CA 92582**
1 ft.

Site 2 of 2 in cluster A

Relative: Higher
Actual: 1463 ft.

CERS:

Name:	PROPOSED HIGH SCHOOL
Address:	RAMONA BOULEVARD/CAWSTON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Site ID:	609495
CERS ID:	60000906
CERS Description:	School Investigation

Affiliation:

Affiliation Type Desc:	Supervisor
Entity Name:	Shahir Haddad
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

B3 **EASTERN MUN WATER DIST** **FINDS** **1004442898**
22251 SANDERSON **ECHO** **N/A**
< 1/8 **SAN JACINTO, CA 92582**
1 ft.

Site 1 of 2 in cluster B

Relative: Higher
Actual: 1474 ft.

FINDS:
Registry ID: 110000517664

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
THE EMISSION INVENTORY SYSTEM (EIS) MAINTAINS AN INVENTORY OF LARGE STATIONARY SOURCES AND VOLUNTARILY-REPORTED SMALLER SOURCES OF AIR POINT POLLUTANT EMITTERS. IT CONTAINS INFORMATION ABOUT FACILITY SITES AND THEIR PHYSICAL LOCATION, EMISSIONS UNITS, EMISSIONS PROCESSES, RELEASE POINTS, CONTROL APPROACHES, AND REGULATIONS. FACILITY INVENTORY DATA ARE KEPT SEPARATE FROM THE EMISSIONS DATA AND HAVE STABLE IDENTIFIERS TO IMPROVE CONTINUITY FROM YEAR TO YEAR AND TO HELP IDENTIFY DUPLICATE OR MISSING FACILITIES
The Resource Conservation and Recovery Act Information System (RCRAInfo) is EPA's comprehensive information system in support of the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. It tracks many types of information about generators, transporters, treaters, storers, and disposers of hazardous waste.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004442898
Registry ID:	110000517664
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110000517664
Name:	EASTERN MUN WATER DIST

EASTERN MUN WATER DIST (Continued) **1004442898**

Address: 22251 SANDERSON
City,State,Zip: SAN JACINTO, CA 92582

B4 **EASTERN MUN WATER DIST** **CERS** **S123525468**
22251 SANDERSON **N/A**
< 1/8 **SAN JACINTO, CA 92582**
1 ft.

Site 2 of 2 in cluster B

Relative: CERS:
Higher
Name: EASTERN MUN WATER DIST
Actual: Address: 22251 SANDERSON
1474 ft. City,State,Zip: SAN JACINTO, CA 92582
Site ID: 465751
CERS ID: 110000517664
CERS Description: US EPA Air Emission Inventory System (EIS)

---

5 **BETTY GOEDHART** **RCRA NonGen / NLR** **1027448559**
ENE **2004 N. RAMONA BLVD.** **CAC003186284**
< 1/8 **SAN JACINTO, CA 92582**
0.099 mi.
521 ft.

Relative: RCRA Listings:
Higher
Date Form Received by Agency: 20220720
Actual: Handler Name: Betty Goedhart
1464 ft. Handler Address: 2004 N. RAMONA BLVD.
Handler City,State,Zip: SAN JACINTO, CA 92582
EPA ID: CAC003186284
Contact Name: ALEX RENE CASTELLANO
Contact Address: P.O.BOX 1351
Contact City,State,Zip: SAN JACINTO, CA 92581
Contact Telephone: 951-502-5853
Contact Fax: Not reported
Contact Email: LITTLETOWMAN@VERIZON.NET
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 1996 N. RAMONA BLVD.
Mailing City,State,Zip: SAN JACINTO, CA 92582
Owner Name: Betty Goedhart
Owner Type: Other
Operator Name: Alex Rene Castellano
Operator Type: Other
Short-Term Generator Activity: No
Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility Activity: No

BETTY GOEDHART (Continued) **1027448559**

Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
202 GPRA Corrective Action Baseline:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20220721
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: ALEX RENE CASTELLANO	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	P.O.BOX 1351
Owner/Operator City,State,Zip:	SAN JACINTO, CA 92581
Owner/Operator Telephone:	951-502-5853
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: BETTY GOEDHART	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	1996 N. RAMONA BLVD.
Owner/Operator City,State,Zip:	SAN JACINTO, CA 92582

BETTY GOEDHART (Continued) **1027448559**

Owner/Operator Telephone: 951-502-5853
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20220720
Handler Name: BETTY GOEDHART
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 336212
NAICS Description: TRUCK TRAILER MANUFACTURING

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C6 **QUALITY TURF INC** **RCRA NonGen / NLR** **1024804323**
North **2720 W RAMONA EXPY** **CAL000257542**
1/8-1/4 **SAN JACINTO, CA 92582**
0.239 mi.
1260 ft. **Site 1 of 2 in cluster C**

Relative: **Lower**
Actual: **1454 ft.**

RCRA Listings:
Date Form Received by Agency: 20020813
Handler Name: Quality Turf Inc
Handler Address: 2720 W RAMONA EXPY
Handler City,State,Zip: SAN JACINTO, CA 92582
EPA ID: CAL000257542
Contact Name: RALPH DAILY
Contact Address: PO BOX 1330
Contact City,State,Zip: SAN JACINTO, CA 92581
Contact Telephone: 951-538-1416
Contact Fax: 951-654-3541
Contact Email: AP@QTURF.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Handler Activities

QUALITY TURF INC (Continued) **1024804323**

State District Owner:	Not reported
State District:	Not reported
Mailing Address:	PO BOX 1330
Mailing City,State,Zip:	SAN JACINTO, CA 92581-1330
Owner Name:	Quality Turf Inc
Owner Type:	Other
Operator Name:	Ralph Daily
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
202 GPRA Corrective Action Baseline:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20181120
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: RALPH DAILY	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	PO BOX 1330

QUALITY TURF INC (Continued) **1024804323**

Owner/Operator City,State,Zip: SAN JACINTO, CA 92581
Owner/Operator Telephone: 951-538-1416
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: QUALITY TURF INC
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: PO BOX 1330
Owner/Operator City,State,Zip: SAN JACINTO, CA 92581-1330
Owner/Operator Telephone: 951-538-1416
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20020813
Handler Name: QUALITY TURF INC
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: Not reported
Recognized Trader Exporter: Not reported
Spent Lead Acid Battery Importer: Not reported
Spent Lead Acid Battery Exporter: Not reported
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 23599
NAICS Description: ALL OTHER SPECIAL TRADE CONTRACTORS

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C7 **QUALITY TURF** **AST** **A100423644**
North **2720 W RAMONA EXPRESS WY** **N/A**
1/8-1/4 **SAN JACINTO, CA 92582**
0.239 mi.
1260 ft. **Site 2 of 2 in cluster C**

Relative: AST:
Lower
Actual: Name: QUALITY TURF
1454 ft. Address: 2720 W RAMONA EXPRESS WY
City/Zip: SAN JACINTO,92582
Certified Unified Program Agencies: Not reported
Owner: Ralph Daily
Total Gallons: Not reported

QUALITY TURF (Continued) **A100423644**

CERSID:	10325680
Facility ID:	Not reported
Business Name:	Quality Turf
Phone:	9515381416
Fax:	Not reported
Mailing Address:	PO Box 1330
Mailing Address City:	San Jacinto
Mailing Address State:	CA
Mailing Address Zip Code:	92581
Operator Name:	Ralph Daily
Operator Phone:	9515381416
Owner Phone:	9516547721
Owner Mail Address:	PO Box 1330
Owner State:	CA
Owner Zip Code:	92581
Owner Country:	United States
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	CAL000257542

D8 **MOBIL SAN JACINTO** **LUST** **S109117798**
ENE **2070 SANDERSON** **N/A**
1/4-1/2 **SAN JACINTO, CA**
0.462 mi.
2439 ft. **Site 1 of 2 in cluster D**

Relative: RIVERSIDE CO. LUST:
Higher

Name:	MOBIL SAN JACINTO
Address:	2070 SANDERSON
City,State,Zip:	SAN JACINTO, CA
Region:	RIVERSIDE
Facility ID:	200824216
Employee:	Shurlow-LOP
Site Closed:	Yes
Case Type:	Soil only
Facility Status:	closed/action completed
Casetype Decode:	Soil only is impacted
Fstatus Decode:	Closed/Action completed

Actual:
1463 ft.

D9 **SAN JACINTO MOBIL** **LUST** **S108754562**
ENE **2070 N SANDERSON AVE.** **Cortese** **N/A**
1/4-1/2 **SAN JACINTO, CA 92582** **CERS**
0.462 mi.
2439 ft. **Site 2 of 2 in cluster D**

Relative: LUST:
Higher

Name:	SAN JACINTO MOBIL
Address:	2070 N SANDERSON AVE.
City,State,Zip:	SAN JACINTO, CA 92582
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site

Actual:
1463 ft.

SAN JACINTO MOBIL (Continued) **S108754562**

Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606559384
Global Id:	T0606559384
Latitude:	33.823151
Longitude:	-117.003994
Status:	Completed - Case Closed
Status Date:	05/27/2010
Case Worker:	Not reported
RB Case Number:	Not reported
Local Agency:	Not reported
File Location:	Local Agency Warehouse
Local Case Number:	200824216
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline, Diesel, Waste Oil / Motor / Hydraulic / Lubricating
EPA Region:	9
Coordinate Source:	Google Geocode
Cuf Case:	NO
Quantity Released Gallons:	Not reported
Begin Date:	02/15/2008
Leak Reported Date:	02/15/2008
How Discovered:	Tank Closure
How Discovered Description:	Not reported
Discharge Source:	Other
Discharge Cause:	Unknown
Stop Method:	Close and Remove Tank
Stop Description:	Not reported
No Further Action Date:	05/27/2010
CA Water Watershed Name:	San Jacinto Valley - San Jacinto - Gilman Hot Springs (802.21)
Dwr Groundwater Subbasin Name:	San Jacinto (8-005)
Disadvantaged Community:	Not reported
CA Enviroscreen 3 Score:	76-80%
CA Enviroscreen 4 Score:	65-70%
Military DOD Site:	No
Facility Project Subtype:	Not reported
RWQCB Region:	SANTA ANA RWQCB (REGION 8)
Site History:	A phase II environmental assessment was completed September 20-21, 2007, for the sale of the property to the County Dept. of Transportation in order to widen the road. 11 borings were geoprobed to 20 . Groundwater was encountered at 13 . 2 grab samples were taken from B-4 near the UST s and B-11 near the dispenser islands. TPHg was detected in 4 borings. B1 at 5 had 203 ppm TPH in the C11-C22 range and 74 ppm in the C-23 to C35 range. B4 at 5 had 47.3J ppm TPH in the C23-C35 range. B6 at 5 had 33.4J ppm TPH in the C23-C35 range. B8 at 5 had 77.3 ppm TPH in the C23-C35 range. No TPH or BTEX was detected in the grab water samples. 2 gasoline and 1 diesel tank were removed January 25, 2008. MTBE was detected under 4 of the dispensers and piping at 2 and 4 at 6.5, 5.5, 8.6 and 7.2 ppb and at 6 under the tank at 6.5 ppb. On July 31, 2008, 7 boreholes were advanced using geoprobes. Soil samples were taken at 10, 13 and 15 . Groundwater was encountered at 13 . Groundwater samples were taken. 3 additional borings were advanced with no soil sampling; only groundwater samples were taken. No TPHg or TPHd was detected in any of the soil samples. One sample showed 0.9 ppm MTBE. TPHg was detected in 3 of the 11 g.w. samples at 42.2J, 259, and 19.0 ppb. No benzene or TPHd was detected in the g.w. Toluene was detected in 2 g.w. samples at 0.82 and 2.12 ppb. Ethylbenzene was detected in 3 samples at 0.64, 4.88, and 0.43J ppb. Xylenes were detected at 3,93, 20.48 and 2.04 ppb. MTBE was detected in 4 samples from 0.57J to 1.99 ppb. Naphthalene was

SAN JACINTO MOBIL (Continued) **S108754562**

detected a6t 7.93 ppb, 124-TMB was detected at 32.6 and 135-TMB was detected at 8.39 ppb. The only chemical which exceeded the MCL were naphthalene with a MCL of 0.14 ppb and 1,2,4-TMB with a MCL of 15 ppb. The RCDEH and SARWQCB both required permanent wells be installed. Ken Williams of the SARWQCB agree to two groundwater sampling events before closure could be considered. Three wells were installed June 30, 2009 to 20 . Groundwater was encountered at ~10 . The wells were screened from 5-20 . No TPHg, VOC s or oxygenates were detected in the soils. The wells were sampled July 13, 2009 and again on September 16, 2009. No TPHg, VOC s or oxygenates were detected in either sampling event. The case was closed on 5/6/2010. No further action required.

LUST:

Global Id:	T0606559384
Action Type:	ENFORCEMENT
Date:	02/15/2008
Action:	Staff Letter - #021508
Global Id:	T0606559384
Action Type:	ENFORCEMENT
Date:	05/04/2009
Action:	Staff Letter - #Riv Co 050409
Global Id:	T0606559384
Action Type:	RESPONSE
Date:	04/15/2008
Action:	Preliminary Site Assessment Report
Global Id:	T0606559384
Action Type:	ENFORCEMENT
Date:	09/17/2008
Action:	Staff Letter
Global Id:	T0606559384
Action Type:	ENFORCEMENT
Date:	12/11/2008
Action:	Staff Letter - #RCDEH121108
Global Id:	T0606559384
Action Type:	ENFORCEMENT
Date:	01/28/2008
Action:	Other Report - #Soil analytical results
Global Id:	T0606559384
Action Type:	Other
Date:	02/15/2008
Action:	Leak Reported
Global Id:	T0606559384
Action Type:	RESPONSE
Date:	03/01/2010
Action:	Well Destruction Report
Global Id:	T0606559384
Action Type:	RESPONSE
Date:	07/03/2009
Action:	Well Installation Report

SAN JACINTO MOBIL (Continued) **S108754562**

Global Id: T0606559384
Action Type: ENFORCEMENT
Date: 05/06/2010
Action: Closure/No Further Action Letter - #RCDEH Closure

Global Id: T0606559384
Action Type: Other
Date: 02/15/2008
Action: Leak Discovery

Global Id: T0606559384
Action Type: Other
Date: 01/25/2008
Action: Leak Stopped

Global Id: T0606559384
Action Type: RESPONSE
Date: 10/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0606559384
Action Type: ENFORCEMENT
Date: 08/05/2009
Action: Staff Letter - #Riv Co 080509

Global Id: T0606559384
Action Type: ENFORCEMENT
Date: 12/21/2009
Action: Staff Letter - #RCDEH 122109

Global Id: T0606559384
Action Type: RESPONSE
Date: 02/01/2009
Action: Well Installation Report

LUST:
Global Id: T0606559384
Status: Open - Case Begin Date
Status Date: 02/15/2008

Global Id: T0606559384
Status: Open - Site Assessment
Status Date: 02/15/2008

Global Id: T0606559384
Status: Open - Site Assessment
Status Date: 04/25/2008

Global Id: T0606559384
Status: Completed - Case Closed
Status Date: 05/27/2010

CORTESE:
Name: SAN JACINTO MOBIL
Address: 2070 N SANDERSON AVE.

SAN JACINTO MOBIL (Continued) **S108754562**

City,State,Zip:	SAN JACINTO, CA 92582
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606559384
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	SAN JACINTO MOBIL
Address:	2070 N SANDERSON AVE.
City,State,Zip:	SAN JACINTO, CA 92582
Site ID:	682274
CERS ID:	T0606559384
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Count: 0 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 06/23/2023
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 09/20/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/26/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/03/2023
Date Data Arrived at EDR: 08/07/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 64

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/02/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 62

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 62

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/12/2023
Date Data Arrived at EDR: 06/20/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 55

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/08/2023
Date Data Arrived at EDR: 05/08/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 84

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84
Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/14/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/19/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/19/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 03/08/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 05/30/2023
Number of Days to Update: 82

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 05/31/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/19/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/14/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/14/2023
Date Data Arrived at EDR: 06/14/2023
Date Made Active in Reports: 09/06/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 04/06/2023
Date Data Arrived at EDR: 04/13/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 08/30/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 83

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/27/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 48
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 71
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/15/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: California Environmental Reporting System Hazardous Waste

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/06/2023
Number of Days to Update: 80

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 48

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 77

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/06/2023
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/06/2023
Date Data Arrived at EDR: 06/07/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 81

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/19/2023
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 09/20/2023
Number of Days to Update: 89

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/01/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 81

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/07/2023
Date Data Arrived at EDR: 08/15/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 56

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/09/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/01/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/19/2023
Date Data Arrived at EDR: 06/20/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/15/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 02/16/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 75

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/18/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 84

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/09/2023
Date Data Arrived at EDR: 06/29/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 09/26/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/20/2023
Date Data Arrived at EDR: 04/04/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 66

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/20/2023
Date Data Arrived at EDR: 09/01/2023
Date Made Active in Reports: 09/20/2023
Number of Days to Update: 19

Source: Nuclear Regulatory Commission
Telephone: 301-415-0717
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 04/14/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/01/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/28/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/22/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2023
Date Data Arrived at EDR: 07/19/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 83
Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11
Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/02/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 03/03/2023
Date Data Arrived at EDR: 03/03/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 98
Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74
Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/10/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18
Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/01/2023
Date Data Arrived at EDR: 05/24/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 61

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 82

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/24/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/24/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/13/2023
Date Data Arrived at EDR: 06/14/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 61

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/24/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 60

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/24/2023
Date Data Arrived at EDR: 06/29/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 09/13/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/17/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 54

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI

Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 09/23/2023
Date Data Arrived at EDR: 10/03/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits. Caveats and Limitations: Less than half of states have required PFAS monitoring for at least one of their permittees and fewer states have established PFAS effluent limits for permittees. New rulemakings have been initiated that may increase the number of facilities monitoring for PFAS in the future.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-267-2675
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: No Update Planned

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

BIOSOLIDS: ICIS-NPDES Biosolids Facility Data

The data reflects compliance information about facilities in the biosolids program.

Date of Government Version: 07/16/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-564-4700
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHROME PLATING: Chrome Plating Facilities Listing

This listing represents chrome plating facilities the California State Water Resources Control Board staff identified as possibly being a source of Per- and polyfluoroalkyl substance (PFAS) contamination. Sites and locations were identified by staff with the Division of Water Quality in the California State Water Board. Data was collected from the CA Air Resources Board 2013 and 2018 - Cr VI emission survey, CA Emission Inventory, CA HAZ Waste discharge database and by reviewing storm water permits. Former chrome plating sites are also included that are open site investigation or remediation cases with the Regional Water Quality Control Boards and the Department of Toxic Substances Control.

Date of Government Version: 06/08/2023
Date Data Arrived at EDR: 06/08/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 110

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/14/2023
Date Data Arrived at EDR: 06/14/2023
Date Made Active in Reports: 09/06/2023
Number of Days to Update: 84

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 03/31/2023
Date Data Arrived at EDR: 05/08/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 84

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/10/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

DRYCLEAN SACRAMENTO METO DIST: Sacramento Metropolitan Air Quality Management DistrictDrycleaner Facility Listing

A listing of drycleaner facility locations, for the Sacramento Metropolitan Air Quality Management District.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/19/2023
Number of Days to Update: 82

Source: Sacramento Metropolitan Air Quality Management District
Telephone: 916-874-3958
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN DIEGO CO DIST: San Diego County Air Pollution Control District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the San Diego County Air Pollution Control District.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1461

Source: San Diego County Air Pollution Control District
Telephone: 858-586-2616
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN JOAQ VAL DIST: San Joaquin Valley Air Pollution Control District District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the San Joaquin Valley Air Pollution Control District.

Date of Government Version: 05/24/2023
Date Data Arrived at EDR: 05/30/2023
Date Made Active in Reports: 08/21/2023
Number of Days to Update: 83

Source: San Joaquin Valley Air Pollution Control District
Telephone: 559-230-6001
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN EAST KERN DIST: Eastern Kern Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Eastern Kern Air Pollution Control District.

Date of Government Version: 01/12/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Eastern Kern Air Pollution Control District
Telephone: 661-862-9684
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN IMPERIAL CO DIST: Imperial County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Imperial County Air Pollution Control District

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Imperial County Air Pollution Control District
Telephone: 442-265-1800
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MENDO CO DIST: Mendocino County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mendocino County Air Quality Management District.

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 77

Source: Mendocino County Air Quality Management District
Telephone: 707-463-4354
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MOJAVE DESERT DIST: Mojave Desert Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mojave Desert Air Quality Management District.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Mojave Desert Air Quality Management District
Telephone: 760-245-1661
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MONTEREY BAY DIST: Monterey Bay Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Monterey Bay Air Quality Management District.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Monterey Bay Air Quality Management District
Telephone: 831-647-9411
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SHASTA CO DIST: Shasta County Air Quality Management District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Shasta County Air Quality Management District.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Shasta County Air Quality Management District
Telephone: 530-225-5674
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN YOLO-SOLANO DIST: Yolo-Solano Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Yolo-Solano Air Quality Management District.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Yolo-Solano Air Quality Management District
Telephone: 530-757-3650
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/24/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 82
Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

DRYCLEAN PLACER CO DIST: Placer County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Placer County Air Quality Management District.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/17/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 89
Source: Placer County Air Quality Management District
Telephone: 530-745-2335
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BAY AREA DIST: Bay Area Air Quality Management District Drycleaner Facility Listing
Bay Area Air Quality Management District Drycleaner Facility Listing.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1432
Source: Bay Area Air Quality Management District
Telephone: 415-516-1916
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BUTTE CO DIST: Butte County Air Quality Management DistrictDrycleaner Facility Listing
Butte County Air Quality Management DistrictDrycleaner Facility Listing.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1469
Source: Butte County Air Quality Management District
Telephone: 530-332-9400
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN CALAVERAS CO DIST: Calaveras County Environmental Management Agency Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Calaveras County Environmental Management Agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1412
Source: Calaveras County Environmental Management Agency
Telephone: 209-754-6399
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN GRANT: Grant Recipients List
Assembly Bill 998 (AB 998) established the Non-Toxic Dry Cleaning Incentive Program to provide financial assistance to the dry cleaning industry to switch from systems using perchloroethylene (Perc), an identified toxic air contaminant and potential human carcinogen, to non-toxic and non-smog forming alternatives.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 02/04/2021
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 816
Source: California Air Resources Board
Telephone: 916-323-0006
Last EDR Contact: 07/24/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

DRYCLEAN LAKE CO DIST: Lake County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Lake County Air Quality Management District,

Date of Government Version: 04/29/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Lake County Air Quality Management District
Telephone: 707-263-7000
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO COAST UNIFIED DIST: North Coast Unified Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the North Coast Unified Air Quality Management District.

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: North Coast Unified Air Quality Management District
Telephone: 707-443-3093
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO SIERRA DIST: Northern Sierra Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sierra Air Quality Management District,

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Northern Sierra Air Quality Management District
Telephone: 530-274-9350
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO SONOMA CO DIST: Norther Sonoma County County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sonoma County Air Pollution Control District.,

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 707-433-5911
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SANTA BARB CO DIST: Santa Barbara County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Santa Barbara County Air Pollution Control District.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 805-961-8867
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN LUIS OB CO DIST: San Luis Obispo County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Luis Obispo County Air Pollution Control District.

Date of Government Version: 04/23/2019
Date Data Arrived at EDR: 04/25/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1467
Source: San Luis Obispo County Air Pollution Control District
Telephone: 805-781-5756
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN TEHAMA CO DIST: Tehama County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Tehama County Air Pollution Control District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1468
Source: Tehama County Air Pollution Control District
Telephone: 530-527-3717
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN VENTURA CO DIST: Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Ventura County Air Pollution Control District.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Ventura County Air Pollution Control District
Telephone: 805-645-1421
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 05/17/2023
Date Data Arrived at EDR: 05/18/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 83

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

DRYCLEAN AMADOR: Amador Air District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Amador Air Quality Management District

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador Air Quality Management District
Telephone: 209-257-0112
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN GLENN CO DIST: Glenn County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Glenn County Air Pollution Control District.

Date of Government Version: 05/02/2023
Date Data Arrived at EDR: 05/03/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 83

Source: Glenn County Air Pollution Control District
Telephone: 530-934-6500
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Annually

DRYCLEAN FEATHER RIVER DIST: Feather River Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Feather River Air Quality Management District.

Date of Government Version: 03/08/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 06/05/2023
Number of Days to Update: 88

Source: Feather River Air Quality Management District
Telephone: 530-634-7659
Last EDR Contact: 06/08/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 06/09/2023
Date Made Active in Reports: 08/30/2023
Number of Days to Update: 82

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/15/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 79

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 09/13/2023
Date Data Arrived at EDR: 09/14/2023
Date Made Active in Reports: 09/21/2023
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 09/13/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

ICE: Inspection, Compliance and Enforcement

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/16/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 85

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/14/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/16/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 85

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/14/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 06/29/2023
Date Data Arrived at EDR: 06/29/2023
Date Made Active in Reports: 09/19/2023
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Quarterly

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/13/2023
Date Data Arrived at EDR: 04/18/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/08/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/08/2023
Date Data Arrived at EDR: 05/08/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/06/2023
Date Data Arrived at EDR: 06/07/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 79
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Annually

SANTA CRUZ CO SITE MITI: Site Mitigation Listing
Sites may become contaminated with toxic chemicals through illegal dumping or disposal, from leaking underground storage tanks, or through industrial or commercial activities.The goal of the site mitigation program is to protect the public health and the environment while facilitating completion of contaminated site clean-up projects in a timely manner.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 20
Source: Santa Cruz Environmental Health Services
Telephone: 831-454-2761
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/06/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/06/2023
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/27/2023
Date Data Arrived at EDR: 06/28/2023
Date Made Active in Reports: 09/14/2023
Number of Days to Update: 78

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List

Cupa Facility List

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/27/2023
Date Data Arrived at EDR: 06/28/2023
Date Made Active in Reports: 09/14/2023
Number of Days to Update: 78

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/20/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 77

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/10/2023
Date Data Arrived at EDR: 05/10/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 82

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 08/02/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/11/2023
Date Data Arrived at EDR: 07/12/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 76

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 07/26/2023
Date Data Arrived at EDR: 07/27/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 13

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/26/2023
Date Data Arrived at EDR: 07/27/2023
Date Made Active in Reports: 08/03/2023
Number of Days to Update: 7

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 05/31/2023
Number of Days to Update: 34

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 06/21/2023
Date Data Arrived at EDR: 06/28/2023
Date Made Active in Reports: 09/14/2023
Number of Days to Update: 78

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/10/2023
Date Data Arrived at EDR: 07/10/2023
Date Made Active in Reports: 09/27/2023
Number of Days to Update: 79

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/09/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/19/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/13/2023
Date Data Arrived at EDR: 07/13/2023
Date Made Active in Reports: 09/27/2023
Number of Days to Update: 76

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/20/2023
Date Data Arrived at EDR: 06/22/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 48

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/20/2023
Date Data Arrived at EDR: 06/22/2023
Date Made Active in Reports: 09/12/2023
Number of Days to Update: 82

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/02/2023
Date Data Arrived at EDR: 04/18/2023
Date Made Active in Reports: 07/07/2023
Number of Days to Update: 80

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/20/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/12/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 06/13/2023
Number of Days to Update: 42

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/21/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/05/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 81

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 9

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 9

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/01/2023
Date Data Arrived at EDR: 05/18/2023
Date Made Active in Reports: 06/14/2023
Number of Days to Update: 27

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/10/2023
Date Data Arrived at EDR: 07/11/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/10/2023
Date Data Arrived at EDR: 07/11/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 77
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/25/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/25/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 05/02/2023
Date Data Arrived at EDR: 05/04/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 82
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/09/2023
Date Data Arrived at EDR: 05/10/2023
Date Made Active in Reports: 08/01/2023
Number of Days to Update: 83
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/04/2023
Date Data Arrived at EDR: 04/05/2023
Date Made Active in Reports: 06/27/2023
Number of Days to Update: 83

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 77

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 05/03/2023
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 79

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/10/2023
Date Data Arrived at EDR: 05/11/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 81

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/08/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/10/2023
Date Data Arrived at EDR: 05/11/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 81

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2023
Date Data Arrived at EDR: 08/24/2023
Date Made Active in Reports: 09/12/2023
Number of Days to Update: 19

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 05/11/2023
Date Data Arrived at EDR: 05/11/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 81

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/11/2023
Date Data Arrived at EDR: 07/12/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 06/26/2023
Date Data Arrived at EDR: 07/20/2023
Date Made Active in Reports: 10/03/2023
Number of Days to Update: 75

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/21/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/02/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/27/2023
Date Data Arrived at EDR: 04/21/2023
Date Made Active in Reports: 07/07/2023
Number of Days to Update: 77

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 06/14/2023
Number of Days to Update: 12

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 04/03/2023
Date Data Arrived at EDR: 04/18/2023
Date Made Active in Reports: 06/13/2023
Number of Days to Update: 56

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/21/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/04/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 82

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/06/2023
Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/27/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/05/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 08/30/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PROPOSED IRRIGATION CHANNEL ORANGE
NOT REPORTED
SAN JACINTO, CA 92582

TARGET PROPERTY COORDINATES

Latitude (North):	33.813599 - 33° 48' 48.96''
Longitude (West):	117.020735 - 117° 1' 14.65''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	498080.9
UTM Y (Meters):	3741294.8
Elevation:	1460 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12015891 LAKEVIEW, CA
Version Date:	2018
East Map:	12002892 SAN JACINTO, CA
Version Date:	2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

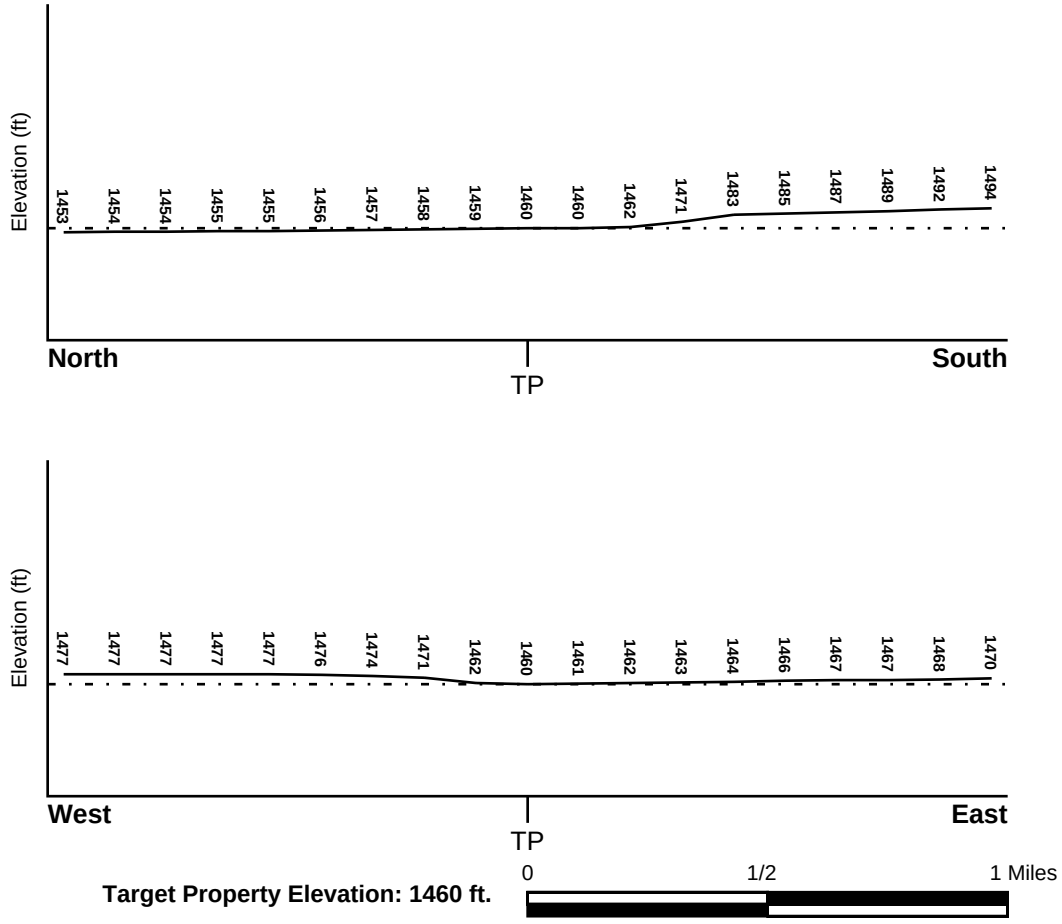
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C1460H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C1470G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LAKEVIEW	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

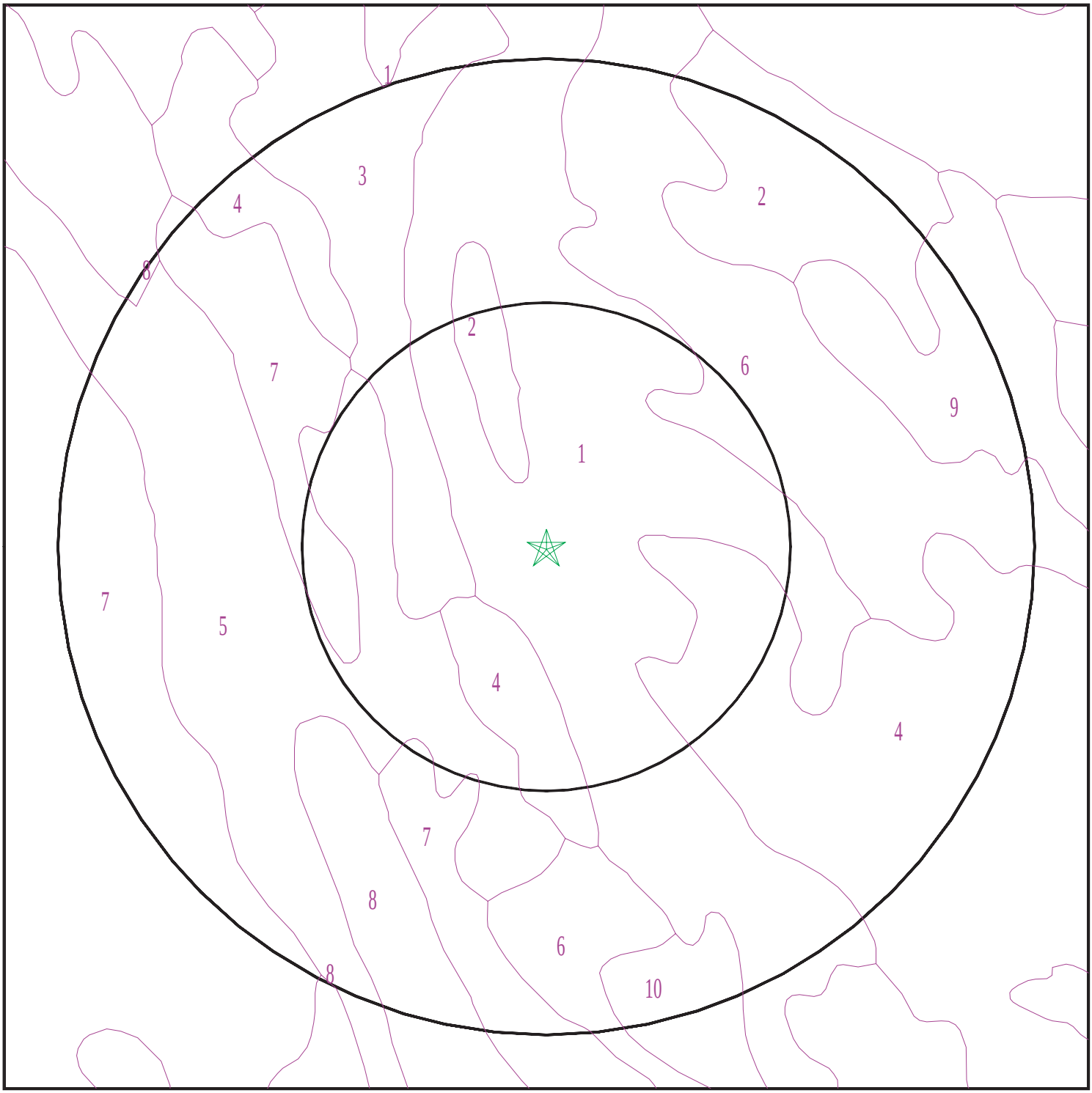
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7466753.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Proposed Irrigation Channel Orange	CLIENT:	Roux Associates
ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
		INQUIRY #:	7466753.2s
LAT/LONG:	33.813599 / 117.020735	DATE:	October 11, 2023 9:20 am

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: CHINO

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	14 inches	27 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	27 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: GRANGEVILLE

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4
2	16 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4

Soil Map ID: 3

Soil Component Name: GRANGEVILLE

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4
2	16 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4

Soil Map ID: 4

Soil Component Name: DELLO

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	7 inches	61 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: TRAVER

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	12 inches	38 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4
3	38 inches	59 inches	stratified fine sandy loam to silty clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Map ID: 6

Soil Component Name: DELLO

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	61 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 7

Soil Component Name: TRAVER

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4
2	20 inches	59 inches	stratified fine sandy loam to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Map ID: 8

Soil Component Name: TRAVER

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4
2	20 inches	59 inches	stratified fine sandy loam to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Map ID: 9

Soil Component Name: GRANGEVILLE

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	16 inches	59 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 10

Soil Component Name: GRANGEVILLE

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	35 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 9 Min: 7.4
2	35 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 9 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A8	USGS40000138346	1/2 - 1 Mile SW
A9	USGS40000138347	1/2 - 1 Mile SW
A10	USGS40000138348	1/2 - 1 Mile SW
A11	USGS40000138339	1/2 - 1 Mile SW
A12	USGS40000138340	1/2 - 1 Mile SW
A13	USGS40000138338	1/2 - 1 Mile SW
A14	USGS40000138336	1/2 - 1 Mile SW
A15	USGS40000138337	1/2 - 1 Mile SW
A16	USGS40000138344	1/2 - 1 Mile SW
A17	USGS40000138345	1/2 - 1 Mile SW
A18	USGS40000138343	1/2 - 1 Mile SW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A19	USGS40000138341	1/2 - 1 Mile SW
A20	USGS40000138342	1/2 - 1 Mile SW
C36	USGS40000138390	1/2 - 1 Mile West
D42	USGS40000138379	1/2 - 1 Mile WSW
E43	USGS40000138353	1/2 - 1 Mile WSW
F46	USGS40000138457	1/2 - 1 Mile NNE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

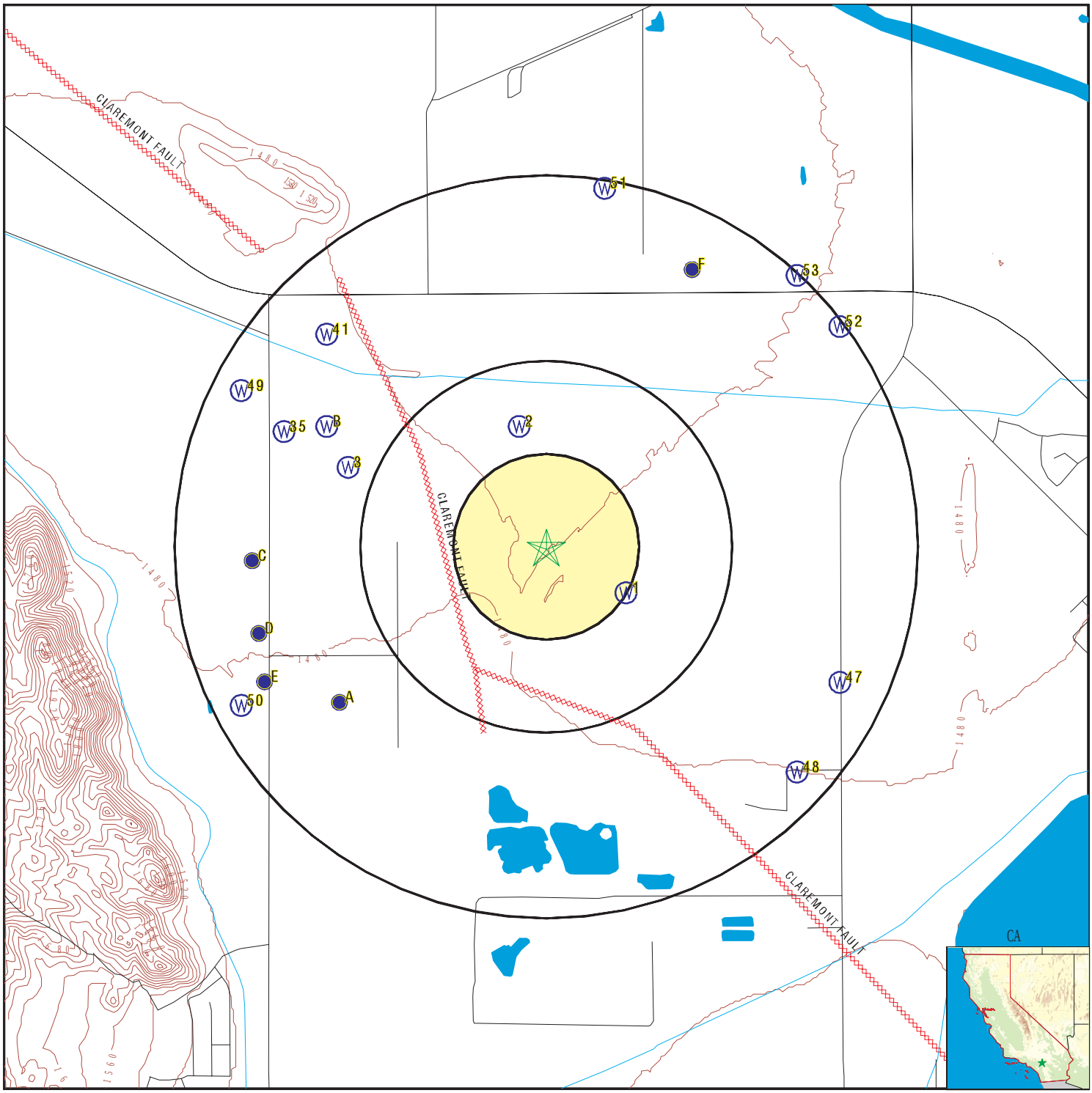
MAP ID	WELL ID	LOCATION FROM TP
1	CADWR9000005661	1/8 - 1/4 Mile ESE
2	CADWR0000027004	1/4 - 1/2 Mile NNW
3	CADWR9000005684	1/2 - 1 Mile WNW
A4	CADWR9000005638	1/2 - 1 Mile SW
A5	CADWR9000005639	1/2 - 1 Mile SW
B6	CADWR0000034615	1/2 - 1 Mile WNW
B7	CADWR0000025003	1/2 - 1 Mile WNW
A21	CAUSGSN00005970	1/2 - 1 Mile SW
A22	CAUSGSN00000340	1/2 - 1 Mile SW
A23	CAUSGSN00007245	1/2 - 1 Mile SW
A24	CAUSGSN00013418	1/2 - 1 Mile SW
A25	CAUSGSN00014244	1/2 - 1 Mile SW
A26	CAUSGSN00005327	1/2 - 1 Mile SW
A27	CAUSGSN00006048	1/2 - 1 Mile SW
A28	CAUSGSN00004745	1/2 - 1 Mile SW
A29	CADWR9000005636	1/2 - 1 Mile SW
A30	CADWR9000005637	1/2 - 1 Mile SW
A31	CADWR9000005635	1/2 - 1 Mile SW
A32	CADWR9000005633	1/2 - 1 Mile SW
A33	CADWR9000005634	1/2 - 1 Mile SW
C34	CADWR9000005665	1/2 - 1 Mile West
35	CADWR9000005690	1/2 - 1 Mile WNW
D37	4806	1/2 - 1 Mile WSW
D38	CADWR9000005647	1/2 - 1 Mile WSW
D39	CADWR9000005648	1/2 - 1 Mile WSW
C40	CADWR9000005666	1/2 - 1 Mile West
41	CADWR0000010733	1/2 - 1 Mile NW
E44	CAUSGSN00013354	1/2 - 1 Mile WSW
F45	CAUSGSN00013137	1/2 - 1 Mile NNE
47	CADWR9000005642	1/2 - 1 Mile ESE
48	CADWR9000005624	1/2 - 1 Mile SE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
49	CADWR9000005698	1/2 - 1 Mile WNW
50	CADWR0000022349	1/2 - 1 Mile WSW
51	CADWR9000005744	1/2 - 1 Mile North
52	CADWR9000005711	1/2 - 1 Mile NE
53	CADWR9000005727	1/2 - 1 Mile NE

PHYSICAL SETTING SOURCE MAP - 7466753.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Proposed Irrigation Channel Orange	CLIENT:	Roux Associates
ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
LAT/LONG:	33.813599 / 117.020735	INQUIRY #:	7466753.2s
		DATE:	October 11, 2023 9:20 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
ESE
1/8 - 1/4 Mile
Higher

CA WELLS **CADWR9000005661**

State Well #:	Not Reported	Station ID:	48160
Well Name:	EMWD10194	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	824	Well Completion Rpt #:	Not Reported

2
NNW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR0000027004**

Well ID:	04S01W18Q001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W18Q001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W18Q001S&store_num=		
GeoTracker Data:	Not Reported		

3
WNW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005684**

State Well #:	Not Reported	Station ID:	48155
Well Name:	EMWD10234	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	574	Well Completion Rpt #:	Not Reported

A4
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005638**

State Well #:	Not Reported	Station ID:	48156
Well Name:	EMWD10236	Basin Name:	San Jacinto
Well Use:	Observation		
Well Type:	Part of a nested/multi-completion well		
Well Depth:	179	Well Completion Rpt #:	Not Reported

A5
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005639**

State Well #:	Not Reported	Station ID:	48157
Well Name:	EMWD12921	Basin Name:	San Jacinto
Well Use:	Observation		
Well Type:	Part of a nested/multi-completion well		

Well Depth:	261	Well Completion Rpt #:	Not Reported

B6
WNW **CA WELLS** **CADWR0000034615**
1/2 - 1 Mile
Higher

Well ID:	04S01W18N002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W18N002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W18N002S&store_num=		
GeoTracker Data:	Not Reported		

B7
WNW **CA WELLS** **CADWR0000025003**
1/2 - 1 Mile
Higher

Well ID:	04S01W18N001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W18N001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W18N001S&store_num=		
GeoTracker Data:	Not Reported		

A8
SW **FED USGS** **USGS40000138346**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M011SLYS		
Type:	Well: Test hole not completed as a well		
Description:	SHALLOW YELLOW LYSIMETER AT 15 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	15
Well Depth Units:	ft	Well Hole Depth:	27
Well Hole Depth Units:	ft		

A9
SW **FED USGS** **USGS40000138347**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA
Organization Name:	USGS California Water Science Center
Monitor Location:	004S001W19M012SLYS
Type:	Well: Test hole not completed as a well
Description:	SHALLOW GREEN LYSIMETER AT 10 FEET

HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	10
Well Depth Units:	ft	Well Hole Depth:	27
Well Hole Depth Units:	ft		

A10
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138348**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M013SLYS		
Type:	Well: Test hole not completed as a well		
Description:	SHALLOW BLUE LYSIMETER AT 5 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	5
Well Depth Units:	ft	Well Hole Depth:	27
Well Hole Depth Units:	ft		

A11
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138339**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M003S	Type:	Well
Description:	INTER. WELL - GREEN	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19900814	Well Depth:	265
Well Depth Units:	ft	Well Hole Depth:	365
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	13	Level reading date:	1994-01-04
Feet below surface:	212.44	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1992-08-13	Feet below surface:	209.80
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1992-08-12	Feet below surface:	211.66
Feet to sea level:	Not Reported		
Note:	A nearby site that taps the same aquifer was being pumped.		

Level reading date:	1992-07-09	Feet below surface:	212.61
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1992-06-12	Feet below surface:	206.51
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-02-26	Feet below surface:	199.54
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-29	Feet below surface:	200.13
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-28	Feet below surface:	200.16
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-12-24	Feet below surface:	203.47
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-08-15	Feet below surface:	203.44
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-05-15	Feet below surface:	200.64
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-04-17	Feet below surface:	195.54
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-03-29	Feet below surface:	196.21
Feet to sea level:	Not Reported	Note:	Not Reported

A12
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138340**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M004S	Type:	Well
Description:	INTER. WELL - BLUE	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19900814	Well Depth:	210
Well Depth Units:	ft	Well Hole Depth:	365
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	15	Level reading date:	1994-01-04
Feet below surface:	192.35	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1992-08-19	Feet below surface:	190.14
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-08-12	Feet below surface:	190.38
Feet to sea level:	Not Reported		
Note:	A nearby site that taps the same aquifer was being pumped.		
Level reading date:	1992-07-09	Feet below surface:	190.58
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-06-12	Feet below surface:	189.06
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1992-02-26	Feet below surface:	187.69
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-29	Feet below surface:	187.88
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-28	Feet below surface:	187.84
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-12-24	Feet below surface:	188.47
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-08-15	Feet below surface:	187.47
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-06-14	Feet below surface:	186.72
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-05-14	Feet below surface:	185.54
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-05-03	Feet below surface:	189.60
Feet to sea level:	Not Reported	Note:	The site had been pumped recently.
Level reading date:	1991-04-17	Feet below surface:	185.45
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-03-29	Feet below surface:	185.82
Feet to sea level:	Not Reported	Note:	Not Reported

A13
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138338**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M002S	Type:	Well
Description:	INTER. WELL - YELLOW	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19900814	Well Depth:	310
Well Depth Units:	ft	Well Hole Depth:	365
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	14	Level reading date:	1994-01-04
Feet below surface:	212.79	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1992-08-13	Feet below surface:	212.15
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-08-12	Feet below surface:	214.11
Feet to sea level:	Not Reported		
Note:	A nearby site that taps the same aquifer was being pumped.		
Level reading date:	1992-07-09	Feet below surface:	215.60
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1992-06-12	Feet below surface:	208.43
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-02-26	Feet below surface:	200.61
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-29	Feet below surface:	201.23
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-28	Feet below surface:	201.32
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-12-24	Feet below surface:	205.84
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-08-15	Feet below surface:	206.69
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-05-15	Feet below surface:	201.84
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-03-29	Feet below surface:	196.33
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-01-30	Feet below surface:	196.82
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-01-09	Feet below surface:	149.19
Feet to sea level:	Not Reported	Note:	Not Reported

A14
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138336**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M005S	Type:	Well
Description:	SHALLOW WELL - WHITE	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19900814	Well Depth:	185
Well Depth Units:	ft	Well Hole Depth:	365
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	8	Level reading date:	1992-08-12
Feet below surface:	Not Reported	Feet to sea level:	Not Reported
Note:	The site was dry (no water level recorded).		
Level reading date:	1992-07-09	Feet below surface:	Not Reported
Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		
Level reading date:	1992-02-26	Feet below surface:	Not Reported
Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		
Level reading date:	1992-01-29	Feet below surface:	Not Reported

Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		
Level reading date:	1991-12-24	Feet below surface:	Not Reported
Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		
Level reading date:	1991-08-15	Feet below surface:	Not Reported
Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		
Level reading date:	1991-05-15	Feet below surface:	Not Reported
Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		
Level reading date:	1991-03-29	Feet below surface:	Not Reported
Feet to sea level:	Not Reported		
Note:	The site was dry (no water level recorded).		

A15
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138337**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M001S	Type:	Well
Description:	DEEP WELL - RED	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19900814	Well Depth:	344
Well Depth Units:	ft	Well Hole Depth:	365
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	14	Level reading date:	1994-01-04
Feet below surface:	215.81	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1992-08-13	Feet below surface:	213.56
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-08-12	Feet below surface:	216.05
Feet to sea level:	Not Reported		
Note:	A nearby site that taps the same aquifer was being pumped.		
Level reading date:	1992-07-09	Feet below surface:	213.52
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-06-12	Feet below surface:	209.45
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-02-26	Feet below surface:	201.00
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-29	Feet below surface:	201.09
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1992-01-28	Feet below surface:	201.41

Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-12-24	Feet below surface:	206.67
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-08-15	Feet below surface:	208.66
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-06-15	Feet below surface:	201.03
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-03-29	Feet below surface:	195.44
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-01-30	Feet below surface:	196.40
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-01-09	Feet below surface:	199.96
Feet to sea level:	Not Reported	Note:	Not Reported

A16
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138344**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M009SLYS		
Type:	Well: Test hole not completed as a well		
Description:	DEEP BLUE LYSIMETER AT 50 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	50
Well Depth Units:	ft	Well Hole Depth:	155
Well Hole Depth Units:	ft		

A17
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138345**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M010SLYS		
Type:	Well: Test hole not completed as a well		
Description:	SHALLOW RED LYSIMETER AT 25 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	25
Well Depth Units:	ft	Well Hole Depth:	27
Well Hole Depth Units:	ft		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
FED USGS	**USGS40000138343**

A18
SW
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M008SLYS		
Type:	Well: Test hole not completed as a well		
Description:	DEEP GREEN LYSIMETER AT 75 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	75
Well Depth Units:	ft	Well Hole Depth:	155
Well Hole Depth Units:	ft		

Database	EDR ID Number
FED USGS	**USGS40000138341**

A19
SW
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M006SLYS		
Type:	Well: Test hole not completed as a well		
Description:	DEEP RED LYSIMETER AT 150 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	150
Well Depth Units:	ft	Well Hole Depth:	155
Well Hole Depth Units:	ft		

Database	EDR ID Number
FED USGS	**USGS40000138342**

A20
SW
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W19M007SLYS		
Type:	Well: Test hole not completed as a well		
Description:	DEEP YELLOW LYSIMETER AT 100 FEET		
HUC:	18070202	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	California Coastal Basin aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	100
Well Depth Units:	ft	Well Hole Depth:	155
Well Hole Depth Units:	ft		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A21
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00005970**

Well ID:	USGS-334827117014603	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014603	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014603&store_num=		
GeoTracker Data:	Not Reported		

A22
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00000340**

Well ID:	USGS-334827117014604	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014604	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014604&store_num=		
GeoTracker Data:	Not Reported		

A23
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00007245**

Well ID:	USGS-334827117014601	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014601	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014601&store_num=		
GeoTracker Data:	Not Reported		

A24
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00013418**

Well ID:	USGS-334827117014608	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014608	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014608&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A25
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00014244**

Well ID:	USGS-334827117014602	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014602	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014602&store_num=		
GeoTracker Data:	Not Reported		

A26
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00005327**

Well ID:	USGS-334827117014609	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014609	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014609&store_num=		
GeoTracker Data:	Not Reported		

A27
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00006048**

Well ID:	USGS-334827117014606	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014606	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014606&store_num=		
GeoTracker Data:	Not Reported		

A28
SW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00004745**

Well ID:	USGS-334827117014607	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334827117014607	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334827117014607&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A29
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005636**

State Well #:	04S01W19M004S	Station ID:	6389
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A30
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005637**

State Well #:	04S01W19M005S	Station ID:	6390
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A31
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005635**

State Well #:	04S01W19M003S	Station ID:	28906
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A32
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005633**

State Well #:	04S01W19M001S	Station ID:	6387
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A33
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005634**

State Well #:	04S01W19M002S	Station ID:	6388
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C34
West
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005665**

State Well #:	Not Reported	Station ID:	48222
Well Name:	EMWD10387	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	544	Well Completion Rpt #:	Not Reported

35
WNW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005690**

State Well #:	Not Reported	Station ID:	48154
Well Name:	EMWD10233	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	603	Well Completion Rpt #:	Not Reported

C36
West
1/2 - 1 Mile
Higher

FED USGS **USGS40000138390**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S002W24A001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	4	Level reading date:	1992-07-07
Feet below surface:	Not Reported	Feet to sea level:	Not Reported
Note:	The site was being pumped.		
Level reading date:	1992-05-15	Feet below surface:	209.29
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1991-12-24	Feet below surface:	211.04
Feet to sea level:	Not Reported	Note:	The site had been pumped recently.
Level reading date:	1990-06-12	Feet below surface:	209.00
Feet to sea level:	Not Reported	Note:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D37
WSW
1/2 - 1 Mile
Higher

CA WELLS **4806**

Seq:	4806	Prim sta c:	04S/02W-24H01 S
Frds no:	3310009027	County:	33
District:	14	User id:	WAT
System no:	3310009	Water type:	G
Source nam:	WELL 2421 DAIRY - ABANDONED	Station ty:	WELL/AMBNT
Latitude:	334836.0	Longitude:	1170159.0
Precision:	2	Status:	AB
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3310009	System nam:	Eastern Municipal Wd
Hqname:	EASTERN MUNICIPAL WATER DIST	Address:	P.O. Box 8300
City:	San Jacinto	State:	CA
Zip:	92381	Zip ext:	1300
Pop serv:	253705	Connection:	84839
Area serve:	HEMET-SAN JACINTO-SUN CITY		

D38
WSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005647**

State Well #:	04S02W24H001S	Station ID:	48223
Well Name:	EMWD10388	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	600	Well Completion Rpt #:	Not Reported

D39
WSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005648**

State Well #:	04S02W24H003S	Station ID:	48224
Well Name:	EMWD10389	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	800	Well Completion Rpt #:	395314

C40
West
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005666**

State Well #:	04S02W24A001S	Station ID:	6406
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

41
NW
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000010733**

Well ID:	04S01W18M002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W18M002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W18M002S&store_num=		
GeoTracker Data:	Not Reported		

D42
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138379**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S002W24H001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	629
Well Depth Units:	ft	Well Hole Depth:	629
Well Hole Depth Units:	ft		

E43
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS40000138353**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S002W24J002S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	500
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

E44
WSW
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00013354**

Well ID:	USGS-334831117020101	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334831117020101	GAMA PFAS Testing:	Not Reported

Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334831117020101&store_num=
GeoTracker Data: Not Reported

F45
NNE **CA WELLS** **CAUSGSN00013137**
1/2 - 1 Mile
Lower

Well ID:	USGS-334928117004701	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334928117004701	GAMA PFAS Testing:	Not Reported

Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334928117004701&store_num=
GeoTracker Data: Not Reported

F46
NNE **FED USGS** **USGS40000138457**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W17E001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

47
ESE **CA WELLS** **CADWR9000005642**
1/2 - 1 Mile
Higher

State Well #:	Not Reported	Station ID:	48161
Well Name:	EMWD10243	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	824	Well Completion Rpt #:	Not Reported

48
SE **CA WELLS** **CADWR9000005624**
1/2 - 1 Mile
Higher

State Well #:	Not Reported	Station ID:	48162
Well Name:	EMWD12161	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	442	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

49
WNW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005698**

State Well #:	Not Reported	Station ID:	48217
Well Name:	EMWD10383	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	570	Well Completion Rpt #:	Not Reported

50
WSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000022349**

Well ID:	04S02W24J001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S02W24J001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S02W24J001S&store_num=		
GeoTracker Data:	Not Reported		

51
North
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005744**

State Well #:	Not Reported	Station ID:	48151
Well Name:	EMWD14440	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	0	Well Completion Rpt #:	Not Reported

52
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005711**

State Well #:	04S01W17K003S	Station ID:	28905
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

53
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005727**

State Well #:	Not Reported	Station ID:	48150
Well Name:	EMWD14441	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	253	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92582	9	2

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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San Jacinto Irrigation Channel
Not Reported
San Jacinto, CA 92582

Inquiry Number: 7466759.2s
October 11, 2023

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NOT REPORTED
SAN JACINTO, CA 92582

COORDINATES

Latitude (North):	33.8058580 - 33° 48' 21.08''
Longitude (West):	117.0022530 - 117° 0' 8.11''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	499791.5
UTM Y (Meters):	3740436.5
Elevation:	1479 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12015891 LAKEVIEW, CA
Version Date:	2018
East Map:	12002892 SAN JACINTO, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20200422
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NOT REPORTED
SAN JACINTO, CA 92582

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	METROPOLITAN WATER D	LAT/LONG_USED	HWTS	Higher	1 ft.
2	SAN JACINTO DETERIOR		CERS	Higher	1 ft.
3	SAN JACINTO RES. PUM		CERS	Higher	1 ft.
4	SAN JACINTO VALLEY R	700 N SANDERSON AVE	RCRA-VSQG	Higher	76, 0.014, SW
5	WESTRA DAIRY FARM	870 SANDERSON	LUST, Cortese, CERS	Higher	443, 0.084, SSW
6	SAN JACINTO HOUSE	2025 LA CLARITA AVEN	RCRA-LQG	Higher	461, 0.087, South
7	PROPOSED HIGH SCHOOL	RAMONA BOULEVARD/CAW	ENVIROSTOR, SCH	Lower	2622, 0.497, NW
8	LYON AVE. NEW ELEMEN	425 NORTH LYON AVENU	ENVIROSTOR, SCH, CERS	Higher	2774, 0.525, SE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-SQG ---------- RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROLS ---------- Institutional Controls Sites List

Federal ERNS list

ERNS ---------- Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF Solid Waste Information System

Lists of state and tribal leaking storage tanks

INDIAN LUST Leaking Underground Storage Tanks on Indian Land
CPS-SLIC Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST Underground Storage Tank Listing
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
INDIAN UST Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP Voluntary Cleanup Priority Listing
VCP Voluntary Cleanup Program Properties

Lists of state and tribal brownfield sites

BROWNFIELDS Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT Waste Management Unit Database
SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register
HIST Cal-Sites Historical Calsites Database
SCH School Property Evaluation Program
CDL Clandestine Drug Labs
Toxic Pits Toxic Pits Cleanup Act Sites
CERS HAZ WASTE California Environmental Reporting System Hazardous Waste

US CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST ..... SWEEPS UST Listing
HIST UST ..... Hazardous Substance Storage Container Database
CA FID UST ..... Facility Inventory Database
CERS TANKS ..... California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS ..... Environmental Liens Listing
LIENS 2 ..... CERCLA Lien Information
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators / No Longer Regulated
FUDS ..... Formerly Used Defense Sites
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST ..... EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act
TRIS ..... Toxic Chemical Release Inventory System
SSTS ..... Section 7 Tracking Systems
ROD ..... Records Of Decision
RMP ..... Risk Management Plans
RAATS ..... RCRA Administrative Action Tracking System
PRP ..... Potentially Responsible Parties
PADS ..... PCB Activity Database System
ICIS ..... Integrated Compliance Information System
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ..... Material Licensing Tracking System
COAL ASH DOE ..... Steam-Electric Plant Operation Data
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database
RADINFO ..... Radiation Information Database
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ..... Incident and Accident Data
CONSENT ..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV ..... Indian Reservations
FUSRAP ..... Formerly Utilized Sites Remedial Action Program
UMTRA ..... Uranium Mill Tailings Sites
LEAD SMELTERS ..... Lead Smelter Sites

EXECUTIVE SUMMARY

US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
MINES MRDS	Mineral Resources Data System
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TRIS	List of PFAS Added to the TRI
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
BIOSOLIDS	ICIS-NPDES Biosolids Facility Data
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CHROME PLATING	Chrome Plating Facilities Listing
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	Inspection, Compliance and Enforcement
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
HAZMAT	Hazardous Material Facilities
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)

EXECUTIVE SUMMARY

SAMPLING POINT ---------- SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ---------- Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal RCRA generators

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 07/24/2023 has revealed that there is 1 RCRA-LQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SAN JACINTO HOUSE EPA ID:: CAP000284778	2025 LA CLARITA AVEN	S 0 - 1/8 (0.087 mi.)	6	16

RCRA-VSQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-VSQG list, as provided by EDR, and dated 07/24/2023 has revealed that there is 1 RCRA-VSQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SAN JACINTO VALLEY R EPA ID:: CAL000344571	700 N SANDERSON AVE	SW 0 - 1/8 (0.014 mi.)	4	10

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/24/2023 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LYON AVE. NEW ELEMEN Status: Certified Facility Id: 60001838	***425 NORTH LYON AVENU***	***SE 1/2 - 1 (0.525 mi.)***	***8***	***22***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PROPOSED HIGH SCHOOL Status: No Further Action Facility Id: 60000906	***RAMONA BOULEVARD/CAW***	***NW 1/4 - 1/2 (0.497 mi.)***	***7***	***19***

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTRA DAIRY FARM	***870 SANDERSON***	***SSW 0 - 1/8 (0.084 mi.)***	***5***	***13***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Database: LUST, Date of Government Version: 06/05/2023
Status: Completed - Case Closed
Facility Status: Case Closed
Global Id: T0606599136
Global ID: T0606599136

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 06/14/2023 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTRA DAIRY FARM	***870 SANDERSON***	***SSW 0 - 1/8 (0.084 mi.)***	***5***	***13***

Cleanup Status: COMPLETED - CASE CLOSED

HWTS: DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

A review of the HWTS list, as provided by EDR, and dated 04/13/2023 has revealed that there is 1 HWTS site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
METROPOLITAN WATER D	LAT/LONG_USED	0 - 1/8 (0.000 mi.)	1	9

CERS: The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

A review of the CERS list, as provided by EDR, and dated 07/17/2023 has revealed that there are 2 CERS sites within approximately 0.001 miles of the target property.

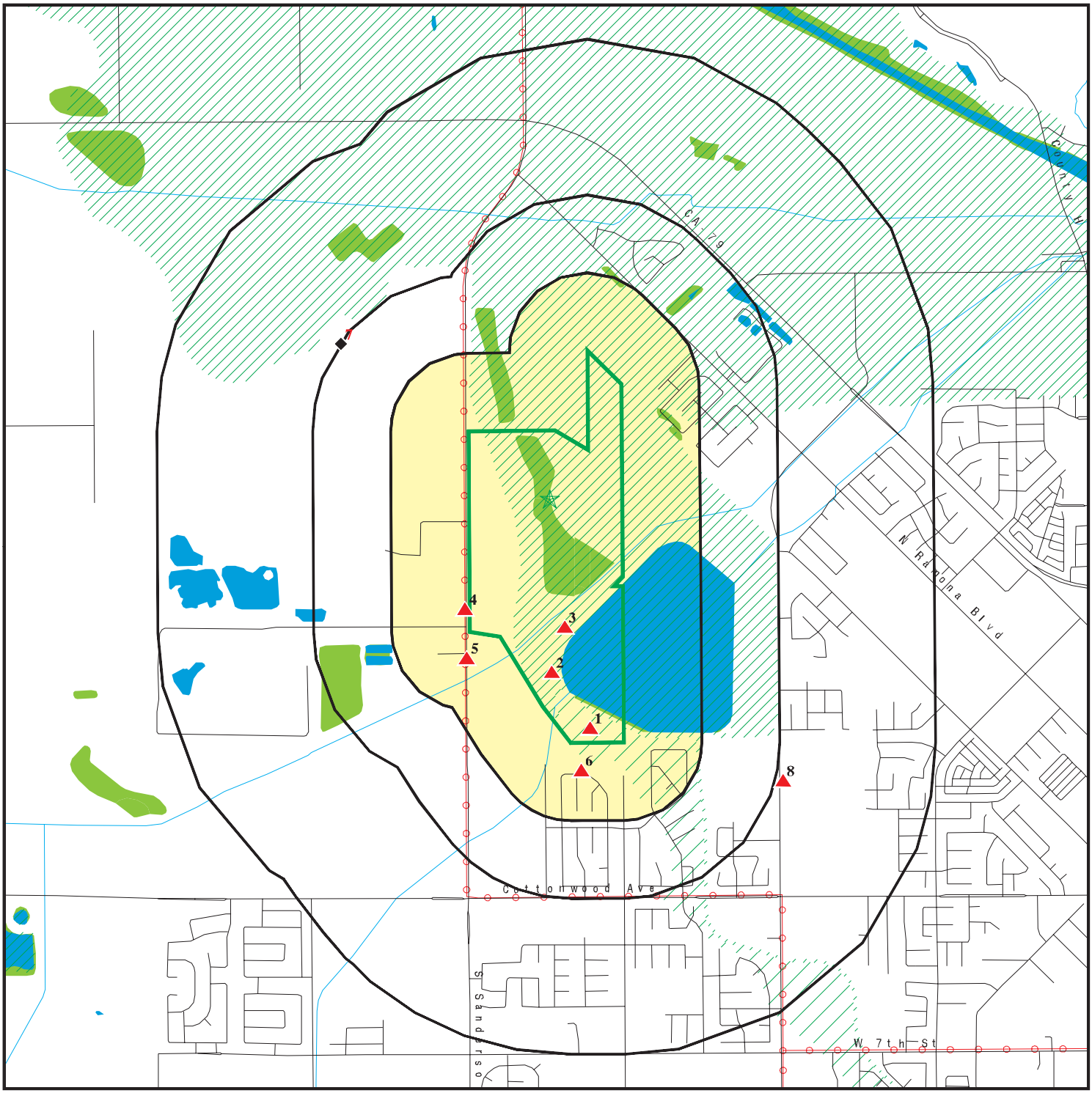
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SAN JACINTO DETERIOR		0 - 1/8 (0.000 mi.)	2	10
SAN JACINTO RES. PUM		0 - 1/8 (0.000 mi.)	3	10

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
HEMET/SAN JACINTO WWRF	CIWQS

OVERVIEW MAP - 7466759.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	San Jacinto Irrigation Channel	CLIENT:	Roux Associates
ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
LAT/LONG:	33.805858 / 117.002253	INQUIRY #:	7466759.2s
		DATE:	October 11, 2023 9:43 am

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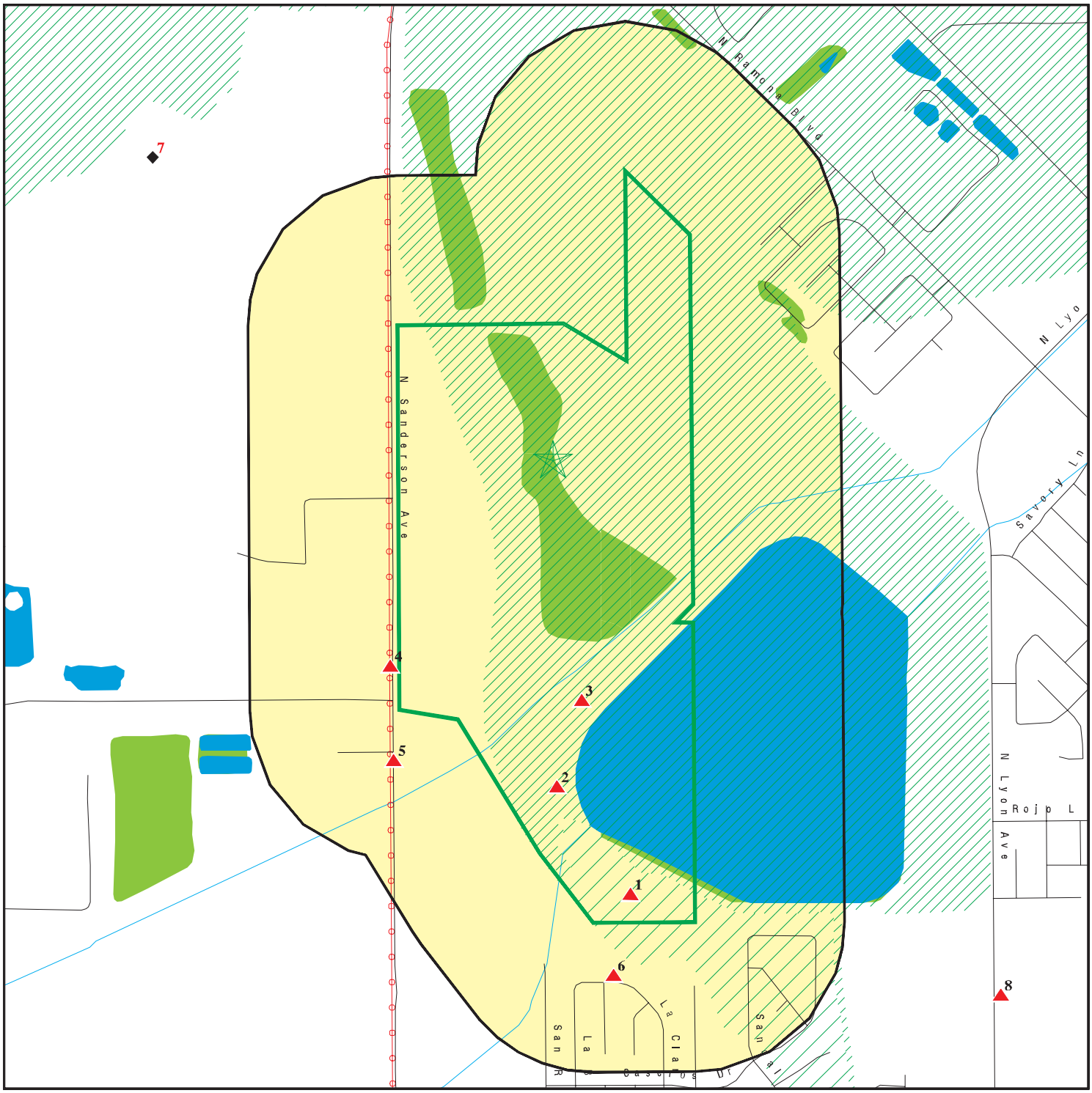
DETAIL MAP - 7466759.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

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ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
LAT/LONG:	33.805858 / 117.002253	INQUIRY #:	7466759.2s
		DATE:	October 11, 2023 9:46 am

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		1	0	NR	NR	NR	1
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		1	0	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	1	1	NR	2
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		1	0	0	NR	NR	1
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
MINES MRDS	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS TRIS	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
BIOSOLIDS	0.001		0	NR	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
CHROME PLATING	0.500		0	0	0	NR	NR	0
Cortese	0.500		1	0	0	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWTS	0.001		1	NR	NR	NR	NR	1
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		2	NR	NR	NR	NR	2
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	7	0	1	1	0	9

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 **METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA** **HWTS** **S124681761**
LAT/LONG_USED **N/A**
< 1/8 **SAN JACINTO, CA 92582**
1 ft.

Relative: Higher

Actual: 1501 ft.

HWTS:

Name:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
Address:	LAT/LONG_USED
Address 2:	Not reported
City,State,Zip:	SAN JACINTO, CA 92582
EPA ID:	CAC002962717
Inactive Date:	08/20/2018
Create Date:	05/21/2018
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	PO BOX 54153
Mailing Address 2:	Not reported
Mailing City,State,Zip:	LOS ANGELES, CA 90054
Owner Name:	METROPOLITAN WATER DISTRICT
Owner Address:	PO BOX 54153
Owner Address 2:	Not reported
Owner City,State,Zip:	LOS ANGELES, CA 90054
Owner Phone:	Not reported
Owner Fax:	Not reported
Contact Name:	CAROLYN NARVADEZ
Contact Address:	PO BOX 54153
Contact Address 2:	Not reported
City,State,Zip:	LOS ANGELES, CA 90054
Contact Phone:	Not reported
Contact Fax:	Not reported
Facility Status:	Inactive
Facility Type:	TEMPORARY
Category:	STATE
Latitude:	33.795277
Longitude:	-117

NAICS:

EPA ID:	CAC002962717
Create Date:	2018-05-21 13:52:06.523
NAICS Code:	221310
NAICS Description:	Water Supply and Irrigation Systems
Issued EPA ID Date:	2018-05-21 13:52:06.52300
Inactive Date:	2018-08-20 13:52:06.52300
Facility Name:	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
Facility Address:	LAT/LONG_USED
Facility Address 2:	Not reported
Facility City:	SAN JACINTO
Facility County:	Not reported
Facility State:	CA
Facility Zip:	92582

2 **SAN JACINTO DETERIORATED POLE 2178000E REPLACEMENT** **CERS** **S123507871**
N/A

< 1/8
1 ft.

, CA

Relative:
Higher

Actual:
1498 ft.

CERS:
Name: SAN JACINTO DETERIORATED POLE 2178000E REPLACEMENT PROJECT
Address: Not reported
City,State,Zip: CA
Site ID: 276733
CERS ID: 812577
CERS Description: Wetlands - Fill and Dredge Material

---

3 **SAN JACINTO RES. PUMP STATION PIPELINE** **CERS** **S123507184**
N/A

< 1/8
1 ft.

SAN JACINTO, CA

Relative:
Higher

Actual:
1491 ft.

CERS:
Name: SAN JACINTO RES. PUMP STATION PIPELINE
Address: Not reported
City,State,Zip: SAN JACINTO, CA
Site ID: 268508
CERS ID: 795302
CERS Description: Wetlands - Fill and Dredge Material

---

4 **SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACI** **RCRA-VSQG** **1016954557**
SW **700 N SANDERSON AVE** **CAL000344571**
< 1/8 **SAN JACINTO, CA 92582**
0.014 mi.
76 ft.

Relative:
Higher

Actual:
1494 ft.

RCRA Listings:
Date Form Received by Agency: 20140301
Handler Name: San Jacinto Valley Regional Water Reclamation Facility
Handler Address: N SANDERSON AVE
Handler City,State,Zip: SAN JACINTO, CA 92582
EPA ID: CAL000344571
Contact Name: ALFRED JAVIER
Contact Address: TRUMBLE RD
Contact City,State,Zip: PERRIS, CA 92572
Contact Telephone: 951-928-3777
Contact Fax: 951-928-6177
Contact Email: JAVIERA@EMWD.ORG
Contact Title: ENVIRON. SERVICES MGR
EPA Region: 09
Land Type: Municipal
Federal Waste Generator Description: Conditionally Exempt Small Quantity Generator
Non-Notifier: Not reported
Biennial Report Cycle: 2013
Accessibility: Not reported
Active Site Indicator: Handler Activities
State District Owner: Not reported
State District: Not reported
Mailing Address: PO BOX 8300
Mailing City,State,Zip: PERRIS, CA 92572-8300
Owner Name: Eastern Municpal Water District
Owner Type: Municipal

SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACILITY (Continued) **1016954557**

Operator Name:	Eastern Municipal Water District
Operator Type:	Municipal
Short-Term Generator Activity:	Yes
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
202 GPRA Corrective Action Baseline:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20141120
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Biennial: List of Years
Year: 2013

Click Here for Biennial Reporting System Data:

Hazardous Waste Summary:
Waste Code: D002
Waste Description: Corrosive Waste

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: EASTERN MUNICIPAL WATER DISTRICT
Legal Status: Municipal

SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACILITY (Continued) **1016954557**

Date Became Current: 19640101
Date Ended Current: Not reported
Owner/Operator Address: Not reported
Owner/Operator City,State,Zip: Not reported
Owner/Operator Telephone: Not reported
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: EASTERN MUNICPAL WATER DISTRICT
Legal Status: Municipal
Date Became Current: 19640101
Date Ended Current: Not reported
Owner/Operator Address: 2270 TRUMBLE RD
Owner/Operator City,State,Zip: PERRIS, CA 92572
Owner/Operator Telephone: 951-928-3777
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20140301
Handler Name: SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACILITY
Federal Waste Generator Description: Conditionally Exempt Small Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 22132
NAICS Description: SEWAGE TREATMENT FACILITIES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

5
SSW
< 1/8
0.084 mi.
443 ft.

WESTRA DAIRY FARM
870 SANDERSON
SAN JACINTO, CA 92582

LUST
Cortese
CERS

S104539431
N/A

Relative:
Higher

Actual:
1498 ft.

LUST:

Name:	WESTRA DAIRY FARM
Address:	870 SANDERSON
City,State,Zip:	SAN JACINTO, CA 92582
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606599136
Global Id:	T0606599136
Latitude:	33.7985312
Longitude:	-117.0068849
Status:	Completed - Case Closed
Status Date:	12/26/2001
Case Worker:	Not reported
RB Case Number:	083303601T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Not reported
Local Case Number:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
EPA Region:	9
Coordinate Source:	Google Geocode
Cuf Case:	NO
Quantity Released Gallons:	Not reported
Begin Date:	12/14/1999
Leak Reported Date:	02/21/2000
How Discovered:	Tank Closure
How Discovered Description:	Not reported
Discharge Source:	Tank
Discharge Cause:	Unknown
Stop Method:	Not reported
Stop Description:	Not reported
No Further Action Date:	12/26/2001
CA Water Watershed Name:	San Jacinto Valley - San Jacinto - Gilman Hot Springs (802.21)
Dwr Groundwater Subbasin Name:	San Jacinto (8-005)
Disadvantaged Community:	Not reported
CA Enviroscreen 3 Score:	76-80%
CA Enviroscreen 4 Score:	65-70%
Military DOD Site:	No
Facility Project Subtype:	Not reported
RWQCB Region:	SANTA ANA RWQCB (REGION 8)
Site History:	Not reported

LUST:

Global Id:	T0606599136
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

WESTRA DAIRY FARM (Continued) **S104539431**

Global Id: T0606599136
Action Type: ENFORCEMENT
Date: 12/26/2001
Action: Closure/No Further Action Letter

Global Id: T0606599136
Action Type: Other
Date: 02/21/2000
Action: Leak Reported

Global Id: T0606599136
Action Type: Other
Date: 12/14/1999
Action: Leak Stopped

Global Id: T0606599136
Action Type: Other
Date: 12/14/1999
Action: Leak Discovery

LUST:
Global Id: T0606599136
Status: Open - Case Begin Date
Status Date: 12/14/1999

Global Id: T0606599136
Status: Open - Site Assessment
Status Date: 12/14/1999

Global Id: T0606599136
Status: Open - Site Assessment
Status Date: 06/02/2000

Global Id: T0606599136
Status: Open - Site Assessment
Status Date: 10/30/2000

Global Id: T0606599136
Status: Open - Verification Monitoring
Status Date: 05/07/2001

Global Id: T0606599136
Status: Completed - Case Closed
Status Date: 12/26/2001

LUST REG 8:
Name: WESTRA DAIRY FARM
Address: 870 SANDERSON
City: SAN JACINTO
Region: 8
County: Riverside
Regional Board: Santa Ana Region
Facility Status: Case Closed
Case Number: 083303601T
Local Case Num: Not reported

WESTRA DAIRY FARM (Continued) **S104539431**

Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	Not reported
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	Tank
Global ID:	T0606599136
How Stopped Date:	12/14/1999
Enter Date:	5/1/2000
Date Confirmation of Leak Began:	12/14/1999
Date Preliminary Assessment Began:	10/30/2000
Discover Date:	12/14/1999
Enforcement Date:	Not reported
Close Date:	12/26/2001
Date Prelim Assessment Workplan Submitted:	6/2/2000
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	5/7/2001
Enter Date:	5/1/2000
GW Qualifies:	Not reported
Soil Qualifies:	=
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.806672
Longitude:	-117.007106
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	1
Max MTBE Soil:	377
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	RS
Staff Initials:	Not reported
Lead Agency:	Regional Board
Local Agency:	33000L
Hydr Basin #:	SAN JACINTO (8-5)
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	No

Summary: Not reported

CORTESE:

Name:	WESTRA DAIRY FARM
Address:	870 SANDERSON
City,State,Zip:	SAN JACINTO, CA 92582
Region:	CORTESE
Envirostor Id:	Not reported

WESTRA DAIRY FARM (Continued) **S104539431**

Global ID:	T0606599136
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	WESTRA DAIRY FARM
Address:	870 SANDERSON
City,State,Zip:	SAN JACINTO, CA 92582
Site ID:	697269
CERS ID:	T0606599136
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980,

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6 **SAN JACINTO HOUSE** **RCRA-LQG** **1024876467**
South **2025 LA CLARITA AVENUE** **CAP000284778**
< 1/8 **SAN JACINTO, CA 92582**
0.087 mi.
461 ft.

Relative:
Higher

Actual:
1510 ft.

RCRA Listings:

Date Form Received by Agency:	20180618
Handler Name:	San Jacinto House
Handler Address:	LA CLARITA AVENUE
Handler City,State,Zip:	SAN JACINTO, CA 92582
EPA ID:	CAP000284778
Contact Name:	CAROLYN NARVADEZ
Contact Address:	NORTH ALAMEDA STREET
Contact City,State,Zip:	LOS ANGELES, CA 90012
Contact Telephone:	213-217-6660
Contact Fax:	Not reported
Contact Email:	CNARVADEZ@MWDH2O.COM

SAN JACINTO HOUSE (Continued) **1024876467**

Contact Title:	ENVIRONMENTAL SPECIALIST
EPA Region:	09
Land Type:	Other
Federal Waste Generator Description:	Large Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	NORTH ALAMEDA STREET
Mailing City,State,Zip:	LOS ANGELES, CA 90012
Owner Name:	Metropolitan Water District
Owner Type:	District
Operator Name:	Metropolitan Water District
Operator Type:	District
Short-Term Generator Activity:	Yes
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
202 GPRA Corrective Action Baseline:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180620
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Yes
Manifest Broker:	No
Sub-Part P Indicator:	No

SAN JACINTO HOUSE (Continued) **1024876467**

Hazardous Waste Summary:
Waste Code: D008
Waste Description: Lead

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: METROPOLITAN WATER DISTRICT
Legal Status: District
Date Became Current: 19400101
Date Ended Current: Not reported
Owner/Operator Address: 700 NORTH ALAMEDA STREET
Owner/Operator City,State,Zip: LOS ANGELES, CA 90012
Owner/Operator Telephone: 213-217-6660
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: CNARVADEZ@MWDH2O.COM

Owner/Operator Indicator: Owner
Owner/Operator Name: METROPOLITAN WATER DISTRICT
Legal Status: District
Date Became Current: 19400101
Date Ended Current: Not reported
Owner/Operator Address: 700 NORTH ALAMEDA STREET
Owner/Operator City,State,Zip: LOS ANGELES, CA 90012
Owner/Operator Telephone: 213-217-6660
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: CNARVADEZ@MWDH2O.COM

Historic Generators:
Receive Date: 20180618
Handler Name: SAN JACINTO HOUSE
Federal Waste Generator Description: Large Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Yes
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 221310
NAICS Description: WATER SUPPLY AND IRRIGATION SYSTEMS

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

7
NW
1/4-1/2
0.497 mi.
2622 ft.

PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT
RAMONA BOULEVARD/CAWSTON AVENUE
SAN JACINTO, CA 92582

ENVIROSTOR
SCH

S109149563
N/A

Relative:
Lower

Actual:
1463 ft.

ENVIROSTOR:

Name:	PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO
Address:	RAMONA BOULEVARD/CAWSTON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Facility ID:	60000906
Status:	No Further Action
Status Date:	09/24/2008
Site Code:	404801
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	61
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.81317
Longitude:	-117.0139
APN:	432-030-006, 432-030-010, 432030006, 432030010
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Under Investigation
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE
Alias Name:	432-030-006
Alias Type:	APN
Alias Name:	432-030-010
Alias Type:	APN
Alias Name:	432030006
Alias Type:	APN
Alias Name:	432030010
Alias Type:	APN
Alias Name:	404801
Alias Type:	Project Code (Site Code)
Alias Name:	60000906
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	07/02/2008
Comments:	DTSC approved the Workplan for implementation provided DTSC comments are incorporated in future work/reports.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report

PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO (Continued) **S109149563**

Completed Date:	09/17/2008
Comments:	DTSC approved the PEA with a No Further Action determination
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	06/09/2008
Comments:	Signed agreement sent (FedEx) to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	09/18/2008
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO
Address:	RAMONA BOULEVARD/CAWSTON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Facility ID:	60000906
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	61
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404801
Assembly:	60
Senate:	31
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	09/24/2008
Restricted Use:	NO
Funding:	School District
Latitude:	33.81317
Longitude:	-117.0139
APN:	432-030-006, 432-030-010, 432030006, 432030010
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Under Investigation
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE

PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINTO (Continued) **S109149563**

Alias Name: 432-030-006
Alias Type: APN
Alias Name: 432-030-010
Alias Type: APN
Alias Name: 432030006
Alias Type: APN
Alias Name: 432030010
Alias Type: APN
Alias Name: 404801
Alias Type: Project Code (Site Code)
Alias Name: 60000906
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 07/02/2008
Comments: DTSC approved the Workplan for implementation provided DTSC comments are incorporated in future work/reports.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 09/17/2008
Comments: DTSC approved the PEA with a No Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 06/09/2008
Comments: Signed agreement sent (FedEx) to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 09/18/2008
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

8
SE
1/2-1
0.525 mi.
2774 ft.

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS
425 NORTH LYON AVENUE
SAN JACINTO, CA 92582

ENVIROSTOR
SCH
CERS

S112241538
N/A

Relative:
Higher

Actual:
1506 ft.

ENVIROSTOR:

Name:	LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS
Address:	425 NORTH LYON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Facility ID:	60001838
Status:	Certified
Status Date:	01/21/2020
Site Code:	404883
Site Type:	School Cleanup
Site Type Detailed:	School
Acres:	39
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.78944
Longitude:	-116.9893
APN:	436-280-010
Past Use:	AGRICULTURAL - ORCHARD
Potential COC:	Arsenic Chlordane DDD DDE DDT Lead Antimony and compounds Endosulfan Heptachlor Heptachlor epoxide HCH (alpha HCH (beta HCH (gamma) Lindane HCH-technical Vanadium and compounds Zinc
Confirmed COC:	30001-NO 30004-NO 30006-NO 30007-NO 30008-NO 30013-NO 30058-NO 30309-NO 30313-NO 30314-NO 30315-NO 30316-NO 30587-NO 30594-NO 30261-NO 30308-NO
Potential Description:	SOIL
Alias Name:	Lyon Avenue School Site
Alias Type:	Alternate Name
Alias Name:	436-280-010
Alias Type:	APN
Alias Name:	404883
Alias Type:	Project Code (Site Code)
Alias Name:	60001838
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	CEQA - Responsible Agency Review
Completed Date:	09/07/2018
Comments:	DTSC completed Statement of Findings and Notice of Determination (NOD) Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Completed Date: 08/27/2018
Comments: FY 1819 Estimate: $17,809

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 04/25/2018
Comments: Cost Estimate letter, for FY 17/18 & FY 18/19, sent to District on 4/25/18.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 04/15/2018
Comments: Letter from District, dated 04/10/18, requesting reactivation of site in order to implement the response action for the site.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/06/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 01/21/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Tech Memo
Completed Date: 01/17/2013
Comments: DTSC approved the Preliminary Environmental Assessment Technical Memorandum for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 03/18/2014
Comments: DTSC approved the SSI report with a Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 10/29/2013
Comments: DTSC approved Supplemental Investigation sampling strategy Workplan

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/04/2013
Comments: DTSC approved the PEA with a Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Completed Date:	11/06/2013
Comments:	SSI Fieldwork Oversight
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Workplan
Completed Date:	09/05/2018
Comments:	DTSC approved RAW for Implementation
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	04/21/2015
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	11/20/2014
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Fact Sheets
Completed Date:	07/17/2018
Comments:	DTSC finalized Fact Sheet
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Community Profile
Completed Date:	05/30/2018
Comments:	Completed community profile
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Fieldwork
Completed Date:	10/15/2018
Comments:	RAW fieldwork oversight conducted on October 15, 2018
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Completion Report
Completed Date:	02/22/2019
Comments:	DTSC approved Removal Action Completion Report
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Public Notice
Completed Date:	07/16/2018
Comments:	Public Notice published
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Amendment - Order/Agreement
Completed Date:	07/08/2014
Comments:	Not reported

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Correspondence
Completed Date:	08/22/2013
Comments:	Form 4.14 processed

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Standard Voluntary Agreement
Completed Date:	08/19/2013
Comments:	Fully executed VCA sent (FedEx) to District.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	12/12/2012
Comments:	Fully executed EOA sent (FedEx) to District.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Community Profile
Completed Date:	05/29/2018
Comments:	Completed Community Survey

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS
Address:	425 NORTH LYON AVENUE
City,State,Zip:	SAN JACINTO, CA 92582
Facility ID:	60001838
Site Type:	School Cleanup
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	39
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404883
Assembly:	60
Senate:	31
Special Program Status:	Not reported
Status:	Certified
Status Date:	01/21/2020

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Restricted Use:	NO
Funding:	School District
Latitude:	33.78944
Longitude:	-116.9893
APN:	436-280-010
Past Use:	AGRICULTURAL - ORCHARD
Potential COC:	Arsenic, Chlordane, DDD, DDE, DDT, Lead, Antimony and compounds, Endosulfan, Heptachlor, Heptachlor epoxide, HCH (alpha, HCH (beta, HCH (gamma) Lindane, HCH-technical, Vanadium and compounds, Zinc
Confirmed COC:	30001-NO, 30004-NO, 30006-NO, 30007-NO, 30008-NO, 30013-NO, 30058-NO, 30309-NO, 30313-NO, 30314-NO, 30315-NO, 30316-NO, 30587-NO, 30594-NO, 30261-NO, 30308-NO
Potential Description:	SOIL
Alias Name:	Lyon Avenue School Site
Alias Type:	Alternate Name
Alias Name:	436-280-010
Alias Type:	APN
Alias Name:	404883
Alias Type:	Project Code (Site Code)
Alias Name:	60001838
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	CEQA - Responsible Agency Review
Completed Date:	09/07/2018
Comments:	DTSC completed Statement of Findings and Notice of Determination (NOD) Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	08/27/2018
Comments:	FY 1819 Estimate: $17,809

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	04/25/2018
Comments:	Cost Estimate letter, for FY 17/18 & FY 18/19, sent to District on 4/25/18.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Correspondence
Completed Date:	04/15/2018
Comments:	Letter from District, dated 04/10/18, requesting reactivation of site in order to implement the response action for the site.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	09/06/2019
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Completed Document Type: Certification
Completed Date: 01/21/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Tech Memo
Completed Date: 01/17/2013
Comments: DTSC approved the Preliminary Environmental Assessment Technical Memorandum for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 03/18/2014
Comments: DTSC approved the SSI report with a Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 10/29/2013
Comments: DTSC approved Supplemental Investigation sampling strategy Workplan

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/04/2013
Comments: DTSC approved the PEA with a Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 11/06/2013
Comments: SSI Fieldwork Oversight

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 09/05/2018
Comments: DTSC approved RAW for Implementation

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 04/21/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 11/20/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 07/17/2018

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Comments:	DTSC finalized Fact Sheet
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Community Profile
Completed Date:	05/30/2018
Comments:	Completed community profile
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Fieldwork
Completed Date:	10/15/2018
Comments:	RAW fieldwork oversight conducted on October 15, 2018
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Completion Report
Completed Date:	02/22/2019
Comments:	DTSC approved Removal Action Completion Report
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Public Notice
Completed Date:	07/16/2018
Comments:	Public Notice published
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Amendment - Order/Agreement
Completed Date:	07/08/2014
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Correspondence
Completed Date:	08/22/2013
Comments:	Form 4.14 processed
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Standard Voluntary Agreement
Completed Date:	08/19/2013
Comments:	Fully executed VCA sent (FedEx) to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	12/12/2012
Comments:	Fully executed EOA sent (FedEx) to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Community Profile
Completed Date:	05/29/2018
Comments:	Completed Community Survey
Future Area Name:	Not reported

LYON AVE. NEW ELEMENTARY & MIDDLE SCHOOLS (Continued) **S112241538**

Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

CERS:
Name: LYON AVE. NEW ELEMEN
Address: 425 NORTH LYON AVENUE
City,State,Zip: SAN JACINTO, CA 92582
Site ID: 608426
CERS ID: 60001838
CERS Description: School Cleanup

Affiliation:
Affiliation Type Desc: Lead Project Manager
Entity Name: Aslam Shareef
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Supervisor
Entity Name: Shahir Haddad
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Count: 1 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SAN JACINTO	S121643623	HEMET/SAN JACINTO WWRF	770 SANDERSON	92583	CIWQS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 06/23/2023
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 09/20/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/26/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/03/2023
Date Data Arrived at EDR: 08/07/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 64

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/02/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 62

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 62

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/12/2023
Date Data Arrived at EDR: 06/20/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 55

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/08/2023
Date Data Arrived at EDR: 05/08/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 84

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84
Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/14/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/19/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/19/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 03/08/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 05/30/2023
Number of Days to Update: 82

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 05/31/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/19/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/14/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2023
Date Data Arrived at EDR: 05/09/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 66

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/14/2023
Date Data Arrived at EDR: 06/14/2023
Date Made Active in Reports: 09/06/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 04/06/2023
Date Data Arrived at EDR: 04/13/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 08/30/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 83

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/27/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 48

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 04/24/2023
Date Data Arrived at EDR: 04/25/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 71

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/15/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: California Environmental Reporting System Hazardous Waste

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/06/2023
Number of Days to Update: 80

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/23/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 48

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 77

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/06/2023
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/06/2023
Date Data Arrived at EDR: 06/07/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 81

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/19/2023
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 09/20/2023
Number of Days to Update: 89

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/01/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 81

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/07/2023
Date Data Arrived at EDR: 08/15/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 56

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/09/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/01/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/19/2023
Date Data Arrived at EDR: 06/20/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/15/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 02/16/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 75

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/18/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 84

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/09/2023
Date Data Arrived at EDR: 06/29/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 09/26/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/20/2023
Date Data Arrived at EDR: 04/04/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 66

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/20/2023
Date Data Arrived at EDR: 09/01/2023
Date Made Active in Reports: 09/20/2023
Number of Days to Update: 19

Source: Nuclear Regulatory Commission
Telephone: 301-415-0717
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 04/14/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/01/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/28/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/22/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2023
Date Data Arrived at EDR: 07/19/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 83
Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11
Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/02/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 03/03/2023
Date Data Arrived at EDR: 03/03/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 98
Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74
Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/10/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 06/22/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 18
Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/01/2023
Date Data Arrived at EDR: 05/24/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 61

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 82

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/24/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/24/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/13/2023
Date Data Arrived at EDR: 06/14/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 61

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/24/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 07/24/2023
Number of Days to Update: 60

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/24/2023
Date Data Arrived at EDR: 06/29/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 09/13/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/17/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 54

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI

Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 09/23/2023
Date Data Arrived at EDR: 10/03/2023
Date Made Active in Reports: 10/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits. Caveats and Limitations: Less than half of states have required PFAS monitoring for at least one of their permittees and fewer states have established PFAS effluent limits for permittees. New rulemakings have been initiated that may increase the number of facilities monitoring for PFAS in the future.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 10/02/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/05/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/06/2023
Date Made Active in Reports: 09/25/2023
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-267-2675
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: No Update Planned

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

BIOSOLIDS: ICIS-NPDES Biosolids Facility Data

The data reflects compliance information about facilities in the biosolids program.

Date of Government Version: 07/16/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-564-4700
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHROME PLATING: Chrome Plating Facilities Listing

This listing represents chrome plating facilities the California State Water Resources Control Board staff identified as possibly being a source of Per- and polyfluoroalkyl substance (PFAS) contamination. Sites and locations were identified by staff with the Division of Water Quality in the California State Water Board. Data was collected from the CA Air Resources Board 2013 and 2018 - Cr VI emission survey, CA Emission Inventory, CA HAZ Waste discharge database and by reviewing storm water permits. Former chrome plating sites are also included that are open site investigation or remediation cases with the Regional Water Quality Control Boards and the Department of Toxic Substances Control.

Date of Government Version: 06/08/2023
Date Data Arrived at EDR: 06/08/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 110

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/14/2023
Date Data Arrived at EDR: 06/14/2023
Date Made Active in Reports: 09/06/2023
Number of Days to Update: 84

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 03/31/2023
Date Data Arrived at EDR: 05/08/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 84

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/10/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

DRYCLEAN SACRAMENTO METO DIST: Sacramento Metropolitan Air Quality Management DistrictDrycleaner Facility Listing

A listing of drycleaner facility locations, for the Sacramento Metropolitan Air Quality Management District.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/19/2023
Number of Days to Update: 82

Source: Sacramento Metropolitan Air Quality Management District
Telephone: 916-874-3958
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN DIEGO CO DIST: San Diego County Air Pollution Control District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the San Diego County Air Pollution Control District.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1461

Source: San Diego County Air Pollution Control District
Telephone: 858-586-2616
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN JOAQ VAL DIST: San Joaquin Valley Air Pollution Control District District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the San Joaquin Valley Air Pollution Control District.

Date of Government Version: 05/24/2023
Date Data Arrived at EDR: 05/30/2023
Date Made Active in Reports: 08/21/2023
Number of Days to Update: 83

Source: San Joaquin Valley Air Pollution Control District
Telephone: 559-230-6001
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN EAST KERN DIST: Eastern Kern Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Eastern Kern Air Pollution Control District.

Date of Government Version: 01/12/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Eastern Kern Air Pollution Control District
Telephone: 661-862-9684
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN IMPERIAL CO DIST: Imperial County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Imperial County Air Pollution Control District

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Imperial County Air Pollution Control District
Telephone: 442-265-1800
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MENDO CO DIST: Mendocino County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mendocino County Air Quality Management District.

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 77

Source: Mendocino County Air Quality Management District
Telephone: 707-463-4354
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MOJAVE DESERT DIST: Mojave Desert Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mojave Desert Air Quality Management District.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Mojave Desert Air Quality Management District
Telephone: 760-245-1661
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MONTEREY BAY DIST: Monterey Bay Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Monterey Bay Air Quality Management District.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Monterey Bay Air Quality Management District
Telephone: 831-647-9411
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SHASTA CO DIST: Shasta County Air Quality Management District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Shasta County Air Quality Management District.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Shasta County Air Quality Management District
Telephone: 530-225-5674
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN YOLO-SOLANO DIST: Yolo-Solano Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Yolo-Solano Air Quality Management District.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Yolo-Solano Air Quality Management District
Telephone: 530-757-3650
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/22/2023
Date Data Arrived at EDR: 05/24/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 82

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

DRYCLEAN PLACER CO DIST: Placer County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Placer County Air Quality Management District.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/17/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 89

Source: Placer County Air Quality Management District
Telephone: 530-745-2335
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BAY AREA DIST: Bay Area Air Quality Management District Drycleaner Facility Listing
Bay Area Air Quality Management District Drycleaner Facility Listing.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1432

Source: Bay Area Air Quality Management District
Telephone: 415-516-1916
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BUTTE CO DIST: Butte County Air Quality Management DistrictDrycleaner Facility Listing
Butte County Air Quality Management DistrictDrycleaner Facility Listing.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1469

Source: Butte County Air Quality Management District
Telephone: 530-332-9400
Last EDR Contact: 10/03/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN CALAVERAS CO DIST: Calaveras County Environmental Management Agency Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Calaveras County Environmental Management Agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1412

Source: Calaveras County Environmental Management Agency
Telephone: 209-754-6399
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN GRANT: Grant Recipients List
Assembly Bill 998 (AB 998) established the Non-Toxic Dry Cleaning Incentive Program to provide financial assistance to the dry cleaning industry to switch from systems using perchloroethylene (Perc), an identified toxic air contaminant and potential human carcinogen, to non-toxic and non-smog forming alternatives.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 02/04/2021
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 816

Source: California Air Resources Board
Telephone: 916-323-0006
Last EDR Contact: 07/24/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

DRYCLEAN LAKE CO DIST: Lake County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Lake County Air Quality Management District,

Date of Government Version: 04/29/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455

Source: Lake County Air Quality Management District
Telephone: 707-263-7000
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO COAST UNIFIED DIST: North Coast Unified Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the North Coast Unified Air Quality Management District.

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: North Coast Unified Air Quality Management District
Telephone: 707-443-3093
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO SIERRA DIST: Northern Sierra Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sierra Air Quality Management District,

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Northern Sierra Air Quality Management District
Telephone: 530-274-9350
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO SONOMA CO DIST: Norther Sonoma County County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sonoma County Air Pollution Control District.,

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 707-433-5911
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SANTA BARB CO DIST: Santa Barbara County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Santa Barbara County Air Pollution Control District.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 805-961-8867
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN LUIS OB CO DIST: San Luis Obispo County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Luis Obispo County Air Pollution Control District.

Date of Government Version: 04/23/2019
Date Data Arrived at EDR: 04/25/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1467
Source: San Luis Obispo County Air Pollution Control District
Telephone: 805-781-5756
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN TEHAMA CO DIST: Tehama County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Tehama County Air Pollution Control District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1468
Source: Tehama County Air Pollution Control District
Telephone: 530-527-3717
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN VENTURA CO DIST: Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Ventura County Air Pollution Control District.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Ventura County Air Pollution Control District
Telephone: 805-645-1421
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 05/17/2023
Date Data Arrived at EDR: 05/18/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 83

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

DRYCLEAN AMADOR: Amador Air District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Amador Air Quality Management District

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador Air Quality Management District
Telephone: 209-257-0112
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN GLENN CO DIST: Glenn County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Glenn County Air Pollution Control District.

Date of Government Version: 05/02/2023
Date Data Arrived at EDR: 05/03/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 83

Source: Glenn County Air Pollution Control District
Telephone: 530-934-6500
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Annually

DRYCLEAN FEATHER RIVER DIST: Feather River Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Feather River Air Quality Management District.

Date of Government Version: 03/08/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 06/05/2023
Number of Days to Update: 88

Source: Feather River Air Quality Management District
Telephone: 530-634-7659
Last EDR Contact: 06/08/2023
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 06/09/2023
Date Made Active in Reports: 08/30/2023
Number of Days to Update: 82

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/15/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 79

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 09/13/2023
Date Data Arrived at EDR: 09/14/2023
Date Made Active in Reports: 09/21/2023
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 09/13/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Varies

ICE: Inspection, Compliance and Enforcement

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/16/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 85

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/14/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/16/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 85

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/14/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 06/29/2023
Date Data Arrived at EDR: 06/29/2023
Date Made Active in Reports: 09/19/2023
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Quarterly

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/13/2023
Date Data Arrived at EDR: 04/18/2023
Date Made Active in Reports: 07/10/2023
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/08/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/08/2023
Date Data Arrived at EDR: 05/08/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/06/2023
Date Data Arrived at EDR: 06/07/2023
Date Made Active in Reports: 08/25/2023
Number of Days to Update: 79
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Annually

SANTA CRUZ CO SITE MITI: Site Mitigation Listing
Sites may become contaminated with toxic chemicals through illegal dumping or disposal, from leaking underground storage tanks, or through industrial or commercial activities.The goal of the site mitigation program is to protect the public health and the environment while facilitating completion of contaminated site clean-up projects in a timely manner.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 20
Source: Santa Cruz Environmental Health Services
Telephone: 831-454-2761
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/06/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/02/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 08/23/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/06/2023
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/05/2023
Date Data Arrived at EDR: 06/05/2023
Date Made Active in Reports: 08/28/2023
Number of Days to Update: 84
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/27/2023
Date Data Arrived at EDR: 06/28/2023
Date Made Active in Reports: 09/14/2023
Number of Days to Update: 78

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List

Cupa Facility List

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

BUTTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/27/2023
Date Data Arrived at EDR: 06/28/2023
Date Made Active in Reports: 09/14/2023
Number of Days to Update: 78

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 07/05/2023
Date Data Arrived at EDR: 07/20/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 77

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/10/2023
Date Data Arrived at EDR: 05/10/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 82

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 08/02/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/11/2023
Date Data Arrived at EDR: 07/12/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 76

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 07/26/2023
Date Data Arrived at EDR: 07/27/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 13

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/26/2023
Date Data Arrived at EDR: 07/27/2023
Date Made Active in Reports: 08/03/2023
Number of Days to Update: 7

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 05/31/2023
Number of Days to Update: 34

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 06/21/2023
Date Data Arrived at EDR: 06/28/2023
Date Made Active in Reports: 09/14/2023
Number of Days to Update: 78

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 09/27/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/10/2023
Date Data Arrived at EDR: 07/10/2023
Date Made Active in Reports: 09/27/2023
Number of Days to Update: 79

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/09/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/19/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/13/2023
Date Data Arrived at EDR: 07/13/2023
Date Made Active in Reports: 09/27/2023
Number of Days to Update: 76

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/20/2023
Date Data Arrived at EDR: 06/22/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 48

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/20/2023
Date Data Arrived at EDR: 06/22/2023
Date Made Active in Reports: 09/12/2023
Number of Days to Update: 82

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/02/2023
Date Data Arrived at EDR: 04/18/2023
Date Made Active in Reports: 07/07/2023
Number of Days to Update: 80

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/20/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/12/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 06/13/2023
Number of Days to Update: 42

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/21/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 07/25/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/05/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 81

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 9

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 07/31/2023
Date Made Active in Reports: 08/09/2023
Number of Days to Update: 9

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/01/2023
Date Data Arrived at EDR: 05/18/2023
Date Made Active in Reports: 06/14/2023
Number of Days to Update: 27

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/03/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 07/31/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/10/2023
Date Data Arrived at EDR: 07/11/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/10/2023
Date Data Arrived at EDR: 07/11/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 77
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/25/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/25/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 05/02/2023
Date Data Arrived at EDR: 05/04/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 82
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/09/2023
Date Data Arrived at EDR: 05/10/2023
Date Made Active in Reports: 08/01/2023
Number of Days to Update: 83
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/25/2023
Date Data Arrived at EDR: 05/25/2023
Date Made Active in Reports: 08/16/2023
Number of Days to Update: 83

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/04/2023
Date Data Arrived at EDR: 04/05/2023
Date Made Active in Reports: 06/27/2023
Number of Days to Update: 83

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 77

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 05/03/2023
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 07/17/2023
Date Data Arrived at EDR: 07/18/2023
Date Made Active in Reports: 10/05/2023
Number of Days to Update: 79

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 07/18/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/07/2023
Next Scheduled EDR Contact: 12/25/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/10/2023
Date Data Arrived at EDR: 05/11/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 81

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/08/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 08/29/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/10/2023
Date Data Arrived at EDR: 05/11/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 81

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/15/2023
Next Scheduled EDR Contact: 12/04/2023
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/09/2023
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/12/2023
Next Scheduled EDR Contact: 01/01/2024
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/04/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2023
Date Data Arrived at EDR: 08/24/2023
Date Made Active in Reports: 09/12/2023
Number of Days to Update: 19

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/22/2023
Next Scheduled EDR Contact: 12/11/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 05/11/2023
Date Data Arrived at EDR: 05/11/2023
Date Made Active in Reports: 07/31/2023
Number of Days to Update: 81

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/11/2023
Date Data Arrived at EDR: 07/12/2023
Date Made Active in Reports: 09/26/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 07/26/2023
Next Scheduled EDR Contact: 11/13/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/10/2023
Next Scheduled EDR Contact: 01/29/2024
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 06/26/2023
Date Data Arrived at EDR: 07/20/2023
Date Made Active in Reports: 10/03/2023
Number of Days to Update: 75
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/21/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/02/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/27/2023
Date Data Arrived at EDR: 04/21/2023
Date Made Active in Reports: 07/07/2023
Number of Days to Update: 77
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/17/2023
Next Scheduled EDR Contact: 10/30/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2023
Date Data Arrived at EDR: 06/02/2023
Date Made Active in Reports: 06/14/2023
Number of Days to Update: 12
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/06/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 04/03/2023
Date Data Arrived at EDR: 04/18/2023
Date Made Active in Reports: 06/13/2023
Number of Days to Update: 56
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/21/2023
Next Scheduled EDR Contact: 01/08/2024
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/04/2023
Date Data Arrived at EDR: 05/04/2023
Date Made Active in Reports: 07/25/2023
Number of Days to Update: 82

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/19/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/06/2023
Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2023
Next Scheduled EDR Contact: 11/20/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/28/2023
Next Scheduled EDR Contact: 01/15/2024
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/27/2023
Next Scheduled EDR Contact: 11/06/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/05/2023
Next Scheduled EDR Contact: 01/22/2024
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/27/2023
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 08/30/2023
Next Scheduled EDR Contact: 12/18/2023
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SAN JACINTO IRRIGATION CHANNEL
NOT REPORTED
SAN JACINTO, CA 92582

TARGET PROPERTY COORDINATES

Latitude (North):	33.805858 - 33° 48' 21.09''
Longitude (West):	117.002253 - 117° 0' 8.11''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	499791.5
UTM Y (Meters):	3740436.5
Elevation:	1479 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12015891 LAKEVIEW, CA
Version Date:	2018
East Map:	12002892 SAN JACINTO, CA
Version Date:	2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

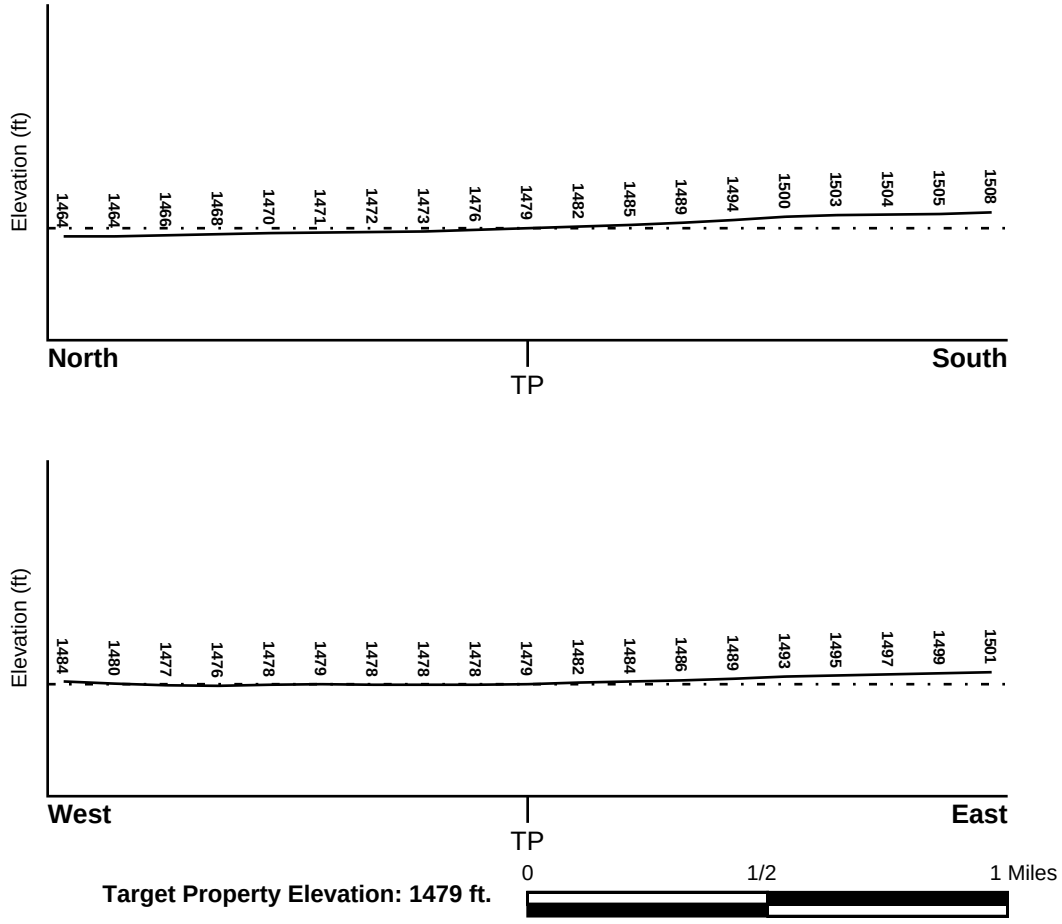
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1479 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C1470G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C1460H	FEMA FIRM Flood data
06065C1480G	FEMA FIRM Flood data
06065C1490G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LAKEVIEW	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

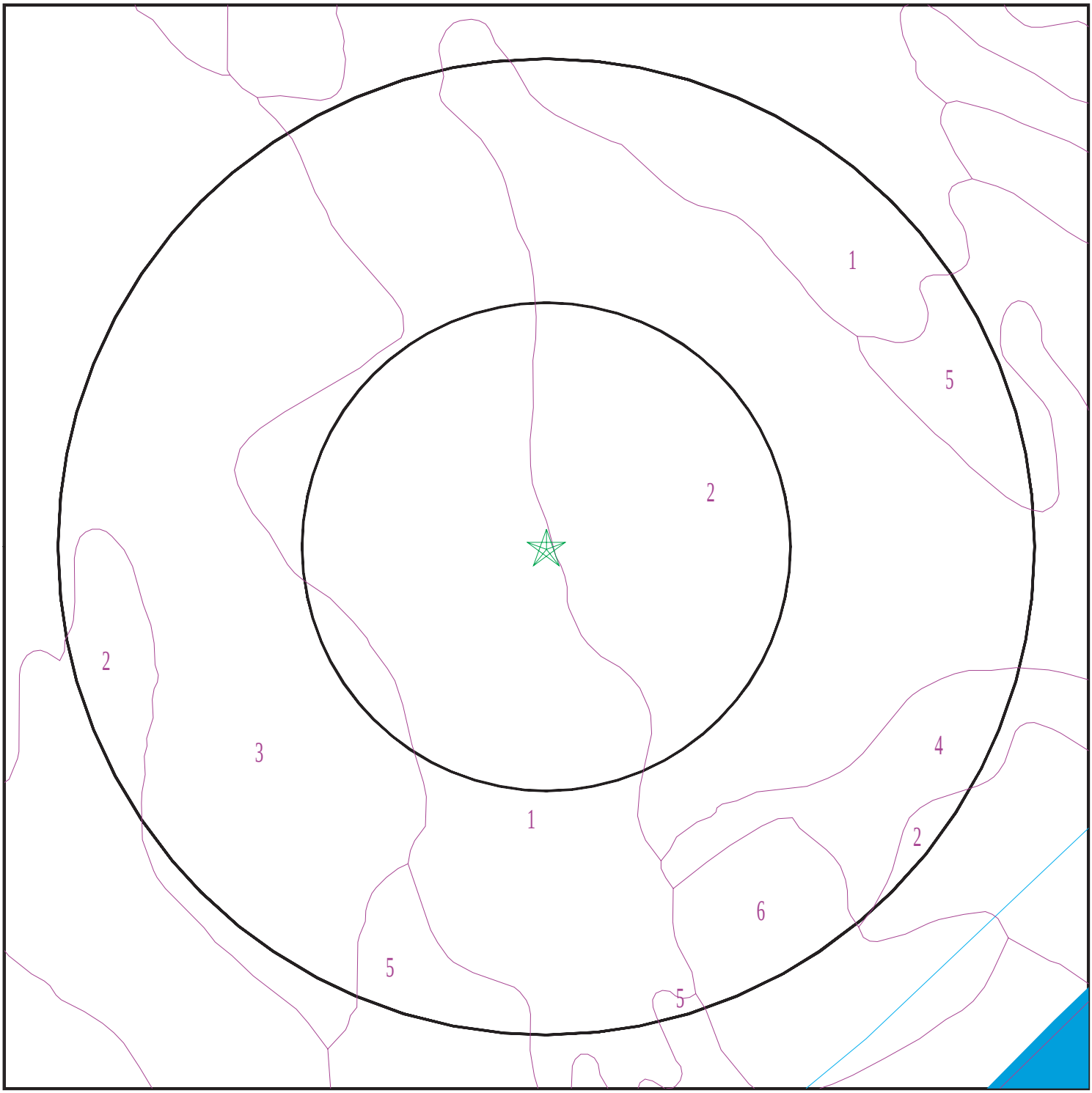
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7466759.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	San Jacinto Irrigation Channel	CLIENT:	Roux Associates
ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
		INQUIRY #:	7466759.2s
LAT/LONG:	33.805858 / 117.002253	DATE:	October 11, 2023 9:47 am

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: GRANGEVILLE

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4
2	16 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4

Soil Map ID: 2

Soil Component Name: GRANGEVILLE

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	35 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 9 Min: 7.4
2	35 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 9 Min: 7.4

Soil Map ID: 3

Soil Component Name: GRANGEVILLE

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4
2	16 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4

Soil Map ID: 4

Soil Component Name: TRAVER

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	20 inches	59 inches	stratified fine sandy loam to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Map ID: 5

Soil Component Name: TRAVER

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4
2	12 inches	38 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	38 inches	59 inches	stratified fine sandy loam to silty clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9.6 Min: 8.4

Soil Map ID: 6

Soil Component Name: Water

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B18	USGS40000138257	1/2 - 1 Mile SE
20	USGS40000138356	1/2 - 1 Mile ENE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

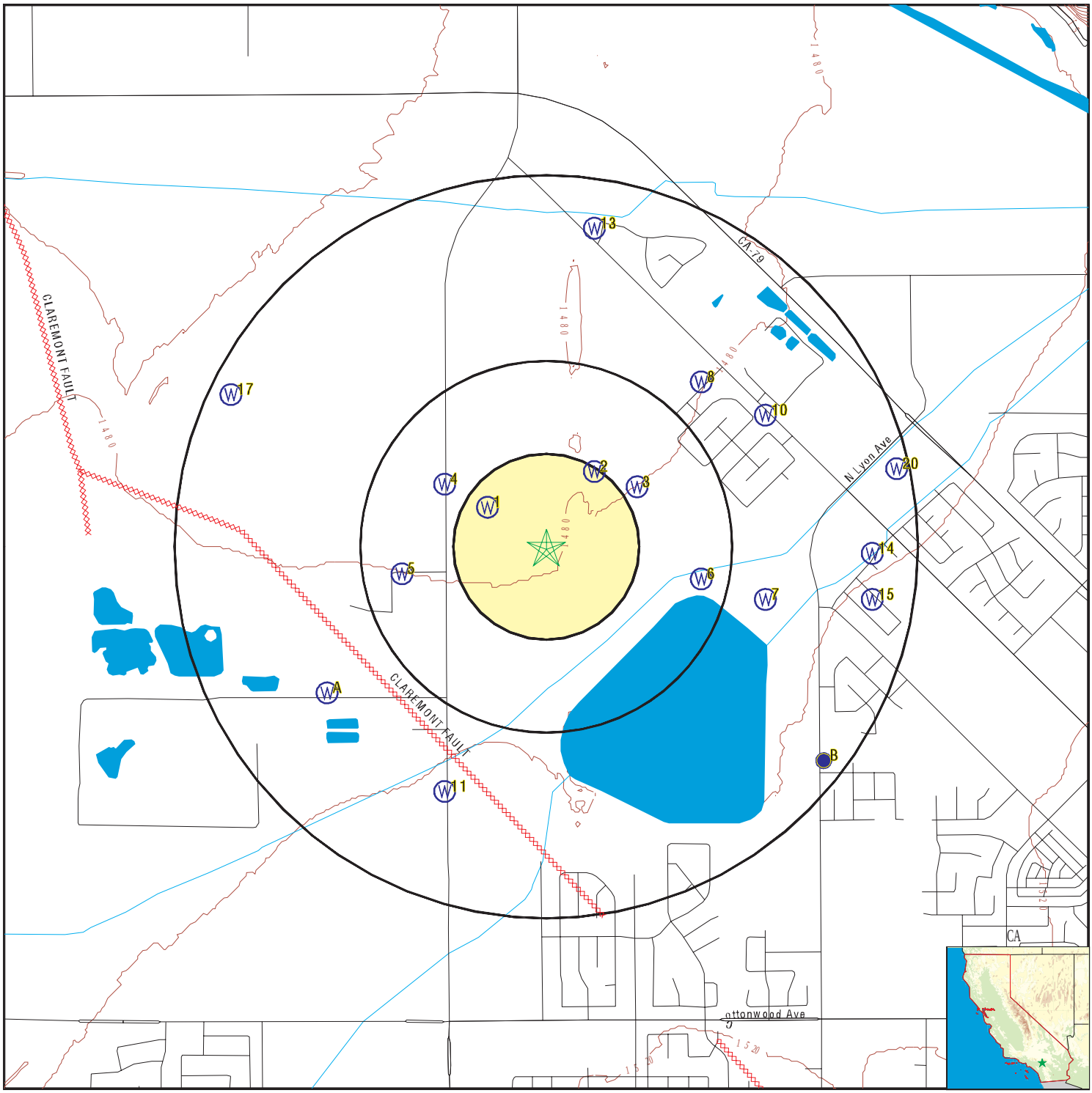
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADWR0000025057	1/8 - 1/4 Mile NW
2	CADWR9000005644	1/8 - 1/4 Mile NNE
3	CADWR9000005641	1/4 - 1/2 Mile ENE
4	CADWR9000005642	1/4 - 1/2 Mile WNW
5	CADWR9000005624	1/4 - 1/2 Mile West
6	CADWR9000005615	1/4 - 1/2 Mile ESE
7	CADWR0000033080	1/2 - 1 Mile ESE
8	CADWR9000005663	1/2 - 1 Mile NE
A9	CADWR9000005589	1/2 - 1 Mile SW
10	CADWR0000034167	1/2 - 1 Mile ENE
11	CADWR9000005565	1/2 - 1 Mile SSW
A12	CADWR0000020814	1/2 - 1 Mile WSW
13	CADWR0000009017	1/2 - 1 Mile North
14	CADWR9000005625	1/2 - 1 Mile East
15	CADWR0000008373	1/2 - 1 Mile East
B16	CADWR9000005581	1/2 - 1 Mile SE
17	CADWR9000005661	1/2 - 1 Mile WNW
B19	CAUSGSN00009430	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 7466759.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	San Jacinto Irrigation Channel	CLIENT:	Roux Associates
ADDRESS:	Not Reported San Jacinto CA 92582	CONTACT:	Jay Vargas
LAT/LONG:	33.805858 / 117.002253	INQUIRY #:	7466759.2s
		DATE:	October 11, 2023 9:47 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
NW
1/8 - 1/4 Mile
Lower

CA WELLS **CADWR0000025057**

Well ID:	04S01W20K001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W20K001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W20K001S&store_num=		
GeoTracker Data:	Not Reported		

2
NNE
1/8 - 1/4 Mile
Lower

CA WELLS **CADWR9000005644**

State Well #:	Not Reported	Station ID:	48158
Well Name:	EMWD10242	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	402	Well Completion Rpt #:	Not Reported

3
ENE
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000005641**

State Well #:	Not Reported	Station ID:	48159
Well Name:	EMWD14491	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	401	Well Completion Rpt #:	Not Reported

4
WNW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR9000005642**

State Well #:	Not Reported	Station ID:	48161
Well Name:	EMWD10243	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	824	Well Completion Rpt #:	Not Reported

5
West
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000005624**

State Well #:	Not Reported	Station ID:	48162
Well Name:	EMWD12161	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	442	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

6
ESE
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000005615**

State Well #:	04S01W21N002S	Station ID:	46608
Well Name:	EMWD10255	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	1220	Well Completion Rpt #:	Not Reported

7
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000033080**

Well ID:	04S01W21P003S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W21P003S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W21P003S&store_num=		
GeoTracker Data:	Not Reported		

8
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005663**

State Well #:	Not Reported	Station ID:	48164
Well Name:	EMWD13502	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	247	Well Completion Rpt #:	Not Reported

A9
SW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005589**

State Well #:	Not Reported	Station ID:	48172
Well Name:	EMWD14420	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	474	Well Completion Rpt #:	Not Reported

10
ENE
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000034167**

Well ID:	04S01W21F001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W21F001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W21F001S&store_num=		

GeoTracker Data: Not Reported

11
SSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005565**

State Well #:	Not Reported	Station ID:	48173
Well Name:	EMWD10310	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	311	Well Completion Rpt #:	Not Reported

A12
WSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000020814**

Well ID:	04S01W29D001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W29D001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W29D001S&store_num=		
GeoTracker Data:	Not Reported		

13
North
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000009017**

Well ID:	04S01W17R002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W17R002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W17R002S&store_num=		
GeoTracker Data:	Not Reported		

14
East
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005625**

State Well #:	Not Reported	Station ID:	48165
Well Name:	EMWD10260	Basin Name:	San Jacinto
Well Use:	Irrigation	Well Type:	Single Well
Well Depth:	792	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

15
East
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000008373**

Well ID:	04S01W21Q001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	04S01W21Q001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=04S01W21Q001S&store_num=		
GeoTracker Data:	Not Reported		

B16
SE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000005581**

State Well #:	04S01W28G001S	Station ID:	6391
Well Name:	Not Reported	Basin Name:	San Jacinto
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

17
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000005661**

State Well #:	Not Reported	Station ID:	48160
Well Name:	EMWD10194	Basin Name:	San Jacinto
Well Use:	Observation	Well Type:	Single Well
Well Depth:	824	Well Completion Rpt #:	Not Reported

B18
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000138257**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W28G001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	460
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	2	Level reading date:	1992-02-21
Feet below surface:	80.40	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1991-06-27	Feet below surface:	180
Feet to sea level:	Not Reported	Note:	Not Reported

B19
SE
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00009430**

Well ID:	USGS-334751116591701	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-334751116591701	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-334751116591701&store_num=		
GeoTracker Data:	Not Reported		

20
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000138356**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	004S001W21K001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92582	9	2

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX G

Photographic Log



G-1. Northwestern beginning of the proposed irrigation channel, north of Parcel 9 (10/13/2023).



G-2. Section of the proposed irrigation channel running along northern boundary of Parcel 7 (10/12/2023).

DRAFT



G-3. Portion of the proposed irrigation channel along Parcel 6 (10/12/2023).



G-4. Proposed irrigation channel area on Parcel 7 (10/12/2023).

DRAFT



G-5. Proposed irrigation channel area on Parcel 8 (10/12/2023).



G-6. Proposed irrigation channel area on Parcel 9 (10/12/2023).

DRAFT



G-7. Proposed irrigation channel area on Parcel 4 (10/13/2023).



G-8. Proposed irrigation channel area on Parcel 3 (10/13/2023).

DRAFT



G-9. Piping located in Parcel 3 (10/13/2023).



G-10. Proposed irrigation channel area on Parcel 2 (10/13/2023).

DRAFT



G-11. Proposed end location of the irrigation channel on Parcel 1 (10/13/2023).



G-12. Empty pond on west adjoining dairy farm (10/12/2023).

DRAFT

APPENDIX H

Pertinent Historical Documentation

ATC ASSOCIATES INC.

50 East Foothill Boulevard
Arcadia, California 91006
www.atc-enviro.com
626.447.5216
Fax 626.447.7593

October 30, 2000

Mr. Ed McGlothlin
CONSOLIDATED WASTE INDUSTRIES, INC.
10680 Silicon Avenue
Montclair, California 91763-4621

NOV 2000
Received
RWQCB

RE: **SITE INVESTIGATION**
WESTRA DAIRY
870 SANDERSON AVENUE
SAN JACINTO, CALIFORNIA
ATC PROJECT NUMBER 12077.5203

Dear McGlothlin:

This report presents the results of a Phase II Subsurface Investigation performed at 870 Sanderson Avenue in San Jacinto, California, by ATC Associates Inc. (ATC). This investigation was performed in accordance with the *Workplan of Environmental Sampling* dated August 4, 2000 prepared by ATC and approved within a California Regional Water Quality Control Board-Santa Ana Region letter dated September 26, 2000. ATC previously prepared a report of tank removal operations "Underground Storage Tank Closure Summary Report" dated February 21, 2000 (ATC Job No. 12077.5202).

BACKGROUND

The project location is the Westra Dairy (the Site) located at 870 Sanderson Avenue in the City of San Jacinto. The Site is situated in Riverside County (See Drawing 1).

ATC was retained by Consolidated Waste Industries, Inc. (CWI) to assist in the closure of three underground storage tanks at the Westra Dairy. ATC's initial scope of work included the collection of soil samples from the floor and walls of a former UST System tank pit (see Drawing 2). CWI over-excavated obvious petroleum hydrocarbon stained soil, prior to ATC's collection of soil samples. Ms. Brenda MacGregor, a representative for the County of Riverside Environmental Health Department, monitored ATC sample collection activities. ATC submitted the collected soil samples for analysis by EPA Methods 8015M for gasoline and diesel, 8020 for BTEX/MTBE and 8260 for MTBE confirmation to a state-certified laboratory.

ATC's evaluation of the analytical results indicated that a release had occurred at the site. ATC recommended a subsurface characterization beneath the former tanks. ATC prepared a Workplan for a Phase II Subsurface Investigation in which was submitted to the State Regional Water Resources Control Board – Santa Ana Regional for approval.

PURPOSE AND SCOPE

The purpose of the work was to define the approximate vertical and lateral extent of contamination in the subsurface soil. The scope of work included:

- Drilling three borings to a maximum depth of 60 feet below ground surface.
- Monitor and log the soil;
- Collect soil samples for analysis by EPA Methods 8015, 8021B, 8260B, and 8270C.
- Evaluate the analytical results
- Provide a report of exploration activity.

ATC's *Workplan of Environmental Sampling* dated August 4, 2000 was approved by the California Regional Water Quality Control Board-Santa Ana Region (RWQCB) dated September 26, 2000 (see attached letter).

HYDROGEOLOGICAL CONDITIONS

The Site and surrounding area are included within the U.S. Geological Survey, San Jacinto, California, 7.5-minute quadrangle map. The elevation of the Subject Property is shown as approximately 1,530 feet above mean sea level (MSL).

Quaternary age alluvial fan deposits consisting of unconsolidated sand and gravel underlie the Site. Ground water in this area is reportedly at 120 feet below the ground surface. The regional ground water gradient is southward in the vicinity.

FIELD WORK

ATC advanced 3 soil borings with the use of a CME-85 drilling rig on October 10, 2000 at RWQCB pre-approved locations in association with the former UST field. Soil sample collection was performed at 5 foot intervals beginning at 15 feet to a depth of 70 feet within boring S-1 and S-2, and to a maximum depth of 60 feet within boring S-3. Soil lithology within the borings were characteristic of alluvial deposits consisting of unconsolidated sands and gravel from the surface to the total depth of each boring.

Soil samples were collected using a Modified California Split Spoon Sampler. Upon reaching designated sampling depths, the sampler was driven 18 inches ahead into undisturbed soil. The collected soil samples were retained in stainless steel sleeves, capped with Teflon sheeting and plastic end caps. The samples designated for analysis were labeled, placed on Chain of Custody forms, placed in an iced cooler and delivered to a certified laboratory for analysis.

LABORATORY ANALYSES

All collected soil samples were tested for total (gas and diesel) fuel and aromatic hydrocarbons by Environmental Protection Agency (EPA) methods 8015 and 8021B. Selected samples from boring S-1 at 15 feet and S-3 at 15 feet were analyzed for oxygenates, alcohol's and semi-volatiles as requested by Ms. Rose Scott of the RWQCB by EPA Methods 8260B and 8270C. Analyses were performed by Enviro Chem Laboratories of Pomona, California.

FINDINGS

Soil encountered during this investigation consisted of alluvium, which was brown to a mottled blue/gray color, moist and firm to very dense. Groundwater was not encountered in the borings drilled. Groundwater is estimated to be at a depth of approximately 120 feet beneath the site. Petroleum odors and obvious staining was encountered in all the borings to a depth of 15 feet.

The laboratory analyses indicated that gasoline compounds were present at 15 feet in boring S-1, but concentrations diminished quickly with depth. The highest concentration (2,710-ppm) was at 15 feet, diminishing to 0.497 ppm at 35 feet, and non-detect below 35 feet. Only one sample contained gasoline hydrocarbons in either of borings S-2 or S-3. The sample from boring S-3 at 15 feet contained 0.147 ppm gasoline hydrocarbons Diesel concentrations were not detected in any soil samples.

Two soil samples from 15 feet which contained gasoline compounds were further analyzed for oxygenates and semi volatile compounds by EPA Methods 8260B and 8270C. As expected, several gasoline related compounds were present in sample S-1 at 15 feet which had the highest concentration of gasoline. MTBE was present at 200 mg/kg. Aromatic hydrocarbons including benzene, toluene, ethylbenzene, xylene and trimethylbenzene were present ranging from 22.4 to 578 mg/kg. The laboratory results are summarized on Tables 1, 2, and 3. The laboratory results and chain-of-custody are attached to this report.

CONCLUSIONS

Based on ATC's field observations and the analytical results of the collected soil samples, it is ATC's opinion that the contamination at the site is very limited in vertical and lateral extent. The vertical extent of contamination extends below the former tanks to a depth of 35 feet.

ATC suggests that recent cleanup criteria allow fuel hydrocarbons to be left in soil if the risk of impacting groundwater resources is low. As reported to ATC, the depth to groundwater in this local vicinity is below 120 feet bgs. It appears therefore, that the site conditions are low-risk. The type of hydrocarbons (gasoline) and the relatively low concentrations of hydrocarbon constituents (benzene) and the lack of MTBE, TAME, DIPE and TBA coupled with the great depth to groundwater suggest that no cleanup action would be required. Additionally, a "clean" zone has been established beneath the deepest zone of contamination and the potential for migration to any groundwater resources is low. ATC recommends that the regulatory agency close the site.

LIMITATIONS

This project was performed employing the same degree and skill expected of other similar firms practicing in similar situations or localities. The statements and conclusions provided herein are based on field observations and the analytical results described herein and considered professional opinions.

If there are any questions regarding this report or any of its attachments, please contact the undersigned at (626) 447-5216.

Sincerely,

Timothy J. Lane
Project Geologist

Keith G. Farrell, CEG #1314
Director of Geological Services

Attachments

Drawing 1 - Site Location Map
Drawing 2 - Soil Boring Map

Table 1 - Laboratory Summary – 8015/8021B
Table 2 - Laboratory Summary – 8260B
Table 3 Laboratory Summary – 8270C

Appendix A - Certified Laboratory Results
Appendix B – CRWQCB letter dated September 26, 2000

TABLE 1
LABORATORY SUMMARY
EPA METHODS 8015/8021b
WESTRA DAIRY
SAN JACINTO, CALIFORNIA
ATC PROJECT NUMBER 12077.5203
RESULTS ARE EXPRESSED AS MG/KG

Boring	Depth	8015g	8015d	B	T	E	X	MTBE*
S-1	15	2710	ND	ND	131	ND	486	169
	20	3.50	ND	ND	0.179	ND	0.375	3.13
	25	ND	ND	ND	0.008	ND	0.015	0.028
	30	ND	ND	ND	ND	ND	ND	ND
	35	0.497	ND	ND	0.021	0.012	0.158	0.027
	40	ND	ND	ND	ND	ND	ND	ND
	45	ND	ND	ND	ND	ND	ND	ND
	50	ND	ND	ND	ND	ND	ND	ND
	55	ND	ND	ND	ND	ND	ND	ND
	60	ND	ND	ND	ND	ND	ND	0.089
	65	ND	ND	ND	ND	ND	ND	ND
	70	ND	ND	ND	ND	ND	ND	ND
S-2	15	ND	ND	ND	ND	ND	ND	ND
	20	ND	ND	ND	ND	ND	ND	ND
	25	ND	ND	ND	ND	ND	ND	ND
	30	ND	ND	ND	ND	ND	ND	ND
	35	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	ND
	45	ND	ND	ND	ND	ND	ND	ND
	50	ND	ND	ND	ND	ND	ND	ND
	55	ND	ND	ND	ND	ND	ND	ND
	60	ND	ND	ND	ND	ND	ND	ND
	65	ND	ND	ND	ND	ND	ND	ND
	70	ND	ND	ND	ND	ND	ND	ND
S-3	15	0.147	ND	0.009	0.031	ND	0.012	0.186
	20	ND	ND	0.006	0.005	ND	ND	0.047
	25	ND	ND	ND	ND	ND	ND	ND
	30	ND	ND	ND	ND	ND	ND	ND
	35	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	ND
	45	ND	ND	ND	ND	ND	ND	ND
	50	ND	ND	ND	ND	ND	ND	ND
	55	ND	ND	ND	ND	ND	ND	ND
	60	ND	ND	ND	ND	ND	ND	ND

ND= Not detected at laboratory detection levels
B = Benzene T = toluene E = Ethylbenzne X = Total Xylene Isomers
ND = Not detected at the laboratories detection level *MTBE =analyzed by EPA Method 8021B

TABLE 2
LABORATORY SUMMARY
EPA METHOD 8260B
WESTRA DAIRY
SAN JACINTO, CALIFORNIA
ATC PROJECT NUMBER 12077.5203
RESULTS ARE EXPRESSED AS mg/Kg

Sample	Depth	B	T	E	MTBE	NAPTH	N-Prop	1,2,4 TriMet	1,3,5 TriMet	X
S-1	15	22.4	308	98.6	200	31.4	34.6	248	82.8	578
S-3	15	ND	0.020	ND	0.197	ND	ND	ND	ND	ND

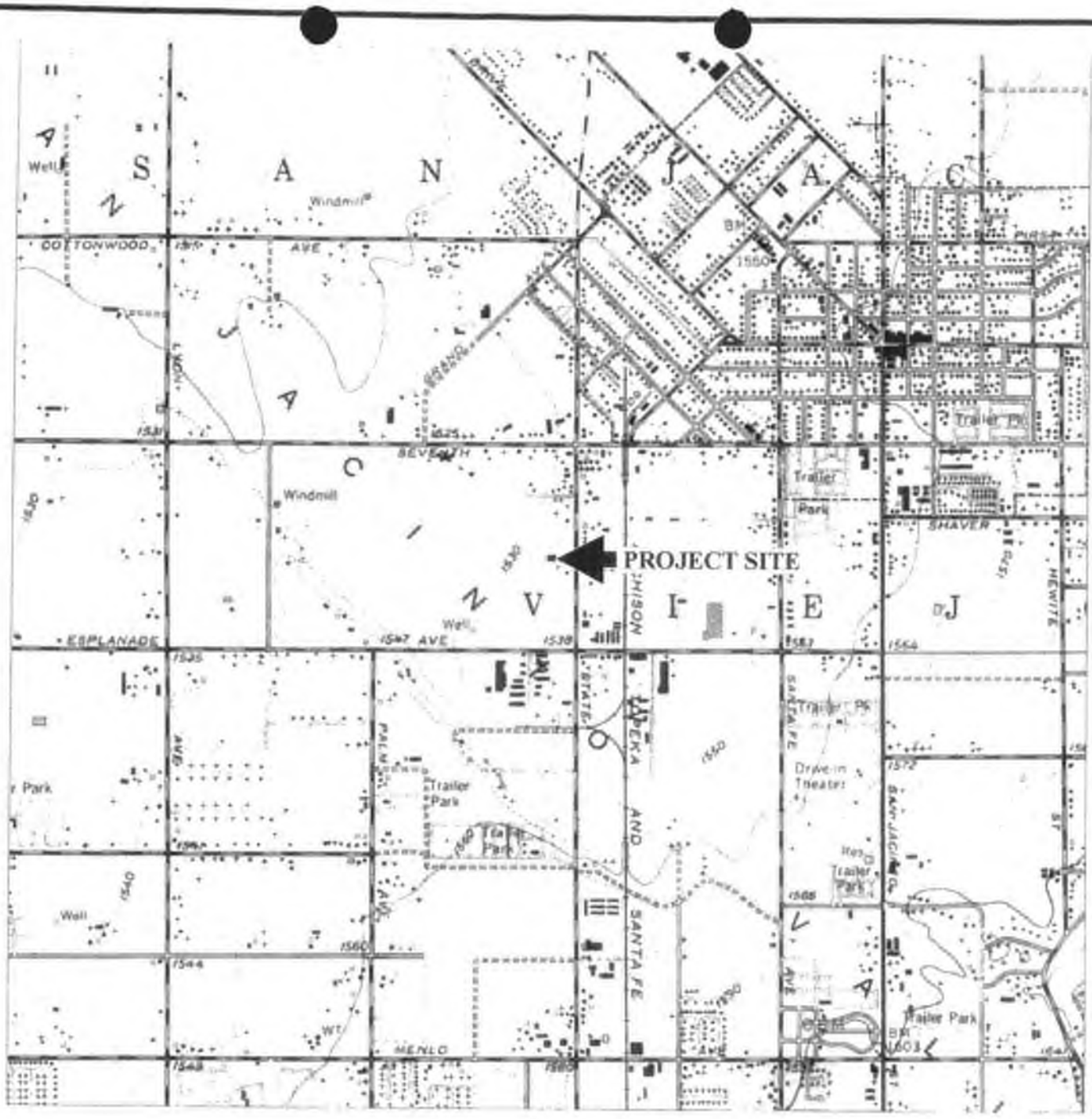
B = Benzene T = toluene E = Ethylbenzne X = Total Xylene Isomers
MTBE = Meth-tert Butyl Ether
NAPTH = Napthalene
N-Prop = N-Propylbenzene
1,2,4 TriMet = 1,2,4 TriMethylbenzene
1,3,5 TriMet = 1,3,5, TriMethlybenzene

ND = Not detected at the laboratories detection level.

TABLE 3
LABORATORY SUMMARY
EPA METHOD 8270C
WESTRA DAIRY
SAN JACINTO, CALIFORNIA
ATC PROJECT NUMBER 12077.5203
RESULTS ARE EXPRESSED AS mg/Kg

SAMPLE	DEPTH	2-Methylnapthalene	Napthalene
S-1	15	33.6	32.6
S-3	15	ND	ND

ND = Not detected at the laboratories detection level.

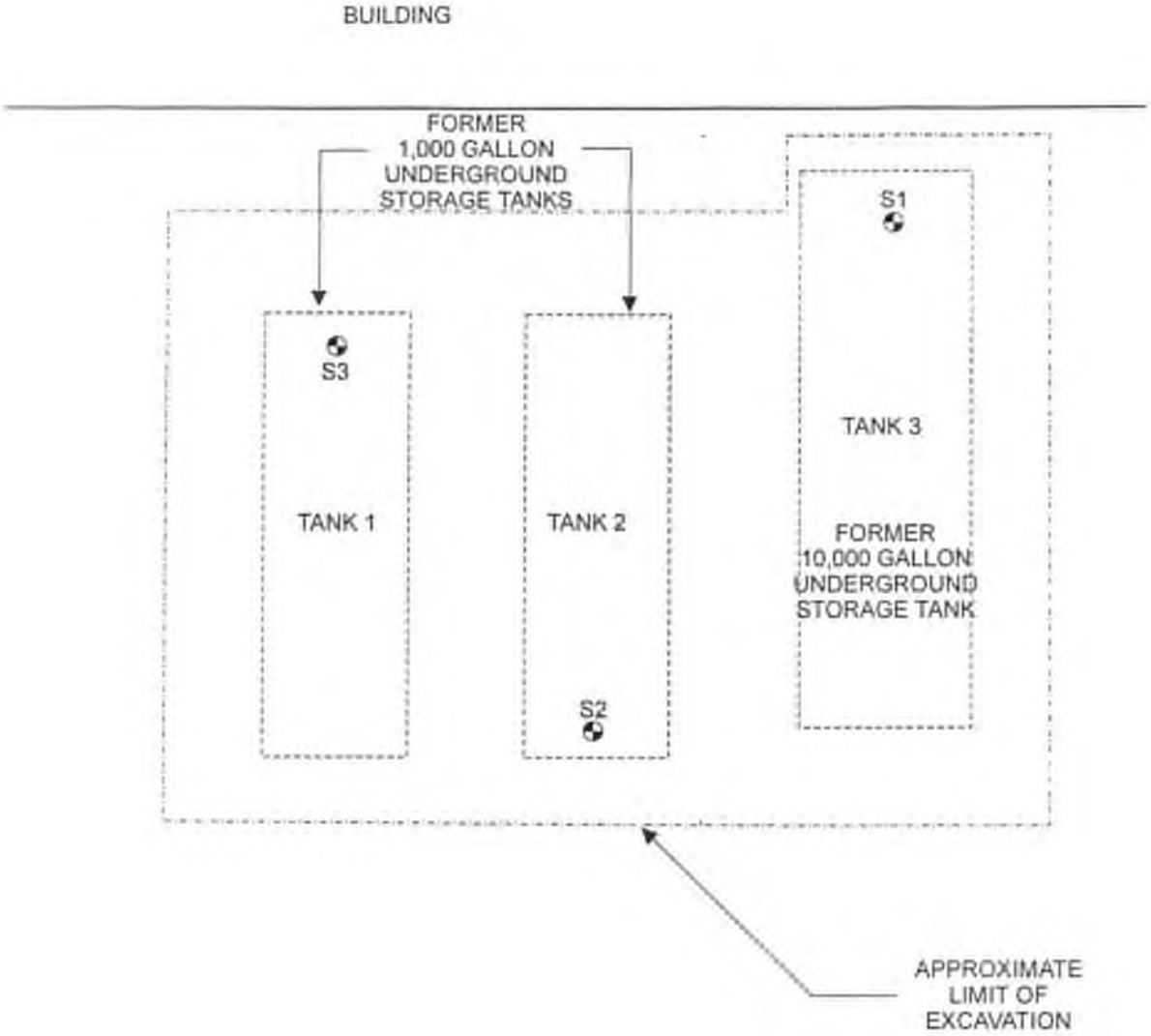


CORONA SOUTH, CALIFORNIA QUADRANGLE, DATE 1967, PHOTOREVISED 1988, SCALE 1:24,000

VATC ASSOCIATES
50 East Foothill Boulevard
Arcadia, California 91006
(626) 447-5216

PROJECT NO. 52.12077.5203 | DATE 10/20/2000

FIGURE 1
SITE LOCATION MAP
CONSOLIDATED WASTE INDUSTRIES, INC.
WESTRA DAIRY
870 SANDERSON
SAN JACINTO, CALIFORNIA



ATC ASSOCIATES
50 East Foothill Boulevard
Arcadia, California 91006
(626) 447-5216

PROJECT NO. 52.12077.5203 | DATE 10/20/2000 | SCALE: NOT TO SCALE

FIGURE 2

SITE PLOT PLAN

DRILLING LOCATIONS

CONSOLIDATED WASTE INDUSTRIES, INC.
WESTRA DAIRY
870 SANDERSON
SAN JACINTO, CALIFORNIA

APPENDIX A

CERTIFIED LABORATORY RESULTS

Enviro - Chem, Inc.
1714 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: October 16, 2000

Mr. Tim Lane
ATC Environmental, Inc.
50 East Foothill Blvd
Arcadia, CA 91006

Project: **Westra Dairy-5203**

Dear Mr. Lane:

The analytical results for the soil samples, received by our Lab on October 10, 2000, are attached.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call Mr. John Ackerman, our Customer Service Specialist, or myself, if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

Chen-Chou Su
Lab Manager

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/10-12/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

EPA 5030/8015M FOR TPH-GASOLINE RANGE (C4-C10)
EPA 5030/8021B FOR BTEX/MTBE
UNITS = MG/KG (PPM) PAGE 1 OF 2

SAMPLE ID	LAB ID	TPH-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	MTBE	DF
S-1-15	001010-9	2710	ND	131	ND	486	169*10000	
S-1-20	001010-10	3.50	ND	0.179	ND	0.375	3.13	10
S-1-25	001010-11	ND	ND	0.008	ND	0.015	0.028	1
S-1-30	001010-12	ND	ND	ND	ND	ND	ND	1
S-1-35	001010-13	0.497	ND	0.021	0.012	0.158	0.027	1
S-1-40	001010-14	ND	ND	ND	ND	ND	ND	1
S-1-45	001010-15	ND	ND	ND	ND	ND	ND	1
S-1-50	001010-16	ND	ND	ND	ND	ND	ND	1
S-1-60	001010-17	ND	ND	ND	ND	ND	0.089	1
S-1-65	001010-18	ND	ND	ND	ND	ND	ND	1
S-1-70	001010-19	ND	ND	ND	ND	ND	ND	1
S-3-15	001010-20	0.147	0.009	0.031	ND	0.012	0.186	1
S-3-20	001010-21	ND	0.006	0.005	ND	ND	0.047	1
S-3-25	001010-22	ND	ND	ND	ND	ND	ND	1
S-3-30	001010-23	ND	ND	ND	ND	ND	ND	1
S-3-35	001010-24	ND	ND	ND	ND	ND	ND	1
S-3-40	001010-25	ND	ND	ND	ND	ND	ND	1
S-3-45	001010-26	ND	ND	ND	ND	ND	ND	1
S-3-50	001010-27	ND	ND	ND	ND	ND	ND	1
S-3-55	001010-28	ND	ND	ND	ND	ND	ND	1
S-3-60	001010-29	ND	ND	ND	ND	ND	ND	1
PQL		**0.1**	**0.005**	**0.005**	**0.005**	**0.01**	**0.025**	

COMMENTS:
DF = DILUTION FACTOR / *:DF=500
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = DF X PQL
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT
TPH = TOTAL PETROLEUM HYDROCARBONS
MTBE = METHYL tert-BUTYL ETHER
MTBE IS NOT UTILIZED IN THE CALCULATION FOR TPH-GASOLINE
Data Reviewed and Approved by:
CAL-DHS ELAP CERT No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00
MATRIX: SOIL
REPORT TO: MR. TIM LANE

DATE SAMPLE REC'D: 10/10/00
DATE ANALYZED: 10/10-12/00
DATE REPORTED: 10/16/00

EPA 5030/8015M FOR TPH-GASOLINE RANGE (C4-C10)
EPA 5030/8021B FOR BTEX/MTBE
UNITS = MG/KG (PPM) PAGE 2 OF 2

SAMPLE ID	LAB ID	TPH-GASOLINE	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	MTBE	DF
S-2-15	001010-30	ND	ND	ND	ND	ND	ND	1
S-2-20	001010-31	ND	ND	ND	ND	ND	ND	1
S-2-25	001010-32	ND	ND	ND	ND	ND	ND	1
S-2-30	001010-33	ND	ND	ND	ND	ND	ND	1
S-2-35	001010-34	ND	ND	ND	ND	ND	ND	1
S-2-40	001010-35	ND	ND	ND	ND	ND	ND	1
S-2-45	001010-36	ND	ND	ND	ND	ND	ND	1
S-2-50	001010-37	ND	ND	ND	ND	ND	ND	1
S-2-55	001010-38	ND	ND	ND	ND	ND	ND	1
S-2-60	001010-39	ND	ND	ND	ND	ND	ND	1
S-2-65	001010-40	ND	ND	ND	ND	ND	ND	1
S-2-70	001010-41	ND	ND	ND	ND	ND	ND	1
Method Blank		ND	ND	ND	ND	ND	ND	1
PQL		0.1	0.005	0.005	0.005	0.01	0.025	

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = DF X PQL
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT
TPH = TOTAL PETROLEUM HYDROCARBONS
MTBE = METHYL tert-BUTYL ETHER
MTBE IS NOT UTILIZED IN THE CALCULATION FOR TPH-GASOLINE
Data Reviewed and Approved by:
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ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/10-11/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

LUFT / EPA 8015M FOR TPH-DIESEL RANGE (C10-C22)
UNITS = MG/KG (PPM)
PAGE 1 OF 2

SAMPLE ID	LAB ID	TPH-DIESEL	DF
S-1-15	001010-9	ND	1
S-1-20	001010-10	ND	1
S-1-25	001010-11	ND	1
S-1-30	001010-12	ND	1
S-1-35	001010-13	ND	1
S-1-40	001010-14	ND	1
S-1-45	001010-15	ND	1
S-1-50	001010-16	ND	1
S-1-60	001010-17	ND	1
S-1-65	001010-18	ND	1
S-1-70	001010-19	ND	1
S-3-15	001010-20	ND	1
S-3-20	001010-21	ND	1
S-3-25	001010-22	ND	1
S-3-30	001010-23	ND	1
S-3-35	001010-24	ND	1
S-3-40	001010-25	ND	1
S-3-45	001010-26	ND	1
S-3-50	001010-27	ND	1
S-3-55	001010-28	ND	1
S-3-60	001010-29	ND	1
PQL		10	

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = DF X PQL
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT
TPH = TOTAL PETROLEUM HYDROCARBONS

Data Reviewed and Approved by:
CAL-DHS ELAP CERT No.: 1555

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LABORATORY REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/10-11/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

LUFT / EPA 8015M FOR TPH-DIESEL RANGE (C10-C22)
UNITS = MG/KG (PPM)
PAGE 2 OF 2

SAMPLE ID	LAB ID	TPH-DIESEL	DF
S-2-15	001010-30	ND	1
S-2-20	001010-31	ND	1
S-2-25	001010-32	ND	1
S-2-30	001010-33	ND	1
S-2-35	001010-34	ND	1
S-2-40	001010-35	ND	1
S-2-45	001010-36	ND	1
S-2-50	001010-37	ND	1
S-2-55	001010-38	ND	1
S-2-60	001010-39	ND	1
S-2-65	001010-40	ND	1
S-2-70	001010-41	ND	1
Method Blank		ND	1
PQL		10	

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = DF X PQL
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT
TPH = TOTAL PETROLEUM HYDROCARBONS

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ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

SAMPLE I.D.: **S-1-15** LAB I.D.: 001010-9

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 8260B, PAGE 1 OF 2
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT X2000
ACETONE	ND	0.05
BENZENE	22.4	0.01
BROMOBENZENE	ND	0.01
BROMOCHLOROMETHANE	ND	0.01
BROMODICHLOROMETHANE	ND	0.01
BROMOFORM	ND	0.01
BROMOMETHANE	ND	0.01
2-BUTANONE (MEK)	ND	0.05
N-BUTYLBENZENE	ND	0.01
SEC-BUTYLBENZENE	ND	0.01
TERT-BUTYLBENZENE	ND	0.01
CARBON DISULFIDE	ND	0.01
CARBON TETRACHLORIDE	ND	0.01
CHLOROBENZENE	ND	0.01
CHLOROETHANE	ND	0.01
CHLOROFORM	ND	0.01
CHLOROMETHANE	ND	0.01
2-CHLOROTOLUENE	ND	0.01
4-CHLOROTOLUENE	ND	0.01
DIBROMOCHLOROMETHANE	ND	0.01
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.01
1,2-DIBROMOETHANE	ND	0.01
DIBROMOMETHANE	ND	0.01
1,2-DICHLOROBENZENE	ND	0.01
1,3-DICHLOROBENZENE	ND	0.01
1,4-DICHLOROBENZENE	ND	0.01
DICHLORODIFLUOROMETHANE	ND	0.01
1,1-DICHLOROETHANE	ND	0.01
1,2-DICHLOROETHANE	ND	0.01
1,1-DICHLOROETHENE	ND	0.01
CIS-1,2-DICHLOROETHENE	ND	0.01
TRANS-1,2-DICHLOROETHENE	ND	0.01
1,2-DICHLOROPROPANE	ND	0.01

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY:

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LABORATORY REPORT

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PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

SAMPLE I.D.: **S-1-15** LAB I.D.: 001010-9

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 8260B, PAGE 2 OF 2
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT X2000
1,3-DICHLOROPROPANE	ND	0.01
2,2-DICHLOROPROPANE	ND	0.01
1,1-DICHLOROPROPENE	ND	0.01
CIS-1,3-DICHLOROPROPENE	ND	0.01
TRANS-1,3-DICHLOROPROPENE	ND	0.01
ETHYLBENZENE	98.6	0.01
2-HEXANONE	ND	0.05
HEXACHLOROBUTADIENE	ND	0.01
IODOMETHANE	ND	0.01
ISOPROPYLBENZENE	ND	0.01
4-ISOPROPYLTOLUENE	ND	0.01
4-METHYL-2-PENTANONE (MIBK)	ND	0.05
METHYL tert-BUTYL ETHER	200	0.01
METHYLENE CHLORIDE	ND	0.01
NAPHTHALENE	31.4	0.01
N-PROPYLBENZENE	34.6	0.01
STYRENE	ND	0.01
1,1,1,2-TETRACHLOROETHANE	ND	0.01
1,1,2,2-TETRACHLOROETHANE	ND	0.01
TETRACHLOROETHENE (PCE)	ND	0.01
TOLUENE	308	0.01
1,2,3-TRICHLOROBENZENE	ND	0.01
1,2,4-TRICHLOROBENZENE	ND	0.01
1,1,1-TRICHLOROETHANE	ND	0.01
1,1,2-TRICHLOROETHANE	ND	0.01
TRICHLOROETHENE (TCE)	ND	0.01
TRICHLOROFLUOROMETHANE	ND	0.01
1,2,3-TRICHLOROPROPANE	ND	0.01
1,2,4-TRIMETHYLBENZENE	248	0.01
1,3,5-TRIMETHYLBENZENE	82.8	0.01
VINYL CHLORIDE	ND	0.01
TOTAL XYLENES	578	0.02

COMMENTS ND: NON-DETECTED OR BELOW THE REPORTING LIMIT

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS CERTIFICATE # 1555

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LABORATORY REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

SAMPLE I.D.: **S-3-15** LAB I.D.: 001010-20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 8260B, PAGE 1 OF 2
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT X1
ACETONE	ND	0.05
BENZENE	ND	0.01
BROMOBENZENE	ND	0.01
BROMOCHLOROMETHANE	ND	0.01
BROMODICHLOROMETHANE	ND	0.01
BROMOFORM	ND	0.01
BROMOMETHANE	ND	0.01
2-BUTANONE (MEK)	ND	0.05
N-BUTYLBENZENE	ND	0.01
SEC-BUTYLBENZENE	ND	0.01
TERT-BUTYLBENZENE	ND	0.01
CARBON DISULFIDE	ND	0.01
CARBON TETRACHLORIDE	ND	0.01
CHLOROBENZENE	ND	0.01
CHLOROETHANE	ND	0.01
CHLOROFORM	ND	0.01
CHLOROMETHANE	ND	0.01
2-CHLOROTOLUENE	ND	0.01
4-CHLOROTOLUENE	ND	0.01
DIBROMOCHLOROMETHANE	ND	0.01
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.01
1,2-DIBROMOETHANE	ND	0.01
DIBROMOMETHANE	ND	0.01
1,2-DICHLOROBENZENE	ND	0.01
1,3-DICHLOROBENZENE	ND	0.01
1,4-DICHLOROBENZENE	ND	0.01
DICHLORODIFLUOROMETHANE	ND	0.01
1,1-DICHLOROETHANE	ND	0.01
1,2-DICHLOROETHANE	ND	0.01
1,1-DICHLOROETHENE	ND	0.01
CIS-1,2-DICHLOROETHENE	ND	0.01
TRANS-1,2-DICHLOROETHENE	ND	0.01
1,2-DICHLOROPROPANE	ND	0.01

----- TO BE CONTINUED ON PAGE #2 -----

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PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

SAMPLE I.D.: **S-3-15** LAB I.D.: 001010-20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 8260B, PAGE 2 OF 2
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT X1
1,3-DICHLOROPROPANE	ND	0.01
2,2-DICHLOROPROPANE	ND	0.01
1,1-DICHLOROPROPENE	ND	0.01
CIS-1,3-DICHLOROPROPENE	ND	0.01
TRANS-1,3-DICHLOROPROPENE	ND	0.01
ETHYLBENZENE	ND	0.01
2-HEXANONE	ND	0.05
HEXACHLOROBUTADIENE	ND	0.01
IODOMETHANE	ND	0.01
ISOPROPYLBENZENE	ND	0.01
4-ISOPROPYLTOLUENE	ND	0.01
4-METHYL-2-PENTANONE (MIBK)	ND	0.05
METHYL tert-BUTYL ETHER	0.197	0.01
METHYLENE CHLORIDE	ND	0.01
NAPHTHALENE	ND	0.01
N-PROPYLBENZENE	ND	0.01
STYRENE	ND	0.01
1,1,1,2-TETRACHLOROETHANE	ND	0.01
1,1,2,2-TETRACHLOROETHANE	ND	0.01
TETRACHLOROETHENE (PCE)	ND	0.01
TOLUENE	0.020	0.01
1,2,3-TRICHLOROBENZENE	ND	0.01
1,2,4-TRICHLOROBENZENE	ND	0.01
1,1,1-TRICHLOROETHANE	ND	0.01
1,1,2-TRICHLOROETHANE	ND	0.01
TRICHLOROETHENE (TCE)	ND	0.01
TRICHLOROFLUOROMETHANE	ND	0.01
1,2,3-TRICHLOROPROPANE	ND	0.01
1,2,4-TRIMETHYLBENZENE	ND	0.01
1,3,5-TRIMETHYLBENZENE	ND	0.01
VINYL CHLORIDE	ND	0.01
TOTAL XYLENES	ND	0.02

COMMENTS ND: NON-DETECTED OR BELOW THE REPORTING LIMIT

DATA REVIEWED AND APPROVED BY:
CAL-DHS CERTIFICATE # 1555

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1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

METHOD BLANK REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

METHOD BLANK FOR LAB I.D.: 001010-9, -20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 8260B, PAGE 1 OF 2
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT X1
ACETONE	ND	0.05
BENZENE	ND	0.01
BROMOBENZENE	ND	0.01
BROMOCHLOROMETHANE	ND	0.01
BROMODICHLOROMETHANE	ND	0.01
BROMOFORM	ND	0.01
BROMOMETHANE	ND	0.01
2-BUTANONE (MEK)	ND	0.05
N-BUTYLBENZENE	ND	0.01
SEC-BUTYLBENZENE	ND	0.01
TERT-BUTYLBENZENE	ND	0.01
CARBON DISULFIDE	ND	0.01
CARBON TETRACHLORIDE	ND	0.01
CHLOROBENZENE	ND	0.01
CHLOROETHANE	ND	0.01
CHLOROFORM	ND	0.01
CHLOROMETHANE	ND	0.01
2-CHLOROTOLUENE	ND	0.01
4-CHLOROTOLUENE	ND	0.01
DIBROMOCHLOROMETHANE	ND	0.01
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.01
1,2-DIBROMOETHANE	ND	0.01
DIBROMOMETHANE	ND	0.01
1,2-DICHLOROBENZENE	ND	0.01
1,3-DICHLOROBENZENE	ND	0.01
1,4-DICHLOROBENZENE	ND	0.01
DICHLORODIFLUOROMETHANE	ND	0.01
1,1-DICHLOROETHANE	ND	0.01
1,2-DICHLOROETHANE	ND	0.01
1,1-DICHLOROETHENE	ND	0.01
CIS-1,2-DICHLOROETHENE	ND	0.01
TRANS-1,2-DICHLOROETHENE	ND	0.01
1,2-DICHLOROPROPANE	ND	0.01

----- TO BE CONTINUED ON PAGE #2 -----

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METHOD BLANK REPORT

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MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

METHOD BLANK FOR LAB I.D.: 001010-9, -20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 8260B, PAGE 2 OF 2
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT X1
1,3-DICHLOROPROPANE	ND	0.01
2,2-DICHLOROPROPANE	ND	0.01
1,1-DICHLOROPROPENE	ND	0.01
CIS-1,3-DICHLOROPROPENE	ND	0.01
TRANS-1,3-DICHLOROPROPENE	ND	0.01
ETHYLBENZENE	ND	0.01
2-HEXANONE	ND	0.05
HEXACHLOROBUTADIENE	ND	0.01
IODOMETHANE	ND	0.01
ISOPROPYLBENZENE	ND	0.01
4-ISOPPROPYLTOLUENE	ND	0.01
4-METHYL-2-PENTANONE (MIBK)	ND	0.05
METHYL tert-BUTYL ETHER	ND	0.01
METHYLENE CHLORIDE	ND	0.01
NAPHTHALENE	ND	0.01
N-PROPYLBENZENE	ND	0.01
STYRENE	ND	0.01
1,1,1,2-TETRACHLOROETHANE	ND	0.01
1,1,2,2-TETRACHLOROETHANE	ND	0.01
TETRACHLOROETHENE (PCE)	ND	0.01
TOLUENE	ND	0.01
1,2,3-TRICHLOROBENZENE	ND	0.01
1,2,4-TRICHLOROBENZENE	ND	0.01
1,1,1-TRICHLOROETHANE	ND	0.01
1,1,2-TRICHLOROETHANE	ND	0.01
TRICHLOROETHENE (TCE)	ND	0.01
TRICHLOROFLUOROMETHANE	ND	0.01
1,2,3-TRICHLOROPROPANE	ND	0.01
1,2,4-TRIMETHYLBENZENE	ND	0.01
1,3,5-TRIMETHYLBENZENE	ND	0.01
VINYL CHLORIDE	ND	0.01
TOTAL XYLENES	ND	0.02

COMMENTS ND: NON-DETECTED OR BELOW THE REPORTING LIMIT

DATA REVIEWED AND APPROVED BY:
CAL-DHS CERTIFICATE # 1555

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LABORATORY REPORT

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PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

SAMPLE I.D.: **S-1-15** LAB I.D.: 001010-9

ANALYSIS: POLYNUCLEAR AROMATIC HYDROCARBONS, EPA METHOD 8270C
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT	X1
ACENAPHTHENE	ND	0.5	
ACENAPHTHYLENE	ND	0.5	
ANTHRACENE	ND	0.5	
BENZO(a)ANTHRACENE	ND	0.5	
BENZO(a)PYRENE	ND	0.5	
BENZO(b)FLUORANTHENE	ND	0.5	
BENZO(k)FLUORANTHENE	ND	0.5	
BENZO(g,h,i)PERYLENE	ND	0.5	
CHRYSENE	ND	0.5	
DIBENZO(a,h)ANTHRACENE	ND	0.5	
DIBENZO(a,e)PYRENE	ND	0.5	
DIBENZO(a,h)PYRENE	ND	0.5	
DIBENZO(a,i)PYRENE	ND	0.5	
FLUORANTHENE	ND	0.5	
FLUORENE	ND	0.5	
INDENO(1,2,3-cd)PYRENE	ND	0.5	
2-METHYLNAPHTHALENE	33.6	0.5	(X10)
NAPHTHALENE	32.3	0.5	(X10)
PHENANTHRENE	ND	0.5	
PYRENE	ND	0.5	

COMMENTS:
ND = NON-DETECTED OR BELOW THE REPORTING LIMIT

Data Reviewed and Approved by: _____
CAL-DHS ELAP#1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

SAMPLE I.D.: **S-3-15** LAB I.D.: 001010-20

ANALYSIS: POLYNUCLEAR AROMATIC HYDROCARBONS, EPA METHOD 8270C
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT	X1
ACENAPHTHENE	ND	0.5	
ACENAPHTHYLENE	ND	0.5	
ANTHRACENE	ND	0.5	
BENZO(a)ANTHRACENE	ND	0.5	
BENZO(a)PYRENE	ND	0.5	
BENZO(b)FLUORANTHENE	ND	0.5	
BENZO(k)FLUORANTHENE	ND	0.5	
BENZO(g,h,i)PERYLENE	ND	0.5	
CHRYSENE	ND	0.5	
DIBENZO(a,h)ANTHRACENE	ND	0.5	
DIBENZO(a,e)PYRENE	ND	0.5	
DIBENZO(a,h)PYRENE	ND	0.5	
DIBENZO(a,i)PYRENE	ND	0.5	
FLUORANTHENE	ND	0.5	
FLUORENE	ND	0.5	
INDENO(1,2,3-cd)PYRENE	ND	0.5	
2-METHYLNAPHTHALENE	ND	0.5	
NAPHTHALENE	ND	0.5	
PHENANTHRENE	ND	0.5	
PYRENE	ND	0.5	

COMMENTS:
ND = NON-DETECTED OR BELOW THE REPORTING LIMIT

Data Reviewed and Approved by:
CAL-DHS ELAP#1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

METHOD BLANK REPORT

CUSTOMER: ATC ENVIRONMENTAL, INC., 50 EAST FOOTHILL BLVD,
ARCADIA, CA 91006 TEL(626)447-5216 FAX(626)447-7593

PROJECT: **Westra Dairy-5203**
SAMPLING DATE: 10/10/00 DATE SAMPLE REC'D: 10/10/00
MATRIX: SOIL DATE ANALYZED: 10/13/00
REPORT TO: MR. TIM LANE DATE REPORTED: 10/16/00

METHOD BLANK FOR LAB I.D.: 001010-9, -20

ANALYSIS: POLYNUCLEAR AROMATIC HYDROCARBONS, EPA METHOD 8270C
UNIT: MG/KG (PPM)

PARAMETER	SAMPLE RESULT	REPORTING LIMIT	X1
ACENAPHTHENE	ND	0.5	
ACENAPHTHYLENE	ND	0.5	
ANTHRACENE	ND	0.5	
BENZO(a)ANTHRACENE	ND	0.5	
BENZO(a)PYRENE	ND	0.5	
BENZO(b)FLUORANTHENE	ND	0.5	
BENZO(k)FLUORANTHENE	ND	0.5	
BENZO(g,h,i)PERYLENE	ND	0.5	
CHRYSENE	ND	0.5	
DIBENZO(a,h)ANTHRACENE	ND	0.5	
DIBENZO(a,e)PYRENE	ND	0.5	
DIBENZO(a,h)PYRENE	ND	0.5	
DIBENZO(a,i)PYRENE	ND	0.5	
FLUORANTHENE	ND	0.5	
FLUORENE	ND	0.5	
INDENO(1,2,3-cd)PYRENE	ND	0.5	
2-METHYLNAPHTHALENE	ND	0.5	
NAPHTHALENE	ND	0.5	
PHENANTHRENE	ND	0.5	
PYRENE	ND	0.5	

COMMENTS:
ND = NON-DETECTED OR BELOW THE REPORTING LIMIT

Data Reviewed and Approved by:
CAL-DHS ELAP#1555

Enviro-Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

GAS/BTEX (S) QC

Date Analyzed: 10/11-12/2000

MATRIX SPIKE(MS)/MATRIX SPIKE DUPLICATE(MSD)

SPIKED SAMPLE LAB. I.D.: 1010-16 MATRIX: Soil (mg/Kg, ppm)

ANALYTE	SR	SPK CONC	MS	% REC	MSD	% REC	%RPD	ACP % REC	ACP RPD
Gasoline	0	0.500	0.508	102	0.483	97	5	75-125	0 - 20
Toluene	0	0.050	0.053	106	0.053	106	0	75-125	0 - 20

LCS STD RECOVERY:

ANALYTE	SPK CONC	LCS	% REC	ACP %REC
Gasoline	0.500	0.510	102	75-125
Toluene	0.050	0.054	108	75-125

Analyzed By: James Yeap

Analyst Signature: [signature]

First Reviewer: MF / Ja

Final Reviewer: CBD

Enviro-Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

GAS/BTEX (S) QC

Date Analyzed: 10/10/00

MATRIX SPIKE(MS)/MATRIX SPIKE DUPLICATE(MSD)

SPIKED SAMPLE LAB. I.D.: 01010-44 MATRIX: Soil (mg/Kg, ppm)

ANALYTE	SR	SPK CONC	MS	% REC	MSD	% REC	%RPD	ACP % REC	ACP RPD
Gasoline	0	0.500	0.508	102	0.507	101	0	75-125	0 - 20
Toluene	0	0.050	0.054	107	0.054	107	0	75-125	0 - 20

LCS STD RECOVERY:

ANALYTE	SPK CONC	LCS	% REC	ACP %REC
Gasoline	0.500	0.563	113	75-125
Toluene	0.050	0.048	97	75-125

Analyzed By: James Yeap **Analyst Signature:** JY

First Reviewer: HF **Final Reviewer:** CBO

1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

DIESEL (S) QC

Date Analyzed: 10/10/00

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) **Unit** **mG/Kg (PPM)**
Spiked Sample Lab I.D.: **1010-18** **Matrix:** soil

Analyte	SR	spk conc	MS	%MS	MSD	%MSD	%RPD	ACP %MS	ACP RPD
Diesel	0	3400	3270	96	3209	94	2	75-125	<20%

LCS STD RECOVERY:

ANALYTE	spk conc	LCS	% REC	ACP %REC
Diesel	2000	2065	103	75-125

Analyzed By: James Yeap **Analyst Signature:** JY

First Reviewer: MF/JL **Final Reviewer:** LBO

1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

DIESEL (S) QC

Date Analyzed: 10/11/00

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) **Unit** **mG/Kg (PPM)**
Spiked Sample Lab I.D.: **1010-31** **Matrix:** **soil**

Analyte	SR	spk conc	MS	%MS	MSD	%MSD	%RPD	ACP %MS	ACP RPD
Diesel	0	3400	3921	115	3514	103	11	75-125	<20%

LCS STD RECOVERY:

ANALYTE	spk conc	LCS	% REC	ACP %REC
Diesel	2000	2125	106	75-125

Analyzed By: **James Yeap** **Analyst Signature:** JY

First Reviewer: HF **Final Reviewer:** CB

Enviro-Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

8260 QA/QC Report

Unit: uG/L (PPB) Date Analyzed: 10/13/2000

Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Spiked Sample Lab I.D.: 1013-05 **Matrix:** Soil

Analyte	SR	spk conc	MS	%MS	MSD	%MSD	%RPD	ACP %MS	ACP RPD
Trichloroethene (TCE)	0	48.4	51.12	106	48.70	101	5	75-125	0-20
Toluene	0	47.5	51.20	108	47.59	100	7	75-125	0-20

Lab Control Spike (LCS):

Analyte	spk conc	LCS	%LCS	ACP %
Trichloroethene (TCE)	50.0	49.15	98	75-125
Toluene	50.0	48.32	97	75-125

Surrogate Recovery	spk conc	ACP%	MB %RC	%RC	%RC	%RC	%RC	%RC	%RC
Sample I.D.				1013-05	1013-06	1013-07	1013-08	1013-10	1010-20
Dibromofluoromethane	50.0	75-125	100	102	103	102	104	102	103
Toluene-d8	50.0	75-125	100	99	100	100	100	100	101
4-Bromofluorobenzene	50.0	75-125	105	104	104	103	103	103	104

Surrogate Recovery	spk conc	ACP%	%RC	%RC	%RC	%RC	%RC	%RC	%RC
Sample I.D.			1010-09	1012-84	1012-85				
Dibromofluoromethane	50.0	75-125	103	96	99				
Toluene-d8	50.0	75-125	99	96	97				
4-Bromofluorobenzene	50.0	75-125	104	105	107				

Surrogate Recovery	spk conc	ACP%	%RC	%RC	%RC	%RC	%RC	%RC	%RC
Sample I.D.									
Dibromofluoromethane	50.0	75-125							
Toluene-d8	50.0	75-125							
4-Bromofluorobenzene	50.0	75-125							

Analyzed By Mina Farag **Analyst Signature:** MF

First Reviewer: Je **Final Reviewer:** CSD

Enviro-Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

8270 QA/QC Report for 0001010-9, 20

Matrix: **solid**
Date Analyzed: **10/13/00**
Unit: **(PPM)**

Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Spiked Sample Lab I.D.: **01010-9**

Analyte	SR	spk conc	MS	%MS	MSD	%MSD	%RPD	ACP %MS	ACP RPD
Phenol	0	80	77.1	96	82.2	103	6	75-125	0-20
Pyrene	0	40	48.1	120	44.6	112	8	75-125	0-20

LCS STD RECOVERY:

Analyte	spk conc	LCS	% REC	ACP %MS
Phenol	80	77.0	96	75-125
Pyrene	80	78.7	98	75-125

SURROGATE RECOVERY:

PARAMETERS	spk conc	ACP%	%RC	%RC	%RC	%RC			
Sample I.D.			**MB**	**01010-9**	**01010-20**				
2-Fluorophenol	80	25-121	104	102	96				
Phenol-d5	80	24-113	105	94	100				
Nitrobenzene-d5	40	23-120	111	114	110				
2-Fluorobiphenyl	40	30-115	110	112	119				
2,4,6-Tribromophenol	80	19-122	54	68	46				
Terphenyl-d14	40	18-137	107	101	121				

Analyzed By: JOE SU **Analyst Signature:** Joe

First Reviewer: HF **Final Reviewer:** CSD

ENVIRO-CHEM, INC.
LABORATORIES
1214 E. Lexington Ave.
Pomona, CA 91766
(909) 590-5905 • Fax: (909) 590-5907

CHAIN of CUSTODY RECORD

DATE: 10-10-00
PAGE: 1 of 4

Lab Project # _____

CA-DHS ELAP CERTIFICATE # 1555

REPORT TO: AR Associates INC	PROJECT NAME: Weska Dairy - 5203	TURN AROUND TIME DESIRED: ☐ Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 1 Week ☒ Standard (2 Weeks) ☐ Others: _____ Confirmed By: _____
STREET: 50 E. Foothill Blvd	PROJECT CONTACT: Tim Lane	
CITY: Arcadia, STATE: Ca ZIP: 91006	SAMPLER(S) SIGNATURE: [signature]	
TEL: (626) 447-5216 FAX: (626) 447-7593		
SHIPPING INFORMATION:	AFTER ANALYSES, SAMPLES ARE TO BE: ☑ DISPOSED OF ☐ STORED (30 days) ☒ RETURNED TO CLIENT ☐ OTHER:	

RELINQUISHED BY: (Signature) [signature]	RECEIVED BY: (Signature) Jessica Lin	DATE: 10/10/00	TIME: 1250pm
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:

SAMPLE I.D.	LAB I.D.	SAMPLING DATE/TIME	MATRIX	Nº of Containers	ANALYSIS REQUESTED	COMMENTS	Sample Stored Location
-1-15	0001010 – 9	10/10/00	Soil	1	8015(g)(d) / BTEX / MTBE	Based on highest sample	
S-1-20	– 10			1		Run full scan 8260	
S-1-25	– 11			1		and 8270 (PNA's).	
S-1-30	– 12			1		For Bring S-1	
S-1-35	– 13			1			
S-1-40	– 14			1			
S-1-45	– 15			1			
S-1-50	– 16			1			
S-1-60	– 17			1			
S-1-65	– 18			1			
S-1-70	– 19			1			

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LABORATORIES
1214 E. Lexington Ave.
Pomona, CA 91766
(909) 590-5905 • Fax: (909) 590-5907

CHAIN of CUSTODY RECORD

DATE: 10-10-00
PAGE: 2 of 4

Lab Project # _____

CA-DHS ELAP CERTIFICATE # 1555

REPORT TO: AR Associates Inc		PROJECT NAME: Weston Dairy	TURN AROUND TIME DESIRED: ☐ Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 1 Week ☒ Standard (2 Weeks) ☐ Others: _____ Confirmed By: _____
STREET: 50 E. Foothill Blvd		PROJECT CONTACT: [illegible]	
CITY: Arcadia	STATE: Ca	ZIP: 91006	SAMPLER(S) SIGNATURE: [signature]
TEL: (626) 447-5216	FAX: (626) 447-7593		
SHIPPING INFORMATION:		AFTER ANALYSES, SAMPLES ARE TO BE: ☐ DISPOSED OF ☐ STORED (30 days) ☒ RETURNED TO CLIENT ☐ OTHER:	

RELINQUISHED BY: (Signature) [signature]	RECEIVED BY: (Signature) Jessica [signature]	DATE: 10/10/00	TIME: 1250pm
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:

SAMPLE I.D.	LAB I.D.	SAMPLING DATE/TIME	MATRIX	Nº of Containers	ANALYSIS REQUESTED	COMMENTS	Sample Stored Location
S-3-15	001010-20	10-10-00	Soil	1	8015(g),(d), / BTEX/MTBE	Based on highest sample from full scan 8260, 8270	
S-3-20	-21			1			
S-3-25	-22			1		FR BRG S-3	
S-3-30	-23			1			
S-3-35	-24			1			
S-3-40	-25			1			
S-3-45	-26			1			
S-3-50	-27			1			
S-3-55	-28			1			
S-3-60	-29			1			

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CHAIN of CUSTODY RECORD

DATE: 10-10-00

PAGE: 3 of 4

Lab Project # _____

CA-DHS ELAP CERTIFICATE # 1555

REPORT TO: AR Associates DC		PROJECT NAME: Weber Dairy	TURN AROUND TIME DESIRED: ☐ Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 1 Week ☒ Standard (2 Weeks) ☐ Others:
STREET: 50 E. Foothill Blvd		PROJECT CONTACT: Tim Lim	
CITY: Arcadia	STATE: CA ZIP: 91006	SAMPLER(S) SIGNATURE:	Confirmed By:
TEL: (626) 447-5210	FAX: (626) 447-7593		
SHIPPING INFORMATION:		AFTER ANALYSES, SAMPLES ARE TO BE: ☐ DISPOSED OF ☐ STORED (30 days) ☒ RETURNED TO CLIENT ☐ OTHER:	
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE: 10/10/00	TIME: 1250pm
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:

SAMPLE I.D.	LAB I.D.	SAMPLING DATE/TIME	MATRIX	Nº of Containers	ANALYSIS REQUESTED	COMMENTS	Sample Stored Location
S-2-15	0001010-30	10/10/00	Soil	1	8015(M)/BTEX/MTBE	Based on highest	
S-2-20	-31			1		Sample Run Full	
S-2-25	-32			1		Scan 8260, 8270 PNA	
S-2-30	-33			1		AR Boring S-3	
S-2-35	-34			1			
S-2-40	-35			1			
S-2-45	-36			1			
S-2-50	-37			1			
S-2-55	-38			1			
S-2-60	-39			1			
S-2-65	-40	"	"	1	"		

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Pomona, CA 91766
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CHAIN of CUSTODY RECORD

DATE: 10-10-00
PAGE: 4 of 4

Lab Project # _____

CA-DHS ELAP CERTIFICATE # 1555

REPORT TO: AR Associates Inc	PROJECT NAME: Western Dairy	TURN AROUND TIME DESIRED ☐ Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 1 Week ☒ Standard (2 Weeks) ☐ Others:
STREET: 50 E. Foothill Blvd	PROJECT CONTACT: Tom L	
CITY: Arcadia STATE: Ca ZIP: 91006	SAMPLER(S) SIGNATURE: [signature]	Confirmed By:
TEL: (626) 447-5216 FAX: (447) 7593		
SHIPPING INFORMATION:	AFTER ANALYSES, SAMPLES ARE TO BE: ☐ DISPOSED OF ☐ STORED (30 days) ☒ RETURNED TO CLIENT ☐ OTHER:	

RELINQUISHED BY: (Signature) [signature]	RECEIVED BY: (Signature) [signature]	DATE: 10/10/00	TIME: 1250P
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE:	TIME:

SAMPLE I.D.	LAB I.D.	SAMPLING DATE/TIME	MATRIX	Nº of Containers	ANALYSIS REQUESTED	COMMENTS	Sample Stored Location
S-2-70	0001010-41	10/10/00	Soil	1	8015(s)(d)/BTEX/MTBE	Based on highest	
						sample, run full scan	
						8260, 8270(PNA)	
						for Bring S-2	

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APPENDIX B

CRWQCB LETTER DATED SEPTEMBER 26,2000

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for
Environmental
Protection

Internet Address: http://www.swrcb.ca.gov
3737 Main Street, Suite 500, Riverside, California 92501-3339
Phone (909) 782-4130 • FAX (909) 781-6288

626
447-8593

September 26, 2000

Mr. Cal Westra
Westra Family Trust
870 North Sanderson Avenue
San Jacinto, California 92582

SUBJECT: WESTRA DAIRY FARM TANKS
870 NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA 92582
UST CASE NO. 083303601T

Dear Mr. Westra:

We have reviewed the *Site Investigation Workplan* dated August 4, 2000. Your consultant, ATC Associates Inc. (ATC), prepared this plan. The objectives of the proposed investigation are to delineate the lateral and vertical extent of soil contamination.

In the workplan, ATC proposes to drill three borings to a minimum depth of 60 feet and collect soil samples for analysis. Based on our review, we approve the workplan for site investigation with the following conditions:

- The worst-case soil sample based on the EPA Method 8015 sample results must be analyzed using EPA Method 8260, full scan including all fuel oxygenates and alcohols, in addition to the semi-volatile analysis proposed.
- To consider the site fully assessed, a minimum of 30 feet of clean soil must be delineated beneath the deepest contamination.

Please submit the results of the assessment to this office by November 15, 2000. Please submit copies of all correspondence to Ms. Sharon Boltinghouse at the County of Riverside. If you have any questions, please call me at (909) 320-6375.

Sincerely,

Rose Scott
Associate Engineering Geologist
Pollutant Investigation Section

cc: Sharon Boltinghouse, County of Riverside
Ed McGlothlin, Consolidated Waste Industries, Inc.

ATC ASSOCIATES INC.

50 East Foothill Boulevard
Arcadia, California 91006
www.atc-enviro.com
626.447.5216
Fax 626.447.7593

KRW
8/16/00

August 4, 2000

Mr. Kenneth Williams
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: SITE INVESTIGATION WORKPLAN
WESTRA DAIRY FARMS
870 NORTH SANDERSON
SAN JACINTO, CALIFORNIA
ATC PROJECT NUMBER 12077.5203

Dear Mr. Williams:

ATC Associates Inc (ATC) has been requested to submit this Workplan on behalf of our client, Consolidated Waste Industries (CWI) to comply with a fax memo dated July 6, 2000 by Rose Scott of the California Regional Water Quality Control Board, Santa Ana Region.

This Site Investigation Workplan describes the work to be performed to determine the approximate extent of soil contamination at the above referenced Site (Drawing 1). On December 14, 1999 ATC Associates Inc. (ATC) observed the removal of three underground storage tanks (1-10,000 gallon diesel, 2-1,000 gallon gasoline). Eight soil samples taken directly below the tanks indicated elevated analytical concentration of gasoline as high as 5,290 milligrams per kilogram (mg/Kg) and diesel as high as 2,360 mg/Kg. Laboratory results also indicated Methyl-tertiary butyl ether (MTBE) in six of the eight soil samples from the tank field in concentrations ranging from non-detect (ND) to 519 mg/Kg.

ATC recommends that three soil borings be advanced to a maximum depth of 60 feet to determine the approximate vertical and lateral extent of contamination at the site (Drawing 2).

SCOPE OF WORK

Soil Borings and Analysis

ATC proposes to drill and sample three soil borings on the subject property to a maximum depth of sixty feet. A hollow stem auger-drilling rig (CME 75 or equivalent) will perform the drilling. Soil samples will be collected at five-foot intervals beginning at 15 feet. All soil samples will be collected in brass tubes and as required by state and local agencies. Chain of custody protocol will be followed. Monitoring for volatile organic compounds (VOCs) will be conducted throughout field drilling and sampling operations.

Laboratory Analysis

All soil samples will be analyzed for Carbon Chain Analysis by EPA Method 8015 (Mod) and for aromatic hydrocarbons (BTEX) by EPA Method 8021B. Methyl tertiary butyl ether (MTBE) and additional oxygenates will be analyzed by EPA Method 8260B. Semi-volatiles including polynuclear aromatics (PNA), will be analyzed by EPA Method 8270 will be run only on the sample with the highest laboratory result from each borehole.

SCHEDULE

Upon written notification of the Workplan approval, ATC intends to initiate field operations within five working days. ATC anticipates a 15-day completion time for this project.

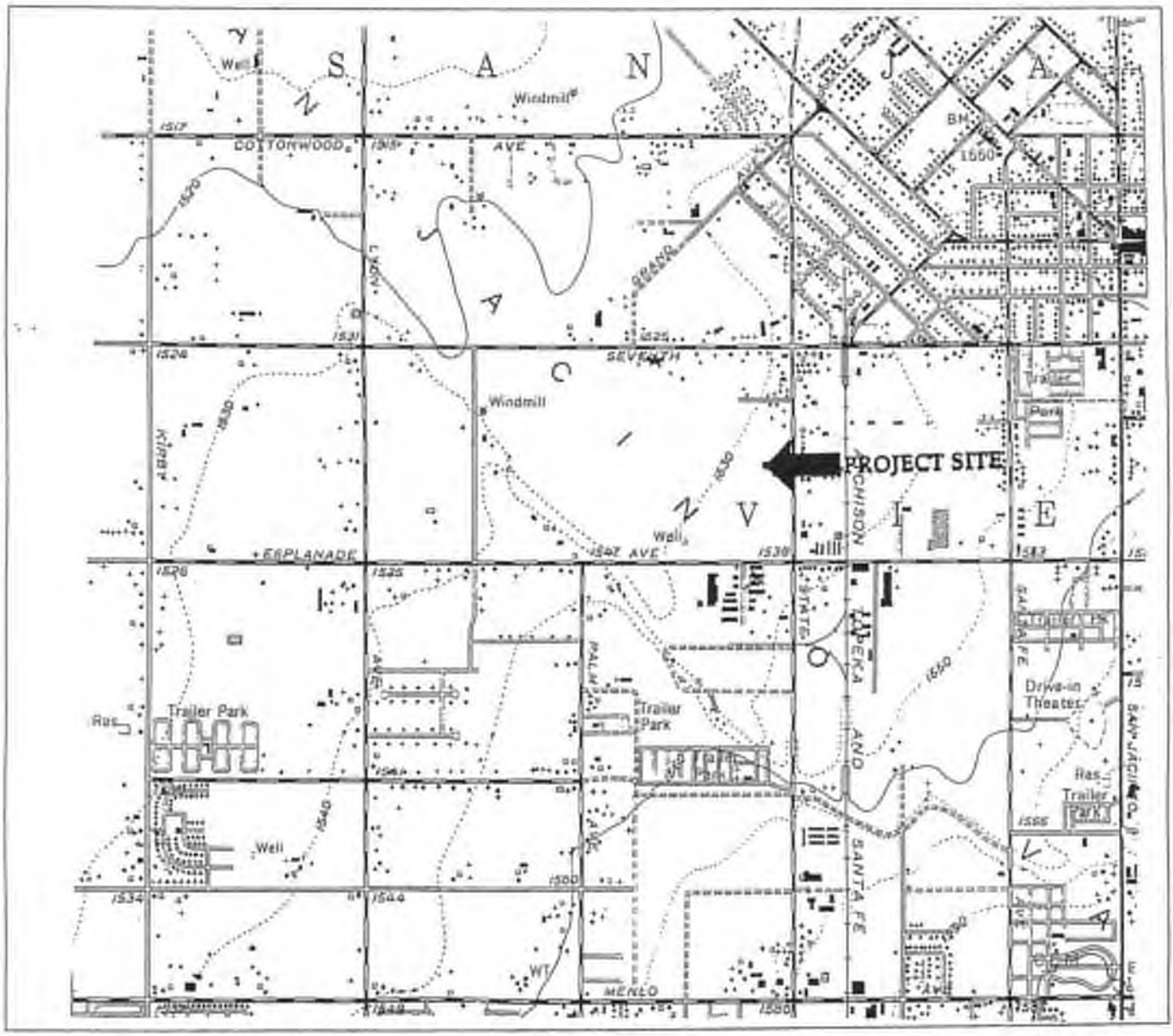
Should you have any questions regarding this Workplan, please contact the undersigned at (626) 447-5216.

Sincerely,

Ed McGlothlin
Project Manager

Timothy J. Lane
Project Geologist

Keith G. Farrell, CEG #1314
Branch Manager



FROM USGS 7.5 MINUTE QUADRANGLE, SAN JACINTO, CALIFORNIA (1953, PHOTOREVISED 1979)

0 2000 4000

SCALE IN FEET 1" = 2000'

N

SITE LOCATION MAP

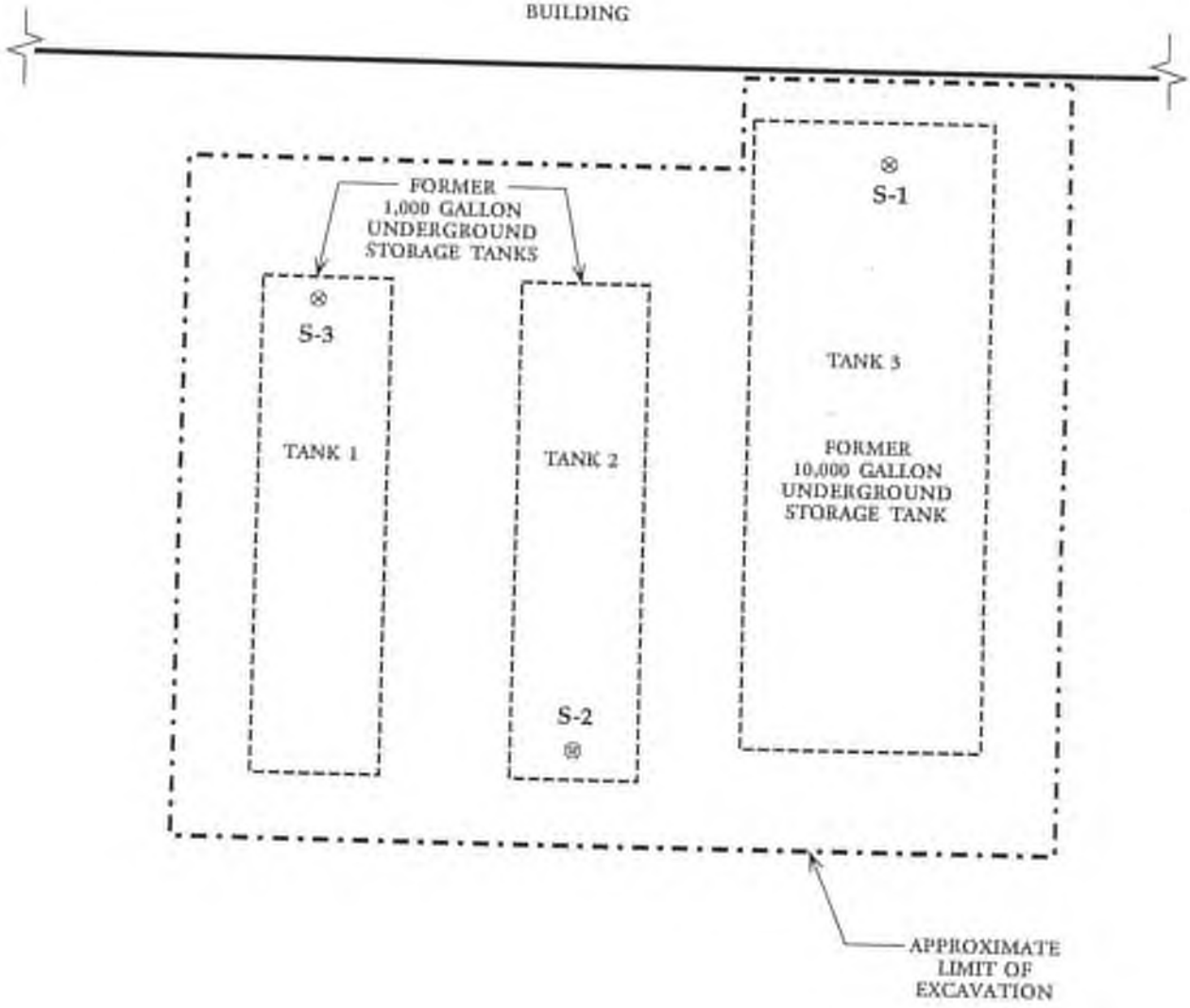
PROJECT NAME:

WESTRA DAIRY
870 SANDERSON
SAN JACINTO, CALIFORNIA

PROJECT NO: 52.12077.5203

VATC ASSOCIATES INC.

DRAWING 1 OF 2



PROPOSED DRILLING LOCATIONS

APPROXIMATE SCALE: 1" = 10'

N

LEGEND:

S-3 ⊗ = PROPOSED SAMPLE LOCATIONS

PROJECT NAME: WESTRA DAIRY 870 SANDERSON SAN JACINTO, CALIFORNIA PROJECT NO. 52.12077.5203	ATC ASSOCIATES INC.	DRAWING 2 OF 2

APPENDIX A
SAMPLING PROCEDURES

Draft

Recirculated Draft Environmental Impact Report No. 2

Villages of San Jacinto

State Clearinghouse No. 2004122132









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A NOP, Initial Study

B LESA Model

C Biological Resources Technical Report (Dudek, August 2005)
RCA Confirmation Letter (Western Riverside County Regional Conservation Authority, November 17, 2008)

APPENDICES (Continued)

D Cultural Resources Technical Report (ASM Affiliates, Inc., December 2004)

E Fault Investigation (Leighton & Associates, Inc., March 31, 2004)
Additional Geotechnical Studies (Leighton & Associates, Inc., August 31, 2005, June 30, 2006, October 31, 2006)

F Geotechnical Investigation (Leighton & Associates, Inc., February 28, 2005)

G Water, Wastewater and Irrigation Study
Preliminary Drainage Study (RBF Consulting, May 2006)
Preliminary Drainage Study Phase 1 and 2 (RBF Consulting, August 2006)
Summary Drainage Study for Phases 1-1C (RBF Consulting, December 12, 2006)
Preliminary Hydrology and Hydraulics Study (JLC Engineering & Consulting, Inc., February 2009)
Preliminary Water Quality Management Plan (JLC Engineering & Consulting, Inc., February 2009)
Lake Preliminary Design Report (Pacific-Aquascape, Inc.)

H Traffic Impact Analysis (Urban Crossroads, September 2005)
Alternate Tenaya Traffic Analysis due to the High School Alternative Land Use (Urban Crossroads, January 5, 2006) Tenaya Trip Generation Comparison (Urban Crossroads, March 9, 2006)
Traffic Impact Analysis (Urban Crossroads, April 24, 2009)

I Air Quality Analysis Models (Dudek, November 2006)
2003–2005 South Coast Air Quality Management District Air Quality Data
URBEMIS 2007 Construction and Operational Emissions, Greenhouse Gas Emissions Models (Dudek, July 2009)
Localized Significance Thresholds Analysis Report (Dudek, July 2009)

J Noise Analysis Models (Dudek, October 2006)
Revised Noise Analysis Models (Dudek, April 2009)

K Water Supply Assessment (Eastern Municipal Water District, December 15, 2004)
Water Supply Assessment Update Letter (Eastern Municipal Water District, May 11, 2009)

L Phase I Environmental Site Assessment (Gradient Engineers, October 10, 2002)

M **Mitigation Monitoring and Reporting Program**

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SECTION 1.0
EXECUTIVE SUMMARY

PROJECT SETTING

The Villages of San Jacinto project site is approximately 475.1 acres in size and is located in the City of San Jacinto in northwestern Riverside County, California (see *Figure 1-1, Regional Map*). The project site is located in the northwestern portion of the City (see *Figure 1-2, Vicinity Map*). The project is located along Sanderson Avenue which is one of the City's main north-south transportation routes (see *Figure 1-3, Site Location Map*). The project site is bordered by undeveloped agricultural land to the north (and future westward extension of Ramona Boulevard), Sanderson Avenue to the east, Odel Avenue to the west, and undeveloped agricultural land and a municipal wastewater treatment plant to the south. The project site has been used as pasture land and/or a farming operation, similar to surrounding properties, for over one hundred years. The San Jacinto Valley has traditionally supported agriculture and rural residential land uses, but has been experiencing increased urbanization in the past several years.

The site is generally flat and is located on the alluvial plain of the San Jacinto River. The site elevation above sea level ranges from 1,455 feet along the northern edge to 1,490 feet in the southeastern corner. The southeastern corner of the site is a former cattle feed lot with several remaining animal shade structures. The remainder of the land consists primarily of vacant former agricultural land. Vegetation on site consists of weedy invasive species that have accumulated since the majority of agricultural production was discontinued. There are scattered sod fields in the northern portions of the property which is the only remaining agricultural operation. Several unnamed, unimproved dirt roadways traverse the site and are associated with former and current agricultural operations. Irrigation canals run along the edges of fields in support of sod farming activities. A detention basin is located along the north-central edge of the project site.

PROJECT DESCRIPTION

The project would consist of development of mostly vacant former agricultural lands into a suburban development including residential, commercial, mixed-use, public facility and open space/recreational uses. The 475.1-acre site would be divided into 18 "Planning Areas" (PA). Each planning area would consist of a specific land use type with some having subareas of the particular land use. The following presents a summary of the proposed development while a detailed description is contained in Chapter 3 of this document.

Residential

Residential land uses would consist of 80.6 acres of low density and detached residential with 6,000-square-foot minimum lots and 117.9 acres of medium density residential having lot sizes

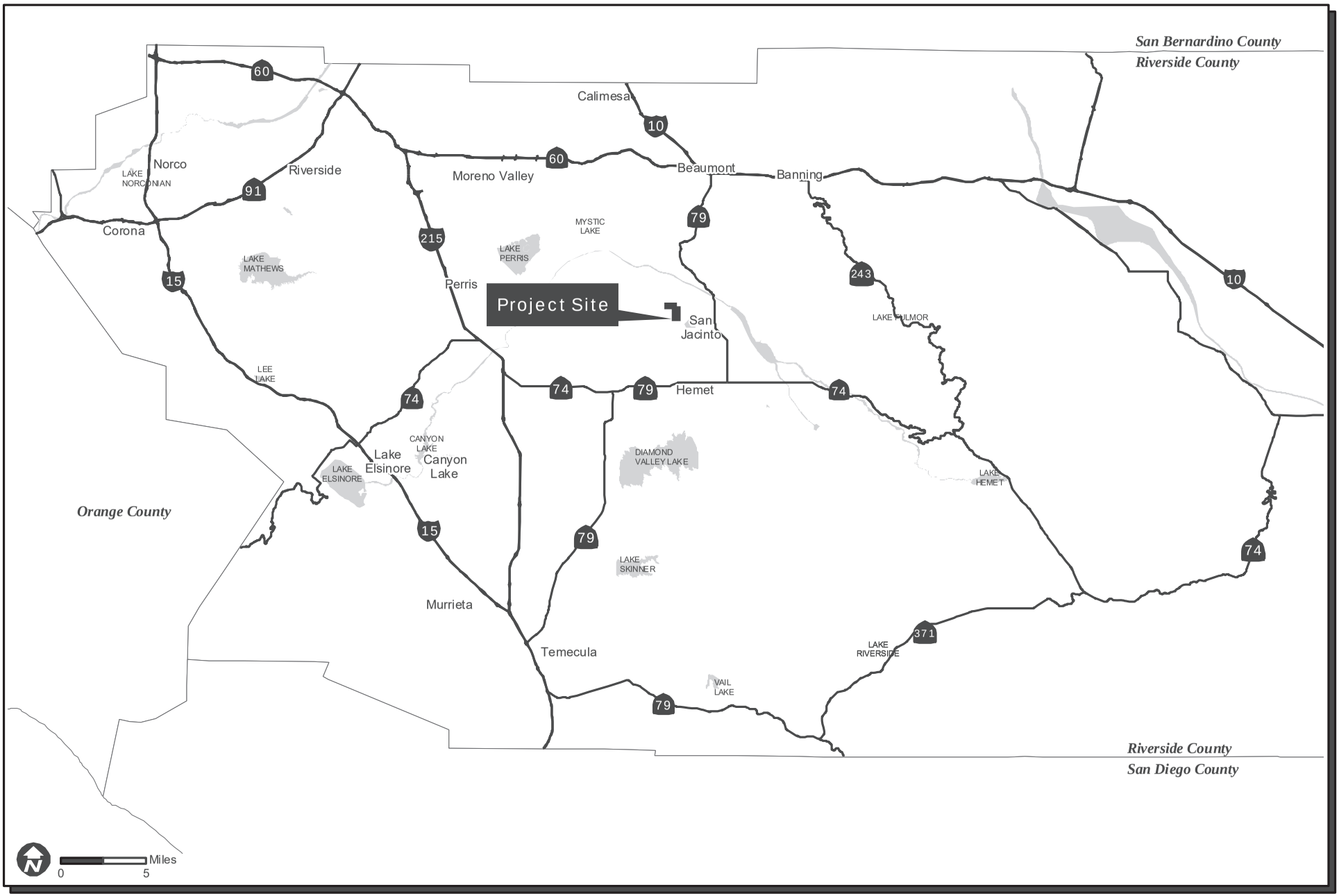
of 4,000 square feet and 5,000 square feet. The medium density residential development will have densities between 5.1 to 6.2 units per acre and a total of 657 dwelling units. Medium density residential is intermixed throughout the site and includes Planning Areas 1, 2, 4, 7, 8, 9, and 10. Low density uses would consist of single family residential lots with a density of approximately 4.5 dwelling units per acre, and a total of 359 dwelling units. The low-density development would be located in Planning Areas 3, 5, 6, 13, and 19. A total of 1,016 dwelling units are proposed with an allowance of up to 1,329 units if the proposed school site is not developed as discussed below.

Commercial

Commercial development would be focused in the southeast corner of the project site within PA 11. This development is intended to result in approximately 247,000 square feet of neighborhood retail commercial uses on 22.7 acres. This designation is intended to meet the provision for retail commercial land uses as set forth in the San Jacinto General Plan Land Use Element and to provide an accessible local shopping center for the proposed project and nearby communities. This would allow for a wide range of businesses including grocery store, drug store, cleaners, restaurants, fast food, and specialty stores. The Specific Plan for the project includes Conceptual Design Guidelines and Development Standards for commercial development of this Planning Area. Comprehensive Design Guidelines will need to be reviewed and approved by the City prior to development of the Planning Area.

Mixed-Use

Mixed-use development will be provided within the 26.3-acre Planning Area 12. This designation is intended to provide for a broad range of land uses, with the primary focus on municipal uses such as library, police and fire facilities and other development such as business and professional park uses including dental and medical offices, real estate offices, banks, etc. This area could also provide accessory uses to the primary facilities such as coffee shop, printers, postal/shipping outlets etc. This designation provides for a maximum of 343,000 square feet of building area and will have a maximum height limit of 45 feet. Conceptual Design Guidelines for commercial uses are provided in the project Specific Plan, but Comprehensive Design Guidelines will need to be reviewed and approved by the City prior to development of the Planning Area.



Villages of San Jacinto EIR
Regional Map

FIGURE 1-1

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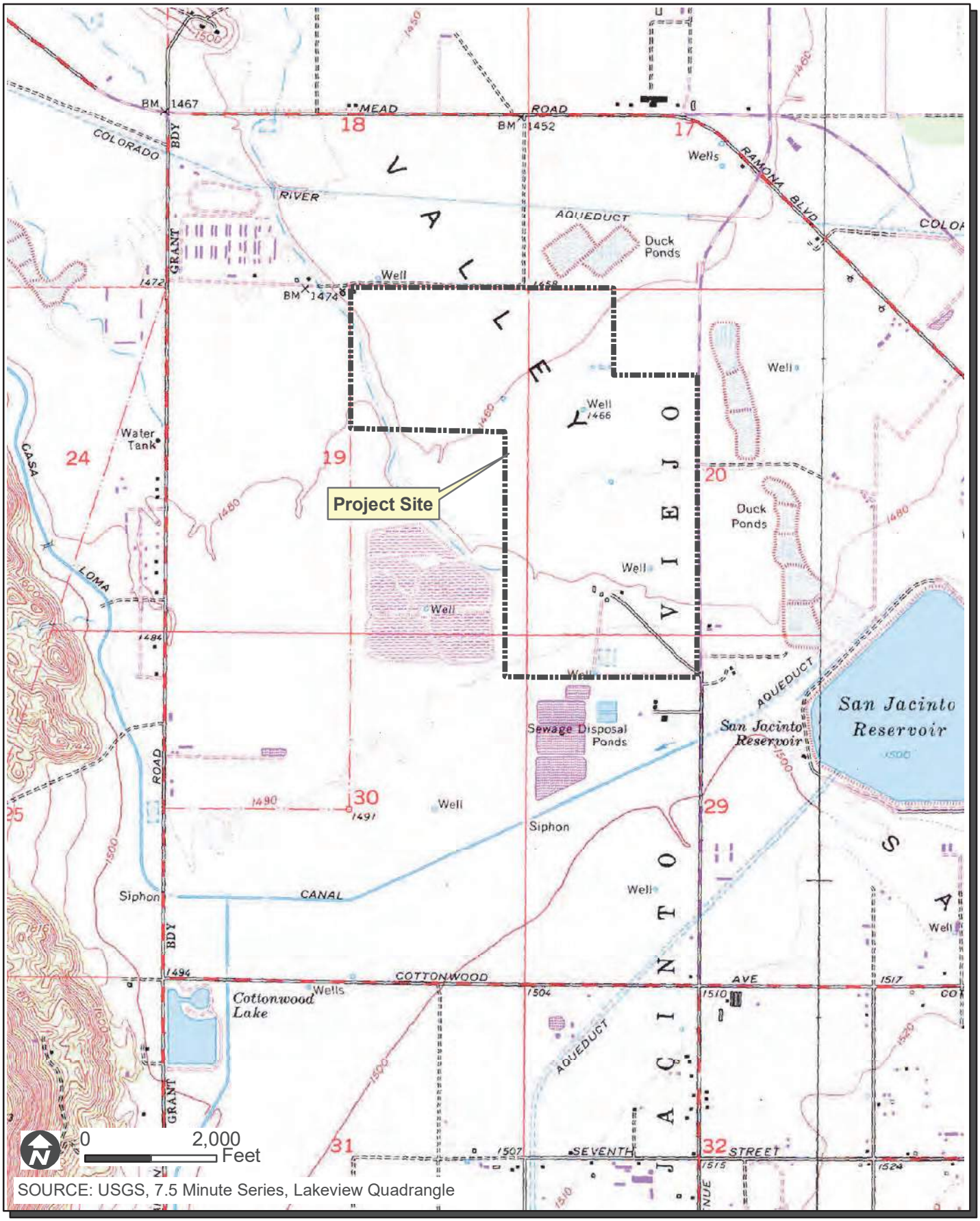

Villages of San Jacinto EIR

Vicinity Map

FIGURE 1-2

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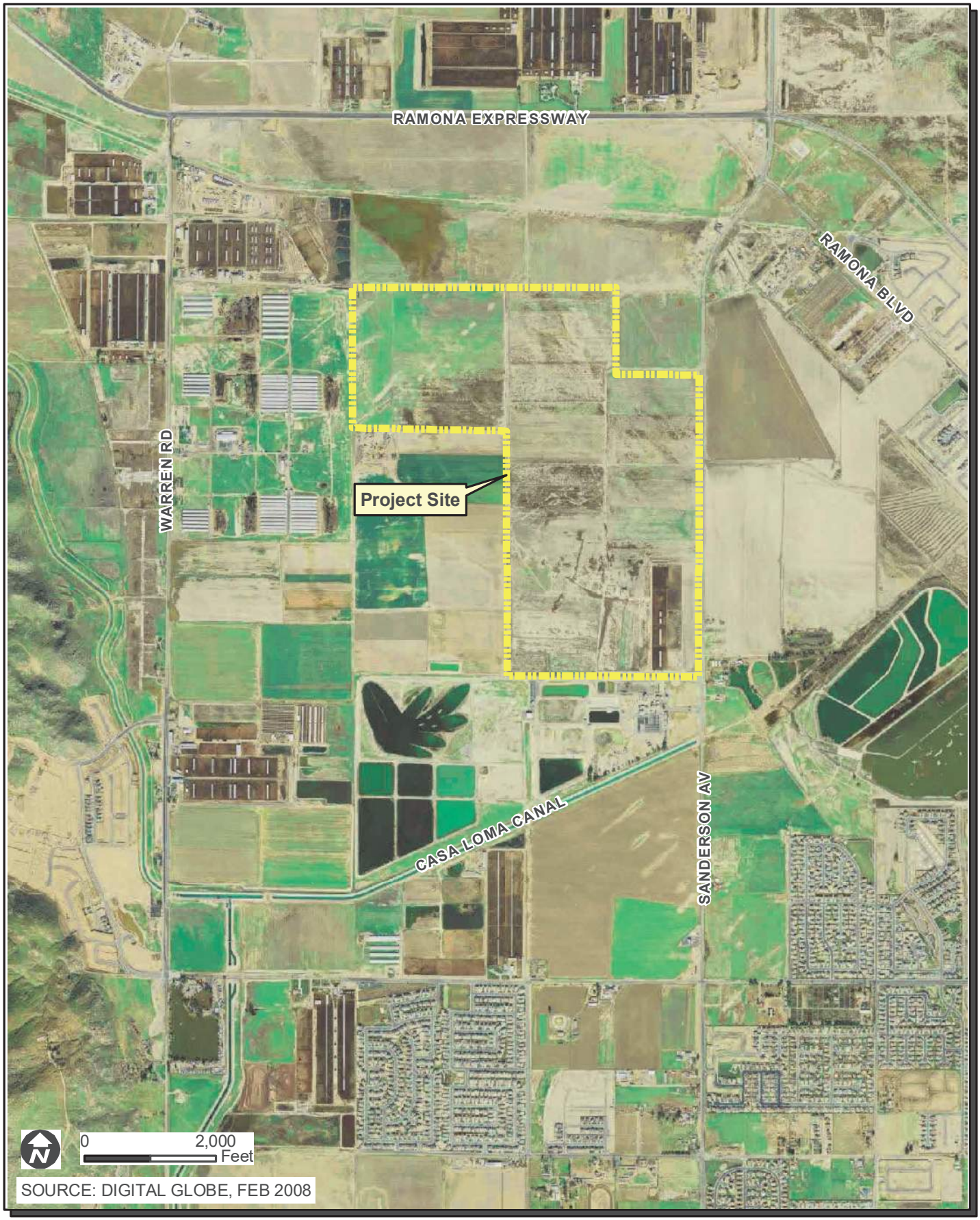

Villages of San Jacinto EIR

Site Location Map

FIGURE 1-3

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School

As noted in *Table 3-2*, Planning Area 14 is designated for a proposed high school by San Jacinto Unified School District (District). The 69.1 acre high school site would be located southwest of the future intersection of Cawston Avenue and Ramona Boulevard. Preliminary plans for the school include baseball and softball fields, a track/football stadium, gymnasium, performing arts facility and classroom space for up to 2,000 students. Final plans for the school would be processed separately from the Villages of San Jacinto Specific Plan through the District Board of Trustees and the California Division of the State Architect. If the District does not choose to construct a high school on this site, it will instead be used for residential uses. Under this scenario, Planning Area 14 would be developed with 200 low-density residences (minimum 6,000-square-foot lots) and 113 medium-density residences (5,000-square-foot lots). Because final planning for the school would be undertaken by the District, as its own lead agency under CEQA, this EIR's impact analysis of the school is limited to a programmatic level.

Parks and Recreational Amenities

Following is a summary of the recreational amenities and park facilities planned for the proposed project. Further discussion of parks and recreation, including the requirement for provision of adequate parkland is contained in Section 5.12.4.

Public Parks

The proposed project includes three public parks totaling approximately 41 acres. The largest of the public parks is the 33.4-acre Community Park in Planning Area 15C north of Bridge Street in the southern portion of the proposed development. This park will provide soccer and baseball fields, concession area, as well as barbeque and picnic areas overlooking the proposed lake. Public parks in Planning Areas 15B and 15D provide just over seven acres of various active and passive recreational opportunities.

Private Parks

The two private parks in Planning Areas 15A and 15E will provide passive recreation for nearby residents such as tot lots, shade structures, pathways and picnic areas.

Lake House and Swim Lagoon

Other recreational amenities include a 5.1-acre Lake House Beach Club and Swim Lagoon within Planning Area 16. This will be a private facility for residents and will feature a Swim Lagoon with sandy beach, play island, lap pool, play pool, fire pits, open turf area and shade

structures. The clubhouse will provide an exercise room, activity room, restroom/changing rooms and office space.

Lake

The 11-acre private lake will be located primarily between Planning Areas 7 and 8 and adjacent to the Swim Lagoon. It will feature a concrete trail surrounding the lake and connecting to the community park in PA 15C. No swimming or boating will be allowed on the lake, but it will provide recycled water for irrigation of common landscaping within the community.

Paseos

A total of 9.6 acres of landscaped paseos will serve as pedestrian linkages between land uses and will create landscaped buffer areas between Planning Areas. These paseos will be a minimum of 50 feet wide and have 10-foot-wide concrete trails.

Open Space

In addition to the above parks and recreational amenities, approximately 15.2 acres of open grass-lined drainage channels/basins would be constructed along the western perimeter of the project site. A vegetated open detention basin will be located in the northwest corner of the project site. A total of 2.4 acres of landscape easements are provided in various locations throughout the project site. The proposed system of open spaces would provide both on-site and off-site visual benefits to compensate for the loss of existing open space character of the site.

Access

Roadway right-of-way would be located throughout the development and would provide access to and from as well as within the project. Sanderson Avenue and Odell Avenue would serve as primary access points for the project. Ramona Boulevard will be constructed to provide access along the north edge of the project site. Cawston Avenue would serve as the major north-south arterial through the project while De Anza Drive would serve as the major east–west arterial within the development taking access from Sanderson Avenue and connecting to Cawston Avenue. Modifications to Sanderson Avenue, Odell Avenue and Cawston Avenue would be required with project development. Improvements may include traffic light installation and additional turn lanes into the development from perimeter streets, where necessary. Secondary access to Planning Area 19 would be provided by the planned extension of Odell Avenue north to Ramona Expressway. The northern extent of Cawston Avenue would be terminated at the location of the proposed future alignment of Ramona Boulevard until this roadway is complete, at which time the dead ended Cawston Avenue would be retrofitted to form a functional intersection with Ramona Boulevard.

Improvements to SR 79 within western Riverside County is currently being planned by Riverside County Transportation Commission (RCTC)/Caltrans within the general vicinity of the project. Due to the conceptual nature of the ultimate alignment of the future SR 79 corridor, an on/off ramp into or near the proposed development is not contemplated as a project feature. Should roadway improvements be necessary to accommodate an ultimate SR 79 alignment, modifications to the project and preparation of a supplemental environmental document may be necessary. As of April 2004, the City has adopted a locally-preferred alignment for SR 79 which directs the roadway to the east of the proposed project. The Draft EIR/EIS for this project is expected to be circulated for public review in late 2009 with construction to begin in 2011. In late 2006, the City also selected a locally-preferred alignment for Mid-County Parkway, a future regional east-west roadway approximately 1,000 feet north of the project site which is a joint Caltrans/RCTC and Federal Highway Administration (FHWA) project. The 32- mile route will connect the San Jacinto area with the Corona area. Final environmental approvals are expected to be obtained by late 2010 to 2011 with construction set to begin sometime in 2013 (www.midcountyparkway.org).

Sewer and Water Service

The project would involve installation of an on-site sewer and water distribution system. Water and sewer service would be provided by Eastern Municipal Water District and be extended into the project via new conveyance facilities consistent with the District's approved master plan expansion program. The project, along with other future development planning in the western portion of the City of San Jacinto, would contribute to the need for expansion of the Eastern Municipal Water District's Hemet/San Jacinto Regional Water Reclamation Facility located to the south. The expansion of this facility is being analyzed by Eastern Municipal Water District (CEQA Lead Agency) in a separate environmental document.

Recycled Water Service. The project would utilize reclaimed water from the adjacent Eastern Municipal Water District Hemet/San Jacinto Regional Water Reclamation Facility. Recycled water would be utilized for lake/water features as well as common area irrigation needs throughout the proposed community. Recycled water would not be used for private landscaping such as front or back yards.

Storm Drain System

The project incorporates a drainage plan that will not impact upstream and downstream property owners but will provide flood protection for the overall project site. The Drainage Plan will incorporate a vegetative channel and a detention/water quality basin, which are designated as Line V and Detention Basin V. These two facilities are the major backbone infrastructure that will collect the runoff that emanates from off-site and on-site areas. Line V and Detention Basin

V have been designed to convey and control the interim flow rate and ultimate flow rate. The interim flow rate results in a runoff rate that exceeds the ultimate condition flow rate. The interim condition will require the construction of two interim culvert facilities and the reconstruction of an earthen roadway to eliminate ponding east of DeAnza Drive and Sanderson Avenue intersection. These interim drainage facilities are required to control and convey the interim flow rates originating from the off-site area. Several storm drain laterals will provide flood protection for the on-site Planning Areas. Further details of the Drainage Plan are contained in *Section 5.8, Water Quality and Hydrology*.

Tentative Map

A draft tentative map (TM 36188) has also been prepared for the project. *Figure 3-5, Tentative Tract Map*, shows individual residential lots, mixed use and commercial areas and accessory uses including open space, lakes and roadways. In summary, the Tentative Tract Map, which further defines the Specific Plan Land Use Plan (described above), would allow the following housing units and other land uses to be developed on the project site:

Unit Type Summary

- 6,000-square-foot lots – 359 units
- 5,000-square-foot lots – 349 units
- 4,000-square-foot lots – 308 units

  TOTAL 1,016 units

- 69.1-acre high school site
- 22.7 acres of commercial uses
- 26.3 acres of mixed-use
- 5.1-acre lake house and Swim Lagoon
- 43.0 acres for parks
- 11.0 acres for lake surfaces
- 24.2 acres for water quality/detention basin facilities
- 15.2 acres for drainage channels
- 9.6 acres for paseos
- 48.0 acres for roadways

Alternatives Summary

The following is a summary of the three (3) alternatives carried forward for analysis in this EIR. The complete alternatives analysis is contained in Section 10.0 of this document. In addition to the CEQA-mandated consideration of a No Project scenario, two (2) alternatives were selected based on their ability to fulfill the basic objectives of the proposed project, as well as their capability to reduce any potentially significant adverse impacts of the project. A comparison summary of the alternatives is provided below, and impacts have been quantified wherever possible.

- Alternative 1: No Project/No Development Alternative
- Alternative 2: Existing General Plan Designation Alternative
- Alternative 3: Reduced Density Alternative

No Project/No Development Alternative assumes that the project site would not be developed and the former agricultural operations (sod farm and cattle feeding area) would continue.

Existing General Plan Designation Alternative The existing General Plan designations establish 136.5 acres of low density residential and 239.5 acres of medium density residential. This would allow for a maximum of 2,390 medium density dwellings (10 du/ac maximum) and up to 682 low density dwellings (5 du/ac maximum) for a total of 3,072 dwelling units under the existing General Plan.

Reduced Density Alternative would involve the development of a low density housing tract with approximately 1-acre lots. Due to drainage and infrastructure needs, this alternative would consist of approximately 350 single-family homes (on approximately 350 acres), 41 acres of parks, 27 acres of greenbelts, 14 acres of drainage basin, 18 acres of lake surfaces, 18 acres of roadways and a 3-acre clubhouse. Due to the existing nature of the site topography, this project alternative would be prepared, graded and designed in a similar fashion as the proposed project.

Table 1-1, Alternatives Summary, provides a summary of alternatives as they compare to the proposed project. Each alternative was analyzed for its potential impact on environmental issues that were determined to be either significant and mitigable or significant and unmitigable in the proposed project condition. Issues such as land use and planning were not found to be significant, therefore analysis was not provided for each alternative.

Table 1-1
Alternatives Summary

Environmental Issue	Proposed Project	No Project/No Development	Existing General Plan Designation	Reduced Density
Landform Alteration/ Aesthetics	Mitigable Impacts	Reduced impacts due to lack of changed aesthetic nature	Similar, but does not provide as many transitions between land uses	Similar
Agricultural Resources	Unmitigable Impacts	No Impact	Similar	Similar
Biological Resources	Mitigable Impacts	No Impact	Similar	Similar
Geology and Soils	Mitigable Impacts	No Impact	Similar	Similar
Cultural Resources	Mitigable Impacts	No Impact	Similar	Similar
Paleontological Resources	Mitigable Impacts	No Impact	Similar	Similar
Water Quality/ Hydrology	Mitigable Impacts	No Impact	Similar	Similar but less impervious surface due to less intensity of land use.
Transportation/ Circulation/Access	Mitigable Project Impacts Unmitigable Cumulative Impacts	No traffic impacts, but would not facilitate City's goal of installing infrastructure in western San Jacinto	Similar, but would result in higher traffic volumes that may not be completely mitigated.	Less impacts due to less overall trips
Air Quality	Unmitigable Impacts	No Impact	Greater Impacts	Less impacts but likely still significant and unmitigable due to non-attainment status of basin
Noise	Mitigable Impacts	No Impact	Greater Impacts	Similar
Public Services/Utilities	Mitigable Impacts	No Impact	Similar, but water use and other utility use would be much higher under this alternative	Less impacts due to less demand for services
Hazards/Risk of Upset	Mitigable Impacts	No Impact	Similar	Similar
Meets Most Project Objectives?	Yes	No	No	No

Summary of Environmental Impacts

Table 1-2, Summary of Environmental Impacts, provides a comprehensive list of all project impacts and associated mitigation measures. A statement as to whether residual impacts would occur after mitigation is applied is also provided.

Table 1-2
Summary of Environmental Impacts

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
Landform Alteration and Aesthetics		
1. The project would introduce additional night lighting within the project vicinity as well as potential new sources of glare (i.e., glass and reflective exterior surfaces). Particularly the commercial components of the site have the potential to produce significant night lighting impacts upon rural agriculture uses in the vicinity as well as proposed residential land uses within the project itself. Metal or other reflective exterior surfaces and finishes within the commercial components of the site could create new sources of light or glare resulting in significant glare impacts for adjacent residential, park, and agricultural uses.	5.2-a To avoid light and glare impacts, future submittals for commercial portions of the project development shall include a photometric lighting plan. The lighting plan shall demonstrate that project lighting is shielded from surrounding properties and that only the minimum amount of lighting required for safety purposes is provided to avoid adverse effects on surrounding areas. In general, lighting fixtures shall be shielded downward and away from the adjacent residential areas and public roadways. Commercial development plans shall also be reviewed to ensure the avoidance of substantial areas of reflective surfaces for building exteriors.	1. Incorporation of mitigation will reduce impacts to below a level of significance.
2. Should Planning Area 14 be purchased by the San Jacinto Unified School District for development as a high school, any potential light or glare impacts would need to be addressed by the School District in the course of their environmental compliance for that project. However, potential homebuyers in the vicinity should be made aware that potential outdoor lighting impacts may occur.	5.2-b A Notice-to-Property Owner shall be recorded on a separate buyer information sheet with the final map providing notice to potential future property owners in the vicinity of the school site (i.e., Planning Areas 1, 3 and 19) that there may be lighted ball fields in the future should the school district proceed with plans for the proposed high school.	2. Incorporation of mitigation will reduce impacts to below a level of significance.
Agricultural Resources		
1. Development of the proposed project would potentially result in significant urban/rural land use conflicts between the planned residential development and existing agricultural uses surrounding the project site. Conflicts would potentially include fertilizer and pesticide application drift into the proposed residential area, residential	5.3-a A Notice-to-Property Owner shall be recorded on a separate buyer information sheet with the final map providing notice to potential future property owners of the proposed development that the property is located in an area of active agricultural land uses which may potentially result in inconvenience and/or discomfort associated with adjacent agricultural operations including noise, odors and dust generation, and chemical drift.	1. The proposed mitigation would serve to alleviate land use conflicts associated with new residential development and existing agricultural land uses. However, this impact would remain significant and unavoidable until surrounding land converts to the ultimate planned uses prescribed under the City's General Plan.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
complaints about noise and dust resulting from site preparation activities associated with adjacent agricultural uses, and increased trespassing onto agricultural lands.		
2. The proposed project would irreversibly convert land currently under agricultural production and identified as containing significant agricultural resources to urban uses and would contribute to incremental urbanization of a predominantly rural area sustaining existing agricultural land uses.	None.	2. The City's General Plan EIR (January 2006) discusses a number of reasons mitigation for loss of agriculture is infeasible. Rising land costs to replace agricultural lands, rising water costs, labor costs, urbanization and environmental regulations all contribute to ongoing conversion of farmland. Without property owner cooperation and substantial financial incentives, it is infeasible to provide permanent on or offsite mitigation to replace converted farmland. Therefore, no feasible mitigation measures are available to reduce this impact below a level of significance.
Biological Resources		
1. Sensitive vegetation communities on the Villages of San Jacinto Project site include 4.22 acres of open water, 0.23 acre of freshwater marsh, 0.07 acre of southern willow woodland, 0.21 acre of herbaceous wetlands, 0.01 acre of cismontane alkali marsh, and 0.01 acre of intermittent unvegetated stream channel. These areas are under the jurisdiction of RWQCB and/or CDFG. All impacts to RWQCB/CDFG jurisdictional areas are considered significant.	5.4-a Mitigation for impacts to jurisdictional wetlands and non-wetlands waters will consist of: (1) off-site creation, (2) a combination of off-site creation and enhancement of wetlands of equal or higher habitat quality, or (3) purchase of wetlands mitigation credits in an approved mitigation bank. Because wetlands/waters on the Villages of San Jacinto project site are isolated, of low overall quality (contain large quantities of non-native species), and are surrounded by agricultural lands, they do not provide high quality habitat for riparian-dependent wildlife species, therefore mitigation onsite would not result in equal or greater wetland habitat value. Mitigation for on-site wetlands/waters impacts would be a biologically equivalent or superior alternative to avoidance of these impacts. The above not withstanding, wetlands areas created, enhanced, or preserved through the project's wetlands mitigation plan would	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	be connected to other wetlands/riparian/riverine areas and would provide overall biological value to the peregrine falcon and other sensitive wildlife and plant species. Wetland mitigation ratios are based on past experience developing appropriate mitigation for impacts to similar wetland and/or Waters of the US. **Herbaceous Wetlands, Open Water, Freshwater Marsh and Intermittent Stream Channel** Mitigation for impacts to 4.22 acres of open water, 0.23 acre of freshwater marsh, 0.21 acre of herbaceous wetlands, and 0.01 acre of intermittent unvegetated stream channel would be accomplished through creation or purchase of wetlands mitigation credits from an approved mitigation bank at a 1:1 ratio (i.e., 4.67 acres total). (see Section 5.4 in the EIR), **Cismontane Alkali Marsh** Mitigation for impacts to 0.01 acre of cismontane alkali marsh would be accomplished through the creation, or a combination of creation and enhancement, of wetlands of equal or higher habitat quality at a 3:1 ratio (i.e., 0.03 acre). Mitigation can also be accomplished through the purchase of wetlands mitigation credits in an approved mitigation bank. **Southern Willow Woodland** Mitigation for impacts to 0.07 acre of southern willow woodland would be required at a ratio of 4:1 (i.e., 0.28 acre) (see *Section 5.4 in the EIR)*. Mitigation can be accomplished through the creation, or a combination of creation and enhancement of wetlands of equal or higher habitat quality. Mitigation can also be accomplished through the purchase of wetland mitigation credits in an approved mitigation bank.	

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
2. Impacts to the burrowing owl are covered in accordance with the Species Conservation Objectives for the burrowing owl listed in the MSHCP. That said, in order to comply with the specific Burrowing Owl Survey Area provisions of the MSHCP, mitigation for direct impacts to known individuals will require mitigation.	5.4-b Per MSHCP, because of the site does not support long term conservation value for burrowing owls , mitigation for impacts to this pair of owls can include passive or active relocation of owls following accepted protocols per the burrowing owl Species Account in Volume II-B of the MSHCP. In addition, MSHCP requires that: *"Pre-construction presence/absence surveys for burrowing owl within the survey area where suitable habitat is present will be conducted for all Covered Activities through the life of the permit. Surveys will be conducted within 30 days prior to disturbance. Take of active nests will be avoided. Passive relocation (use of one way doors and collapse of burrows) will occur when owls are present outside the nesting season."* Because impacts to other sensitive wildlife species are covered under the MSHCP, no additional mitigation is proposed for impacts to these species. However, if construction activity is to take place during the breeding season (*i.e.,* January through October), a one-time biological survey for nesting bird species would be conducted within the proposed impact area no earlier than 72 hours prior to construction. This survey is necessary to assure avoidance of impacts to nesting native birds (per the federal Migratory Bird Treaty Act). If nesting birds are detected within vegetation which is to be impacted, the nest location(s) will be protected. A buffer of 25 to 300 feet (specific width to be determined by the project biologist according to species of bird) around the nest will be avoided until fledging. 5.4-c MSHCP requires that night lighting shall be directed away from the MSHCP conservation area. Shielding will be incorporated by the project to ensure that ambient lighting in the MSHCP conservation area is not increased; therefore impacts on potential adjacent MSHCP conservation area lands due to increased lighting would be avoided.	2. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features		Level of Significance after Mitigation
3. Due to the project's location adjacent to land that could potentially be conserved through the MSHCP Plan, potential indirect impacts related to invasive species may occur.	5.4-d	Table 6.2 of the MSHCP lists landscape plant species that shall be avoided for all portions of developments that are located adjacent to (within 1,000 feet) the MSHCP conservation areas. These plant species will be avoided on the areas of the Villages of San Jacinto project site adjacent to Criteria Cells 2775 and 2878 to the west of the project site. This would be achieved by including language in the residential sale documents to ensure that future property owners understand the types of plants that are restricted. Sample language for inclusion in sale documents would be submitted to the Planning Department for approval prior to approval of a certificate of occupancy. Therefore no indirect effects due to invasive species are anticipated.	3. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
Cultural Resources			
1. Due to the presence of five previously recorded sites located within one mile of the project and the fact that the project is located within an alluvial setting, potentially significant archeological resources could be unearthed during site grading.	5.5-a	In order to reduce the potential for disturbance or damage to unknown archaeological resources, monitoring of mass grading activities of the site during . by a qualified archaeologist is required. Should the monitor observe disturbance of resources that could be important archaeological artifacts, the monitor shall have the power to stop grading in the immediate area of discovery in order to allow for a resource study and recovery/curation effort (if necessary) to occur.	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
Geology and Soils			
1. Many portions of the site are characterized as having unsuitable compressible soils not suitable for structural support. Location of a structure on an unstable geological unit or soil would be a significant impact.	5.6-a	The on-site soils are suitable for reuse as compacted fill, provided they are relatively free of organic materials, debris and oversize materials. The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill will be placed in uniform lifts not exceeding 8 inches in thickness. Fill soils will be placed and compacted to a minimum 92% relative compaction at a minimum of 2% above the optimum moisture content.	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	Fill slopes shall be overbuilt a minimum of 2 feet and trimmed back to the compacted core or rolled with a weighted sheepsfoot compaction roller as the fill slope height increases in maximum 4-foot increments. Placement and compaction of fill shall be performed in accordance with City grading ordinances and minimum compacted standard under the observation and testing of a qualified geotechnical engineer. All loosely packed exploration trench backfill shall be removed and recompacted in accordance with project geotechnical guidelines. An engineering geologist shall be present to observe all excavations to confirm limits of faulting. If exposures differ from anticipated conditions, further investigations and/or additional structural setbacks can be required.	
2. The perched groundwater table may be located between 5 and 22 feet. A shallow groundwater table can present hazards during site development.	5.6-b. To facilitate the grading operations, on-site irrigation water shall be reduced or ceased for a period of 3 to 6 months prior to the start of grading. Further, the contractor will pothole the upper 12 to 14 feet of soil prior to the start of grading operations to determine if shallow groundwater will affect the planned grading. In localized areas where shallow groundwater conditions exist such that removals cannot be performed to the required depths or where deeper excavations (such as in the proposed "lake" areas) are proposed at or below the existing perched groundwater, methods of localized dewatering will be required including the use of well points and/or interceptor ditch methods. Alternative ground stabilization methods such as deep dynamic compaction shall be required. Deep dynamic compaction is a means of physically compacting the subsurface soils by repeatedly dropping a heavy weight (typically a large concrete block) to densify the underlying soils to a predetermined density. After proposed grading plans are developed, these areas shall be further reviewed by a qualified geotechnical engineer.	2. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
3. Potential site ground rupture, as determined by the Leighton and Associates Fault Investigation, is considered moderate to high. Ground rupture due to on-site faults could potentially affect existing and future facilities (such as gas, electrical, water mains, etc.) that traverse fault zones on the site. Secondary seismic effects due to strong ground shaking, ground rupture, liquefaction and seismically induced settlement are considered significant.	5.6-c. A structural setback zone of 50 feet on either side of the encountered fault zone, and as much as 75 feet on the "down-block" side shall be observed for structures intended for human occupancy (2,000 hours/year). This preliminary setback zone will be refined as the grading concept is developed and possible additional site studies are performed. The Fault Location Map (Plate 2) within the Fault Investigation shows required preliminary structural setbacks. However, the final setback limits shall be determined during grading or future studies as the fault trace is exposed, identified and surveyed for lateral and vertical location. The setbacks shall be shown on all project plans. To reduce the effects and magnitude of the earthquake-induced settlements, remedial grading shall occur. Following remedial grading, differential dynamic settlements are anticipated to be approximately 2 inches in a horizontal distance of 40 feet. Additional analysis will be performed by a qualified geotechnical specialist to further refine earthquake-induced settlement. Based on a review of the rough grading plans by a qualified geotechnical specialist, remedial grading requirements will be revised. To reduce the potential adverse secondary seismic effects, mitigation of compressible alluvial soils to support the planned development at areas such as free-face slopes ("green belt" detention basins, channels etc.), the project perimeter (where removals may be limited by property restraints) and planned lake areas will require additional geotechnical stability design by a qualified geotechnical engineer after project plans are developed.	3. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
4. The volume change of excavated on-site materials upon recompaction is expected to vary with materials, density, insitu moisture content, location and intended compaction effort. Therefore, it is likely that on-site ground rupture could potentially affect future	5.6-d. While it is difficult to determine the level of subsidence and shrinkage risk, site grading must include a balance area or ability to adjust import quantities to accommodate some variation. Relative compaction rates must be followed as they appear in the February 28, 2005, Leighton and Associates Technical Report. As stated in the February 28, 2005,	4. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
site improvements. Based on the site specific fault investigation, the potential for site ground rupture during a seismic event is considered moderate to high.	Leighton Report, due to the agricultural discing of the surface soils, a subsidence value of 0.2 feet must be applied when evaluating earthwork volumes.	
5. The relatively loose saturated alluvial deposits on site are considered susceptible to liquefaction hazards.	5.6-e. To reduce the potential for liquefaction and earthquake-induced settlements at the site, the following guidelines will be implemented. For preliminary design purposes, a minimum removal and recompaction of 10 feet (as measured from finish grade) will be used in cut areas on that portion of the site designated as having a high potential for liquefaction (roughly the northern one third to one half of the site). In cut areas outside the area designated as high potential for liquefaction, a minimum overexcavation of 5 feet below finish grade must be used. For areas designated as "fill" a minimum removal of 5 feet will be used, provided a minimum total thickness of 10 feet of properly compacted fill is maintained below the lowest adjacent finish grade (including lowest adjacent street elevation). The removal depths for the infrastructure roadways shall be a minimum 5 feet below pavement subgrade. These estimates are for preliminary design planning only and will be revised based on our review of rough grading plans. These preliminary estimates will be revised upon review of the proposed grading concept plan. These alluvial soils must be removed down to medium dense to dense, relatively non-porous alluvium material as determined by the geotechnical consultant. Undercuts will be made 1:1 next to existing roadways that will remain after grading. Cut slopes shall be replaced as properly compacted fill. The excavated materials will be moisture conditioned or dried back, as appropriate, to achieve the required minimum relative compaction. Saturated soils may need to be dried back or mixed with drier on-site materials and shall be thoroughly mixed prior to fill placement. The resultant excavation will be filled and compacted in this lifts to a minimum 92% relative	5. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	compaction at a minimum of 2% above the optimum moisture content. A minimum 90% relative compaction may be acceptable in the southern portion of the site. This will be determined during review of rough grading plans. After completion of the required removal of unsuitable soils, the approved surface will be scarified, moisture conditioned as needed and compacted prior to placing fill. If subgrade conditions at the approved bottoms are wet and "pumping" near the required removal depth, the scarification and moisture conditioning will not be necessary. Stabilization measures where shallow groundwater conditions are expected at or near the required removal depth may include the use of a stabilization fabric and/or coarse gravel/graded rock and gravel. Where shallow groundwater conditions are present, alternative ground improvement guidelines shall be followed (see Mitigation Measure 5.5-b). Further evaluation of these specific areas will be necessary after draft grading plans are prepared.	
6. Manufactured slopes that are planned for construction on the site would be susceptible to slope stability hazards. Slopes adjacent to severe flow direction changes may be susceptible to increases scour erosion and slope stability.	5.6-f. All slopes will be provided with appropriate surface drainage features and landscaped with drought-tolerant, slope-stabilizing vegetation as soon as possible after grading to reduce the potential for erosion. Berms will be provided at the top of fill slopes to direct water away from slope faces. Lot drainage shall be directed such that runoff on slope faces is minimized. Oversteepening of slopes must be avoided during fine grading and building construction. Although not anticipated, if seepage is encountered in slopes, special drainage features may be necessary. 5.6-g. For slopes that are will be adjacent to ditches or other water conveyance features, proper protection including rip rap or other slope protection devices as designed by the project civil engineer would be required. Slope stability and the potential for scour shall be required in the design drainage alignment.	6. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
Paleontological Resources		
1. Since the proposed project lies within a geologic formation with high resource bearing potential and the project would necessitate recompaction of potential fossil bearing alluvium, impacts to paleontological resources are considered to be significant. Impacts to paleontological resources could occur during excavation and site development when geologic formations that have resource bearing potential are disturbed. Impacts would occur when fossils are physically destroyed by such activities.	5.7-a. Prior to beginning any excavation work, the developer or its contractor shall demonstrate that a qualified paleontologist has been retained to carry out a paleontological resources mitigation program. A paleontological monitor shall be on site at all times during grading activities that disturb non-undocumented fill soils or formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until such a time that a complete assessment of the resources can be conducted. If resources are found that are determined to be significant, the paleontological monitor shall direct activities to recover the resources. Prepared fossils, along with copies of all pertinent field notes, photos and maps shall be deposited in a scientific institution with paleontological collections, such as the San Bernardino County Museum.	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
Water Quality and Hydrology		
1. Implementation of the project would increase the amount of impervious surfaces within the local area which would result in increased runoff and reduced on-site water percolation. Increasing an area's impervious surface may result in drainage problems and flooding.	5.8-a. The project is located within the San Jacinto – Area Drainage Plan (SJ-ADP), which is a financing mechanism used to offset costs for construction of proposed Master Drainage Plan (MDP) facilities. The project will be charged a per-acre fee in order to pay a fair share of the price of area-wide drainage facilities.	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
2. All lake and drainage features on site would be constructed so they are above the groundwater table so as to prevent intermixing of ground and surface waters. That said, it is possible that during project construction, groundwater may be encountered.	5.8-b. If dewatering becomes necessary during construction, all discharges shall be in accordance with Santa Ana Regional Water Quality Control Board requirements which mandate that dewatered groundwater be tanked and hauled to a legal disposal site for treatment. Dewatering shall not occur in on-site drainages or water features. In addition, if dewatering becomes necessary during construction, a National Pollution Discharge Elimination System dewatering permit shall be obtained from the Santa Ana Regional Water Quality Control Board.	2. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
3. The northern portion of the project site is located within the 100-year floodplain of the San Jacinto River. Development within the floodplain would result in an impedence to flow and an increase in the base flood elevation. Because a portion of the proposed development is proposed to be constructed within the limits of the 100-year floodplain, development of the proposed project will result in potentially significant impacts relating to flood hazards.	5.8-c. All buildings shall be located outside of the 100-year floodplain. The applicant shall process a Flood Insurance Rate Map (FIRM) map revision. Further, the applicant shall obtain a Conditional Letter of Map Revision (CLOMR) prior to issuance of building permits. The project applicant, or subsequent property owners, shall obtain flood insurance, to the extent required by law, to protect against any damage that might occur during a flood event. It must be noted that at the time of EIR publication, the applicant and City had initiated the CLOMR process with the Riverside County Flood Control and Water Conservation District.	3. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
4. Development of the proposed project may result in an increase in pollutant load due to sedimentation. Sediments are soils or other surficial materials eroded and then transported or deposited by the action of wind, water or gravity. Sediment from erosion, primarily during construction, is quite often a major project pollutant of concern. A potentially significant impact could occur during construction related to sedimentation.	5.8-d. During construction, the project will incorporate all City of San Jacinto construction Best Management Practices (BMPs). These BMPs include the following: • Erosion control BMPs including temporary seeding, permanent seeding, etc. • Soil stabilization BMPs • Sediment control BMPs including silt fence perimeter controls, surface roughening, tree or natural vegetation preservation and protection, temporary gravel construction entrance/exit, temporary diversions, permanent diversions, outlet stabilization, inlet protection, temporary sediment basins and gravel bay barriers. • Wind erosion BMPs • Minimize contact with Stormwater BMPs including BMPs for construction vehicles and equipment maintenance, fueling and washing, materials maintenance and construction material loading, unloading and access area controls. • Non-storm water BMPs • Post-construction BMPs	4. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	5.8-e. The project applicant will need to develop a Stormwater Pollution Prevention Plan (SWPPP) pursuant to NPDES Storm Water Discharge Associated with Construction Activity Guidelines (Water Quality Order 99-08-DWQ). The SWPPP will identify all BMPs that will prevent construction pollutants from contacting storm water. Measures shall also be designed so as to prevent all products of erosion from moving off site into receiving waters. Provisions will also be included to ensure that BMPs are monitored and success recorded.	
5. Development of the proposed project may result in an increase in pollutant load due to sedimentation. Sediments are soils or other surficial materials eroded and then transported or deposited by the action of wind, water or gravity. Sediment from erosion, primarily during construction, is quite often a major project pollutant of concern. A potentially significant impact could occur during construction related to sedimentation.	5.8-f. Structural Best Management Practices (BMPs) are required for new development to improve water quality of stormwater runoff. In order to meet NPDES regulations, the design volume or design flow to be treated must reduce pollutants to the Maximum Extend Practicable (MEP). This project will incorporate a water quality extended detention basin to provide water quality treatment for the runoff emanating from the project site, a volume-based BMP, and a flow-based BMP. Once the project is complete, maintenance will be the responsibility of the Villages of San Jacinto homeowners association. In addition to sizing techniques, several quantity-control Best Management Practices (BMPs) shall be implemented to control runoff: • Rainfall shutoff devices shall be used to prevent irrigation during and after precipitation; • Irrigation systems shall utilize a dripping system to eliminate nuisance run-off; and • Backflow preventer/pressure regulators shall be installed. • The project applicant will need to develop a Water Quality Management Plan pursuant to NPDES Permit #CAS 618033, order # R8-2002-001. The Water Quality Management Plan will identify all final site BMP requirements.	5. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	The following BMPs may be incorporated into final site designs: • Construct community streets, sidewalks and parking lot aisles to the minimum widths necessary; • Incorporate landscape treatment for parking lot runoff; • Use unit pavers or other equivalent porous material to construct walkways, alleys and other low-traffic areas; • Utilize trees in landscaping plans to maximize canopy interception and water conservation; • Plant native trees and maximize canopy interception and water conservation; • Drain rooftops into adjacent landscaping prior to discharging to the storm drain; • Vegetate slopes with native or drought tolerant vegetation; and • Install energy dissipaters at the outlets of new storm drains that enter the regional storm drain system that eventually feeds into the San Jacinto River. • Utilize and install "high to medium efficiency" Post Construction BMP filtration system within the proposed water quality basin that would help reduce as many bacteria and viruses as possible from entering the downstream local stormwater collection system. This system must follow the specifications of the California Stormwater Handbook to ensure that the system provides maximum bacteria/viral capture.	
6. Transportation, Circulation, and Access		
1. The project may result in significant impacts to local circulation systems if site specific improvements are not implemented in conjunction with each phase of the project (refer to *Figures 5.9-5 thru 5.9-8*).	**Phase I** 5.9-a The following measures shall implemented prior to issuance of the first residential and commercial building permits and as depicted on *Figure 5.9-5*: • Construct Sanderson Avenue at its ultimate half-section width as an Urban Arterial roadway from the project's northerly boundary to the project's southerly boundary in	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	conjunction with development. • Construct De Anza Drive at its ultimate full-section width as a secondary roadway from Cawston Avenue to Sanderson Avenue in conjunction with development. • Construct Bridge Street at its ultimate half-section width as a secondary roadway from Street "A" to Sanderson Avenue. • Construct Cawston Avenue at its ultimate half-section width as a secondary roadway from the Phase II southerly boundary to De Anza Drive. • Participate in fair share fees to construct a traffic signal at the following intersection in conjunction with Phase I of the development: o Sanderson Avenue (NS) at: De Anza Drive (EW) • Construct a traffic signal at the following intersection in conjunction with Phase I of the development: o Sanderson Avenue (NS) at: Bridge Street (EW) • Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants. • Driveway 15 shall be restricted to right in/right out only access. • Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans. • On site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site.	

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	Phase II 5.9-b The following measures shall be implemented prior to issuance of the 432nd residential permit, any additional commercial building permits and as depicted on *Figure 5.9-6*: • Construct Cawston Avenue at its ultimate full-section width as a secondary roadway along the Phase II Cawston Avenue boundaries in conjunction with Phase II of the development. • Driveway 14 shall be restricted to right in/right out only access. • Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants. • Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans. • On site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site. **Phase III** 5.9-c The following measures shall be implemented prior to issuance of the 754th residential permit, the high school, any additional commercial building permits and as depicted on *Figure 5.9-7*: • Construct Odell Avenue at its ultimate half-section width as a secondary roadway from Ramona Boulevard to the project's southerly boundary in conjunction with Phase III development. • Construct Cawston Avenue at its ultimate full-section	

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	width as a secondary roadway from Ramona Boulevard to the Phase II northerly boundary in conjunction with Phase III development. • Construct Ramona Boulevard at its ultimate half-section width as a secondary roadway from Odell Avenue to Sanderson Avenue in conjunction with Phase III development. • Driveway 5 at Ramona Boulevard shall be restricted to right in/right out only access. • Participate in fair share fees to construct a traffic signal at the following intersection in conjunction with Phase III of the development: o Cawston Avenue (NS) at: Ramona Boulevard (EW) • Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants. • Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans. • On site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site. • Construct secondary access for PA 19 as approved by the City Engineer. **Phase IV** 5.9-d The following measures shall be implemented prior to issuance of the final remaining commercial building permits and as depicted on *Figure 5.9-8*: • Construct Cawston Avenue at its ultimate half-section width as a secondary roadway from Bridge Street to De	

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	Anza Drive in conjunction with Phase IV development. • Construct Bridge Street at its ultimate full-section width as a secondary roadway from Cawston Avenue to Street "A" in conjunction with Phase IV development. • Construct the remaining half of Bridge Street as a secondary roadway from Street "A" to Sanderson Avenue in conjunction with Phase IV development. • Driveway 10 at Bridge Street shall be restricted to right in/right out only access. • Driveway 12 at Bridge Street shall be restricted to right in/right out only access. • Driveway 16 at Sanderson Avenue shall be restricted to right in/right out only access. • Construct traffic signals at the following intersections in conjunction with Phase IV of the development: o Driveway 3 (NS) at: Ramona Boulevard (EW) (Only if High School is constructed) • Street "A"/Driveway 11 (NS) at: Bridge Street (EW) • Street "B"/Driveway 13 (NS) at: Bridge Street (EW) • Participate in fair share fees to construct a traffic signal at the following intersection in conjunction with Phase IV of the development: o Cawston Avenue (NS) at: Bridge Street (EW) • Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants. • Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans.	

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features		Level of Significance after Mitigation
		On site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site.	
2. Intersections are projected to operate at unacceptable LOS E or F during the peak hours without improvements. Some required improvements would exceed the General Plan typical roadway cross sections and are therefore not feasible. Improvements in excess of the ultimate planned roadway cross-sections at the study intersections would not be required to achieve acceptable LOS for cumulative conditions with completion of the MCP and SR 79 projects. However, it should be noted that completion of these regional improvements can't be determined by the City.	5.9-e	Because the project, along with many others in the area, is contributing to the city-wide need for street improvements, the project will need to contribute to the Riverside County TUMF and City of San Jacinto DIF programs. As discussed in Section 5.9.2, these fees are collected as part of a funding mechanism aimed at ensuring that local and regional highway capacity keeps pace with projected growth throughout the area. Eligible facilities for funding by the City's DIF program are identified on the City's Facility Needs List, which currently extends through the year 2020. *Table 5.9-17, Estimated TUMF and DIF Fee Calculations,* includes estimated fee calculations for the proposed project based on current fee rates. Many off-site circulation improvements required as a result of project impacts would be mitigated through participation in the TUMF fee program. Many of the off-site improvements that are needed will be planned, designed and constructed by the City, Riverside County Transportation Department, Riverside County Transportation Commission, other cities or a combination of the above. In order to ensure that all off-site traffic improvements are constructed by the City (or the County/RCTC), prior to construction of specific project phases, the City shall ensure that the improvements are made to compensate for the project's contribution to off-site circulation issues. The project applicant's payment of TUMF and DIF fees will allow the financing mechanism to conduct such improvements.	2. The project would contribute to a significant unavoidable impact for cumulative traffic conditions if the MCP and SR 79 projects are not in place upon completion of the first phase of project development. Because the City can not guarantee that these regional facilities would be in place prior to project build-out, a significant, cumulative impact to regional traffic may occur in the absence of these facilities.
3. The additional worker and construction-related truck trips to and from the project site would potentially affect traffic operations at project area intersections during peak hours.	5.9-f	The contractor for each phase of the project shall be required to prepare and implement a traffic control plan (TCP) in order to monitor construction equipment, deliveries and construction worker traffic to eliminate any potential hazards to surrounding roadways due to abnormally high traffic into or out of the site	3. Incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	for a concentrated period of time. Each traffic control plan shall outline when flagging operations may be necessary (during large construction equipment arrival or deportation, etc.).	
Air Quality		
1. The maximum construction-generated PM_{10} emissions of 36.58 pounds per day would be below the SCAQMD's quantitative significance threshold of 150 pounds per day. Although such fugitive dust would be short term and would only last during the duration of grading activity, such emissions could cause a public nuisance or further exacerbate the existing PM_{10} nonattainment situation in the SCAB.	5.10-a Consistent with SCAQMD Rule 403, it is required that fugitive dust generated by grading and construction activities be kept to a minimum with a goal of retaining dust on the site, by following the dust control measures listed below: a) During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease. b) During construction, water truck or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas later in the morning and after work is completed for the day and whenever winds exceed 15 miles per hour. c) Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. d) Reduce speeds on unpaved roads to less than 15 miles per hours. e) Halt all grading and excavation operations when wind speeds exceed 25 miles per hour. f) Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadways shall be swept, vacuumed, and/ or washed at the end of each workday. g) Should minor import/ export of soil materials be required, all trucks hauling dirt, sand, soil, or other loose material to and from the construction site shall be tarped and maintain a minimum two feet of freeboard.	1. Incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
	h) At a minimum, at each vehicle egress from the project site to a paved public road, install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long (or as otherwise directed by SCAQMD). i) Review and comply with any additional requirements of SCAQMD Rule 403.	
2. Vehicle exhaust results from internal combustion engines used by construction equipment and vehicle which results in emissions of NO_x, VOCs, and CO. Such emissions will be below SCAQMD thresholds, but should be further reduced through the use of project design features and mitigation.	5.10-b The following shall be adhered to during project grading and construction to reduce VOC, NOx, and CO from construction equipment: a) Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) shall be utilized. b) The engine size of construction equipment shall be the minimum size. c) The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest number is operating at any on time. d) Construction equipment shall be maintained in tune per the manufacturer's specifications. e) Catalytic converters shall be installed on gasoline-powered equipment.. f) Diesel catalytic converters shall be installed. g) Diesel powered equipment shall be utilized in lieu of electric equipment.	2. Less than significant impact. Incorporation of mitigation will further reduce emission levels.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
3. The application of architectural coatings (exterior/interior paint and other finishings) would produce VOC emissions that would exceed the SCAQMD's quantitative significance threshold of 75 pounds per day. This impact is considered significant.	5.10-c The project developer shall use zero-Volatile Organic Compounds (VOC)-content architectural coatings during project construction/ application of paints and other architectural coatings to reduce ozone precursors. If zero-VOC paint cannot be utilized, developer shall avoid application of architectural coatings during the peak smog season: July, August, and September. Developer shall procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings). The following websites provide information/ lists of manufacturers related to zero-VOC content coatings: a) http://www.aqmd.gov/prdas/brochures/ paintguide.html b) http://www.delta-institute.org/publications/ paints.pdf c) http://www.cleanaircounts.org/factsheets/ FS%20PDF/Low%20VOC%20Paint.pdf	3. Although mitigation is proposed, impacts would remain significant and unmitigable.
4. The projected operational emissions from both area source and vehicular emissions are substantially above the SCAQMD significance criteria for all pollutants except SOx.	5.10-d The applicant shall incorporate the following energy conservation measures into project building plans: • Install low NOx water heaters and space heaters • Install heat transfer modules in furnaces • Use light colored, water-based paint and light-colored roofing materials to the satisfaction of the City. • Install solar panels for water heating systems and other facilities and/ or use water heaters that heat water only on demand. • Use passive solar cooling/ heating. • Maximize the use of natural lighting. • Install energy efficient appliances and lighting. • Use landscaping to shade buildings and parking lots. In addition to the above area source mitigations/ required site design features, the following mitigation measures are required in order to minimize long term vehicular impacts:	4. Although mitigation is proposed, impacts would remain significant and unmitigable.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features		Level of Significance after Mitigation
		• Provide preferential parking spaces for employee carpools and vanpools in the commercial and business park land uses. • Install covered bus stops to encourage use of mass transportation. • Coordinate with the local transit agency to provide public transit to the project site. • Develop, in coordination with the City of San Jacinto, public outreach programs to promote alternative methods of transportation.	
5. Due to the unknown nature of RCTC-planned transportation improvements, CO hot spots must be assumed. This would result in significant impacts.	5.10-e	To mitigate the traffic conditions that could result in potential CO "hotspots," the project applicant shall participate in funding off-site traffic improvements which are needed to serve cumulative future traffic conditions through payment of appropriate traffic mitigation fees (Riverside County TUMF and City of San Jacinto DIF fees). TUMF provides a key funding source for General Plan improvements within the project area, including the required improvements related to the Ramona Expressway. It should be noted that this mitigation measure also appears as Mitigation Measure 5.9-e.	5. Although mitigation is proposed, impacts would remain significant and unmitigable.
Noise			
1. Significant noise impacts may occur from exterior noise exposure above 65 dB CNEL for residential, commercial, and park uses located adjacent to the planned ROW for roadway facilities.	5.11-a	Residential lots located adjacent to Sanderson Avenue shall include an 11 foot high noise barrier; residential lots adjacent to Ramona Boulevard and Cawston Avenue (between Ramona Boulevard and De Anza Street) shall require noise barriers a minimum of 6 feet in height. The project noise barriers must have a surface density of at least four pounds per square foot, and have no openings or cracks. The noise barriers may be constructed of acrylic glass, any masonry material, earthern berm or a combination of these materials	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features		Level of Significance after Mitigation
2. Noise levels associated with the commercial activities would vary depending on the number of delivery trucks, loading dock areas and customer traffic generated by the commercial site. Similarly, HVAC equipment noise would vary depending on the number and types of equipment selected. Typical roof-top HVAC packaged units generate noise levels of approximately 70 dB at ten feet from the source. These noise sources may result in significant impacts depending on their make, model, location, proximity to adjacent receptors, etc.	5.11-b	Individual acoustical analyses shall be prepared as part of site plan/development plan review for future commercial development applications submitted to the City, to ensure noise levels would comply with the City's Draft General Plan noise standards (maximum exterior noise levels of 65 dB CNEL; maximum interior noise levels of 45 dB CNEL) and not result in significant noise impacts at adjacent park land or residences. The applicant for each commercial development proposal would have the responsibility to commission or fund the required acoustical analysis. Although the future building-specific noise study will determine exact specifications, it is likely that interior noise mitigation would consist of sound-rated windows and mechanical ventilation systems for the commercial buildings. All required noise control measures identified in the acoustical analysis shall be made conditions of ultimate development approval to ensure that all measures are implemented to fully mitigate anticipated noise impacts.	2. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
3. Traffic-related noise exposure levels within exterior use areas for the schools (i.e., playground, sports fields, athletic courts, etc.) could exceed acceptable noise standards, thereby resulting in potentially significant noise impacts. Future school buildings that are located in areas exposed to a noise level greater than 60 dB CNEL could exceed an interior noise level of 45 dB CNEL. This would result in a potentially significant impact. There are also residential areas proposed immediately adjacent to the north and east of the elementary school site. Specific residential setback information and the location of the schools facilities are not available. Therefore, until more specific	5.11-c	For the high school site, the specified noise barriers along Ramona Boulevard and Cawston Avenue shall be installed to protect exterior use areas of the site from traffic-related noise; OR if the School District desires to forego the construction of the specified noise barriers in favor of selective location of exterior use space, a site specific acoustical analysis shall be prepared to determine adequate noise control for traffic-related noise (i.e., use of buildings to shield exterior use areas, etc.), to ensure that noise levels do not exceed 65 dB CNEL at exterior use areas. The School District would have the responsibility to commission or fund the acoustical analysis to evaluate traffic noise control if the sound walls specified herein are not incorporated into the high school development design. All required noise control measures identified in the acoustical analysis shall be made conditions of development approval.	3. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
setback and school design information is available the elementary school noise impact upon residential land uses to the north and east are considered potentially significant.	5.11-d A Notice-to-Property Owner shall be recorded on a separate buyer information sheet with the final map providing notice to potential future property owners in the vicinity of the school site (i.e., Planning Areas 1, 3 and 19), stating that they could be exposed to noise associated with outdoor activities at the high school. The disclosure will function to make potential buyers aware of the anticipated noise levels/impacts, such that particularly noise-sensitive individuals would have the opportunity to decide against purchase of a home which is subject to these periodic noise conditions.	
4. Two new freeways, State Route 79 (SR 79) and Mid County Parkway (MCP) are currently in various planning stages. Detailed design drawings are not available for these two freeways. However, it is anticipated that the alignments of both freeways would be located at least 1,000 or more feet from the project site. As the area develops, there would be buildings and other structures that would most likely provide shielding between the freeways and the project site that would substantially attenuate the traffic noise. However, for the purposes of the project noise analysis it was conservatively assumed that the potential noise contribution from future SR 79 and MCP freeways would be 60 dB CNEL at the north and east boundaries of the project site.	5.11-e For residences proposed within the future 60 dB CNEL contour, an interior acoustical analysis shall be required prior to the issuance of building permits to ensure that the interior CNEL would not exceed 45 dB. Interior noise mitigation would most likely consist of sound-rated windows and mechanical ventilation systems for the homes. All required noise control measures identified in the acoustical analysis shall be made conditions of building permit issuance.	4. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
5. The generation of construction activities during sensitive time periods for adjacent land uses is considered a significant nuisance. As such, project generated construction noise would pose a potentially significant effect on noise-sensitive	5.11-f Future project-related site preparation and construction activities shall be limited to the hours between 7:00 am and 6:00 pm, Monday through Saturday. No construction shall occur on Federal holidays (e.g., Thanksgiving, July 4th, Labor Day, etc.). Construction equipment maintenance shall be limited to the same hours. Non-noise-generating	5. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
receptors.	construction activities such as interior painting are not subject to these restrictions.	
Public Services and Utilities		
1. The proposed development would result in a minor incremental increase in demand for fire protection services and, with consideration of future cumulative increases in demand for fire protection services associated with other development proposals and area-wide growth, could potentially result in decreased levels of service within the project area and city-wide. This would constitute a significant impact.	5.12-a The Developer shall be required to pay the Development Impact Mitigation Fees, as determined to be necessary by the development agreement, City Community Development Department and Public Works Department to offset impacts on City fire services. The current estimated fee amount is outlined in *Table 5.12-1, Fire Facilities Fee Derivation Summary*.	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
2. The proposed development would result in a minor incremental increase in demand for police services and, with consideration of future cumulative increases in demand for police services associated with other development proposals and area-wide growth, could potentially result in decreased levels of service within the project area and city-wide. This would constitute a significant impact.	5.12-b The Developer shall be required to pay the Development Impact Mitigation Fees, as determined to be necessary by the development agreement, City Community Development Department and Public Works Department to offset impacts on police services. Current fee amounts are summarized in *Table 5.12-2, Police Facilities Fee Derivation Summary.*	2. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
3. Should potential school site in the Specific Plan area not be developed by the District in a timely manner, new student generation of the proposed development may substantially exceed the capacity levels of existing school facilities. As such, impacts to school facilities resulting from the development of the Villages of San Jacinto, as well as potential cumulative impacts of the development in combination with other anticipated projects in the area, are considered potentially	5.12-c The Developer shall be required to pay the Development Impact Mitigation Fees, as determined to be necessary by the development agreement, City Community Development Department, Public Works Department and San Jacinto School District, to offset impacts on school facilities. Requiring payment of the school facility mitigation fees would aid in acquiring the additional resources to provide adequate school facilities necessary to accommodate existing and future residents. Therefore, contribution of the mitigation fees by the	3. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
significant.	developer would ensure that adequate mitigation is provided to reduce potential direct and cumulative school impacts to less than significant levels. Should the developer assist the City in facilitating the construction of the school site identified in the Specific Plan, the City may decide to waive or reduce some portion of the school mitigation fees typically required to an appropriate lesser amount in consideration of the partial mitigation provided by developer-assisted, on-site school facility construction.	
4. Due to the influx of population, the project could result in inconsistencies with AB 393 which governs the quantities jurisdictions, such as the City of San Jacinto, can contribute to local landfill facilities. This would result in a potentially significant impact.	5.12-d Demolition and/or excess construction materials shall be separated on site for reuse/recycling or proper disposal (e.g., concrete asphalt). During grading and construction, separate bins for recycling of construction materials and brush shall be provided on site. 5.12-e Landscaping shall be designed and located to utilize drought tolerant species, minimize irrigation, and to reduce green waste generation. 5.12-f The developer shall develop and submit a Solid Waste Management Plan to be reviewed and approved by the City Public Works Solid Waste Division and Planning and Development, and shall include: • Provision of space and/or bins for the storage of recyclable materials within the project site, • Methods of waste collection • Information programs to future residents regarding disposal of hazardous wastes.	4. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
Hazards/Risk of Upset		
1. Due to the historic use of approximately 20 acres of the property as a heifer raising farm, the presence of manure may result in significant environmental impacts related to methane gas exposure.	5.13a In order to ensure that methane hazards do not exist on the 20 acre portion of the site formerly used for heifer raising activities, the Riverside County's Methane Investigation Protocol shall be followed during and after site preparation. After grading of the 20 acres, methane gas sampling and any associated mitigation mechanism installation shall occur in accordance with the most recent Riverside County Department of Environmental Health protocols.	1. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
2. The issuance of the Regional Water Quality Control Board's "no further action" letter indicates that hazardous materials previously present on the site have been removed to a level that no longer poses a threat to the environment. Therefore, while the project site contains historic environmental hazards, these hazards have been removed and would no longer pose significant health risks to the public or environment. That said, regulatory procedures may be required to officially determine the site safe for reuse.	5.13b The Regional Water Quality Control Board and Department of Health Services shall be notified of potential site reuse in accordance with the December 26, 2001, "no further action" letter provided for the remediated leaking underground storage tanks. These agencies may require additional processing or testing depending on the ultimate reuse of the specific area contaminated. In order to ensure that regulatory compliance has been met, on-site soils shall be tested prior to grading to determine the presence of contaminants. Testing results will help determine if permissible levels of contaminants have been exceeded. If levels have been exceeded, impacted soils shall be remediated in accordance with Riverside County Department of Health Service protocol.	2. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
3. Historic windmills were often powered by diesel fuel. The diesel fuel source was often stored in underground storage tanks. During the Phase I Site Assessment, diesel storage tanks were not noted nor did they appear on federal or state databases within the vicinity of the old windmill. That said, often underground storage tanks are unreported and therefore could be discovered during grading. If an underground storage tank or stained soil or soil with a petroleum hydrocarbon odor is uncovered, a potentially significant impact could occur.	5.13c The former windmill site shall be flagged prior to site grading. During site grading near the former windmill site, a qualified hazardous materials specialist shall monitor grading activities. If an underground storage tank or petroleum hydrocarbon odor-laden soil is uncovered near the old windmill site, grading and site work shall cease and the Regional Water Quality Control Board and Riverside County Department of Health Services notified. A remediation plan shall be developed to ensure that all contaminated soil and structures are removed, handled and disposed of in accordance with existing state and local regulations. Sampling in the area of impacted soils shall continue until contaminant levels reach an acceptable risk.	3. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features		Level of Significance after Mitigation
4. Petroleum stained soil was observed beneath the diesel above ground storage tank located northwest of the reservoir, near the irrigation groundwater well located southwest of the reservoir and on the floor of the equipment shed, beneath three oil containing 55-gallon drums.	5.13d	In order to mitigate for potential hazards associated with petroleum stained soil beneath diesel storage tanks and on the floor of the equipment shed beneath 55-gallon oil storing drums, collection of surface and near surface samples by a qualified hazardous materials specialist must occur. Following removal of the equipment shed, observations will be made for any stained soil beneath the shed. If stained areas are observed, surface and near surface samples shall be collected. Testing for contaminant levels must occur and an assessment of significance under state and local hazardous material regulations must follow. Once contaminant levels are determined, the Regional Water Quality Control Board and Riverside County Department of Environmental Health must be contacted to determine the proper mitigation method prior to site redevelopment. Any soil and other materials contaminated with hazardous materials may be considered hazardous waste and therefore must be disposed of in accordance with federal, state and local regulations.	4. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
5. Debris, including old equipment, water heaters, trash, etc. were observed in several piles throughout the site. In order to avoid potential significant impacts related to improper disposal of debris piles.	5.13e	During removal of debris piles, a qualified hazardous materials specialist shall be on site. The hazardous materials specialist will conduct a site assessment of debris pile content and direct disposal accordingly. All waste products will be disposed of in accordance with state and local laws.	5. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
6. Two septic systems are located on site.	5.13f	In order to mitigate for potential hazards associated with existing septic tanks on site, the construction contractor shall remove the tanks and residue material in accordance with Riverside County Department of Environmental Health protocol. The project applicant will then be required to provide proof of septic tank removal to the City prior to issuance of building permits.	6. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.
7. Once the project is developed, domestic water will come from imported water sources from Eastern Municipal Water District rather than on-site groundwater supplies. Three on-site groundwater wells and any additional	5.13g	In order to prevent groundwater contamination, the three on-site groundwater wells and vapor monitoring well, and any additional wells uncovered during site development, shall be abandoned and decommissioned in accordance with Regional Water Quality Control Board and Riverside County	7. Potential impacts would be significant but incorporation of mitigation will reduce impacts to below a level of significance.

Table 1-2 (Continued)

Topic / Impacts	Mitigation Measures / Design Features	Level of Significance after Mitigation
wells that are discovered during site development will need to be closed as part of the project and may have environmental impacts.	Department of Health protocols. The project applicant will be required to provide proof of well decommissioning to the City prior to issuance of building permits.	
8. Due to the age of many on-site buildings, the potential for asbestos-laden and lead-based paint materials exist on site.	5.13h Prior to demolition of onsite buildings, an asbestos survey shall be performed by a certified asbestos abatement contractor. Findings in the survey shall be used to determine what precautions shall be taken during demolition activities. If asbestos is present, removal shall occur in accordance with Riverside County Department of Environmental Health protocol. 5.13i All building material suspected to contain lead-based paint shall be tested prior to demolition. If lead-based paints are present, removal shall occur in accordance with Riverside County Department of Environmental Health protocol.	8. Potential impacts would be less than significant.

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SECTION 2.0
INTRODUCTION

2.1 PURPOSE AND SCOPE OF THE RECIRCULATED DEIR

A Draft Environmental Impact Report (DEIR) for the Villages of San Jacinto Specific Plan was originally circulated for a 45-day public comment period in April 2006 (State Clearinghouse No. 2004122132). After the close of public review, the project applicant proposed several project description changes, including a revised drainage scenario, an extension of the project build-out, and inclusion of a development agreement as an additional discretionary action. As Lead Agency, the City of San Jacinto determined that these changes necessitated a Recirculated Draft EIR (RDEIR). Consequently, the City prepared an RDEIR to address the project description changes, which was circulated for a 45-day public review period in January 2007. Although the entire EIR was recirculated, only the environmental topics that were revised were subject to an additional review and comment period by the public: Those topics included geology and soils, water quality and hydrology, air quality, noise, and public services and utilities. During March 2007, a Final EIR was prepared to address comments received during the two public review periods. The City Planning Commission recommended approval of the project and certification of the Final EIR in April 2007. Minor changes in the project description delayed consideration of the project before the City Council until June 2008, and subsequently the project was continued in order to respond to questions, comments, and concerns raised at the June 2008 City Council meeting. Partially in response to City Council comments and current market demand, the applicant chose to update the Villages of San Jacinto Specific Plan and the Land Use Plan and to recirculate the EIR a second time to adequately notify the public of the revised project's potential environmental impacts.

Section 15088.5 of the State California Environmental Quality Act (CEQA) Guidelines requires lead agencies to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the DEIR for review but before certification. New information can include changes in the project or environmental setting as well as additional data or other information. Since new information that was not previously described in the April 2006 DEIR or the January 2007 RDEIR has become available, the City has determined that it is appropriate to prepare this RDEIR No. 2 for public review.

As required by State CEQA Guidelines Section 15088, the City will evaluate comments received on the RDEIR No. 2. The comments and responses will be included in the Final EIR as a separate section along with revised EIR text necessitated by the response to comments (if necessary). Comments on the RDEIR No. 2 should be limited to the EIR sections/environmental issues that were modified. The following section describes the new information analyzed in this

RDEIR No. 2. The RDEIR No. 2 will retain the same SCH number (noted above) in order to establish a reference to the prior documents prepared for this project.

2.2 BACKGROUND AND CONTENT OF THE RECIRCULATED DEIR

Consistent with the requirements of Section 15088.5(c) of the State CEQA Guidelines, this RDEIR contains all sections of the DEIR. However, in accordance with CEQA requirements, comments on the RDEIR shall be limited to the EIR sections that have changed. The following sections have been modified. All section numbering is consistent with the section numbering of the April 2006 DEIR.

Section 1.0, Executive Summary: The Executive Summary has been updated to reflect the revised project description, all new mitigation measures, and any additional significant impacts that have occurred due to project changes.

Section 2.0, Introduction: This section includes a summary of all sections that have changed since preparation of the April 2006 DEIR and January 2007 RDEIR, and a brief description of the history of the project's EIR process to date.

Section 3.0, Project Description: Project features that have been revised include the project site plan, mixture of land uses, drainage and other infrastructure components of the Specific Plan, the tentative map, and construction phasing. Graphics in this section have been revised to show those changes.

Section 4.0, Environmental Setting: This section has been updated to describe changes in existing land use on the site since preparation of the April 2006 DEIR and January 2007 RDEIR.

Section 5.1, Land Use, Planning, and Zoning: This section has been revised to reflect the newly proposed land use plan and its relationship with the existing City General Plan. Since the City's General Plan was being updated during preparation of the original DEIR, the revised RDEIR section has been updated to reflect the final, adopted General Plan Update (May 2006). The land use graphics have also been updated to reflect the revised land use plan and tentative map. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.2, Landform Alteration and Aesthetics: This section has been revised to reflect revised visual resource General Plan policies included in the 2006 General Plan Update, newly proposed land uses, and revised open space corridors that may impact the ultimate visual appearance of the site once developed. The discussion of existing visual quality has been updated to reflect the changed site appearance including absence of the cattle feed lot and removal of

most of the agriculture. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance and the potential visual impact of a proposed 11-foot sound wall. Updated photos of the project site are also included.

Section 5.3, Agricultural Resources: This section has been amended to reflect the fact that cattle are no longer being raised on the site and the majority of agricultural operations have ceased. The impact analysis has been revised to provide a discussion of each CEQA threshold of significance. There is also a discussion which explains the reasons there are no feasible mitigation measures to replace converted farmland.

Section 5.4, Biological Resources: This section has been revised to clarify that mitigation for project impacts to jurisdictional wetlands would be provided off-site since the on-site wetlands were found to be of low overall quality (containing large quantities of non-native species), and do not provide high quality habitat for wildlife species due to the surrounding agricultural lands. The impact analysis has been revised to provide a discussion of each CEQA threshold of significance and to clarify minor technical specifics regarding the status of species found or expected to be encountered onsite.

Section 5.5, Cultural Resources: This section was revised to clarify the lack of historical integrity of the onsite structure and to explain the existing Soboba Consulting Services Contract which helps avoid potential impacts to unmarked Native American burial sites or other impacts to lands considered sacred by local Native American peoples. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.6, Geology and Soils: This section has been amended to reflect the modified site plan and to show the structural setback zones on the updated land use plan. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.7, Paleontological Resources: The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.8, Water Quality and Hydrology: This section has been revised to reflect impacts associated with changes in the updated drainage study provided in *Appendix G* and includes the updated Drainage Plan depicted in the Specific Plan. It also contains a summary of updated water quality issues discussed in the revised Specific Plan and in the *Lake Preliminary Design Report* (Pacific Aquascape, Inc. 2009). The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.9, Transportation, Circulation, and Access: A modified traffic study has been prepared to reflect the revised project and changed surrounding circulation system conditions, and is summarized in this section. The entire updated traffic report is contained in Appendix H.

The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.10, Air Quality: This section has been updated to reflect (1) revised and new ambient air quality standards, (2) changes in attainment status with federal and state ambient air quality standards in the South Coast Air Basin, (3) ambient air quality data for the San Jacinto River Valley, and (4) other regulatory changes since January 2007. This analysis also includes a comparison of the project to the South Coast Air Quality Management District's Local Significance Thresholds. Construction and operational emissions have been revised using the current air quality model as well as the land uses and trip generation rates associated with the revised project. This section also includes a discussion of greenhouse gases and global climate change, in order to comply with legislative and CEQA mandates that have been established subsequent to the preparation of the DEIR and first RDEIR. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance. Revised and new air quality models are contained in Appendix I.

Section 5.11, Noise: The acoustical analysis has been updated to reflect changes in the new traffic report as well as the revised land use plan. Revised noise analysis models are contained in Appendix J. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.12, Public Services and Utilities: The revised drainage plan has been incorporated into the Public Services and Utilities section to assess the potential impacts to stormwater runoff from development of the proposed project. This section includes figures that update the water and sewage systems to reflect changes in the Specific Plan. In addition, development impact fees, consumption, and other project impacts have been updated to reflect the revised unit number, commercial square footage, and related impact discussions. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 5.13, Hazards/Risk of Upset: This section reflects changes in existing site conditions including removal of cattle and some of the buildings. The impact analysis has been revised to provide a discussion of each individual CEQA threshold of significance.

Section 6.0, Cumulative Impacts: This section has been updated to include new projects that have been proposed since 2005 and to confirm the status/project descriptions of all projects that were listed in the 2006 Draft EIR. Projects that were included in the original cumulative impact analysis that are no longer active/being contemplated have been removed. The cumulative impact analysis has been revised based on the City's updated list of active projects.

Section *7*.0, Effects Found Not to be Significant: The population and housing discussion has been updated to reflect the correct number of housing units.

Section 9.0, Significant Irreversible Environmental Changes: A discussion has been added to this section to identify significant environmental effects that cannot be avoided if the proposed project is implemented. The population and housing discussion has been updated to reflect the correct number of housing units.

Section 10.0, Project Alternatives: This section was revised to update reference to the recently revised City of San Jacinto General Plan. It also reflects changes to the project description and project impacts, clarification of the reasons an alternate site location is infeasible, and further clarification as to the reasons each alternative would or would not meet project objectives.

Section 11.0, References: This section includes a comprehensive listing of all new sources of information used in the preparation of the RDEIR No. 2.

Section 12.0, List of Preparers: This section was revised to include the project team members who participated in preparation of the RDEIR No. 2.

2.3 RELATION TO DEIR

Consistent with the requirements of CEQA Guidelines Section 15087, this RDEIR No. 2 is being made available on August 27, 2009, for public review for a period of 45 days. The public review period ends on October 12, 2009. During this period, the general public, agencies, and organizations may submit written comments on the RDEIR to the lead agency. Pursuant to procedures set forth in CEQA Guidelines Section 15088.5(f)(2), reviewers are requested to limit their comments to the materials contained in this RDEIR.

As required under CEQA Guidelines Section 15087 and 15088.5(d), the City has sent a Notice of Availability to all organizations and members of the public who were on the City's distribution list for the DEIR and to any additional persons or organizations that have requested copies of the DEIR and any individuals/organizations who commented on the April 2006 DEIR or the January 2007 RDEIR. It should be noted that all comment letters previously submitted for the April 2006 Draft EIR and the January 2007 Recirculated Draft EIR are still part of the project record.

2.4 PURPOSE AND SCOPE OF THE EIR

EIRs are informational documents "which will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project" (Section 15121 of the CEQA Guidelines). The purpose of this RDEIR No. 2 is to evaluate changes in potential environmental effects of the proposed Villages of San Jacinto Specific Plan development from previous drafts. This RDEIR No. 2 is intended for use by both decision makers and the public. It provides relevant information concerning the potential environmental effects and mitigation

associated with the development and function of a residential, commercial, and mixed-use type development on the site. The Lead Agency for the project is the City of San Jacinto.

2.5 CEQA REQUIREMENTS

CEQA Compliance

This EIR has been prepared in accordance with CEQA (Public Resources Code Section 21000 et seq.); the CEQA Guidelines published by the Resources Agency of the State of California (California Code of Regulations Sections 15000 et. seq, as amended); and the City of San Jacinto Environmental Review Procedures.

Notice of Preparation

In compliance with Section 15082 of the CEQA Guidelines, the City of San Jacinto Planning and Building Department circulated a Notice of Preparation (NOP), dated December 27, 2004, to interested agencies, groups, and individuals. All comments received during the NOP public notice period were considered during the preparation of the April 2006 DEIR. The NOP and comments are included in *Appendix A* of this RDEIR No. 2. Based on the scope of analysis for the April 2006 DEIR, the following issues were determined to be potentially significant and are therefore included in *Sections 5.0* through *9.0* of this RDEIR No. 2 (revised sections are listed in *Section 2.2* above):

- Land Use, Planning, and Zoning
- Landform Alteration/Aesthetics
- Agricultural Resources
- Biological Resources
- Cultural Resources
- Geology and Soils
- Paleontological Resources
- Water Resources and Water Quality
- Transportation, Circulation, and Access
- Air Quality
- Noise
- Public Services and Utilities
- Hazards/Risk of Upset.

2.6 USES OF EIR/TYPE OF EIR

As the designated Lead Agency, the City of San Jacinto has assumed responsibility for preparing this document. The RDEIR No. 2 has been made available for review to the public and public agencies for 45 days to provide comments on the "sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (Section 15204 of the CEQA Guidelines).

The proposed Villages of San Jacinto RDEIR No. 2 is intended to be a "project" EIR. As stated in CEQA Guidelines Section 15161, a Project EIR "should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction and operation." Specific project details, including overall planning, construction, and operation, are known at this time; therefore, a project-specific level of analysis is appropriate for this RDEIR.

2.7 AREAS OF CONTROVERSY

Per CEQA Guidelines Section 15123, an EIR shall contain a summary that identifies each significant effect of the project and mitigation measures (See *Table 1-2, Summary of Environmental Impacts*) as well as “areas of controversy” and “issues to be resolved.” The project assumes that the locally preferred alignment of a future State Route 79 corridor is chosen. Some property owners in the vicinity have raised objections at prior public hearings for this project regarding the locally preferred alignment.

Eastern Municipal Water District (EMWD) requested in its May 16, 2006 letter responding to the April 2006 Draft EIR that they would like between a 1,320 to 2,000 foot buffer between its water reclamation facility and the nearest residential areas within the proposed project. As discussed in Section 5.1.4, the nearest residential lots to the treatment plant would be located over 1,000 feet from the plant boundary and would be separated by mixed use, commercial, recreation and internal roadways.

2.8 ISSUES TO BE RESOLVED

Section 5.9, Transportation, Circulation and Access, indicates that in the absence of planned regional transportation facilities (i.e., the Mid-County Parkway or MCP and SR-79 improvements), the project would contribute to a significant unavoidable impact for cumulative traffic conditions if the MCP and SR-79 projects are not in place upon completion of the first phase of project development. Because the City can not guarantee that these regional facilities would be in place prior to project build-out, a significant, cumulative impact to regional traffic may occur in the absence of these facilities.

2.9 RELATIONSHIP TO OTHER DOCUMENTS

This document utilizes a number of planning documents as detailed in *Section 5.1, Land Use*. These documents include the City of San Jacinto General Plan (adopted on May 4, 2006); the Zoning Ordinance of the City of San Jacinto (updated April 22, 2008); the City of San Jacinto Redevelopment Plan; the Transportation Uniform Mitigation Fee (TUMF) 10-Year Strategic Plan (adopted by the Western Riverside Council of Governments (WRCOG) in June 2004); the Western Riverside County Multiple Species Habitat Conservation Plan (adopted June 17, 2003); the Southern California Association of Governments (SCAG) Growth Management Plan ; and the South Coast Air Quality Management District Air Quality Management Plan (adopted August 1, 2003); These documents are incorporated by reference in this document per the provisions of Section 15150 of the State CEQA Guidelines.

SECTION 3.0
PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The proposed project is located in the City of San Jacinto (the City) in northwestern Riverside County, California (*Figure 3.0-1, Regional Map*). The project site is located in the northwestern portion of the City (*Figure 3.0-2, Vicinity Map*). The project is located along Sanderson Avenue, which is one of the City's main north–south transportation routes. The project site is bordered by undeveloped agricultural land to the north (and future westward extension of Ramona Boulevard), Sanderson Avenue to the east, Odell Avenue to the west, and undeveloped agricultural land and a municipal wastewater treatment plant to the south (*Figure 3.0-3, Site Location Map*). The proposed project is scheduled to be constructed in several phases (see *Phasing and Construction Planning*, page 3-18).

Land uses in the project area consist mainly of agricultural operations, including sod farms, dry farming, animal grazing pastures, and dairies. Several parcels within this portion of San Jacinto are in the process of being developed with residential subdivisions or commercial centers. Two drainage features, associated with the nearby San Jacinto River, are located within the vicinity of the project: Casa Loma Canal and San Jacinto Reservoir. The Colorado River Aqueduct is located north of the project. The Eastern Municipal Water District (EMWD) Hemet/San Jacinto Regional Water Reclamation Facility is located directly south of the project site.

State Route 79 (SR-79) and Sanderson Avenue serve as major north–south transportation corridors through this portion of the City. Ramona Expressway, located north of the project site, serves as the main east–west arterial through the City. Enhanced access to the western portion of San Jacinto will occur through the future widening and realignment of SR-79 and Ramona Expressway.

3.2 PROJECT SITE BACKGROUND

The project site is approximately 475.1 acres in size. The project site has been used as pasture land and/or a farming operation, similar to surrounding properties, for over one hundred years. In 1978, a 20-acre area of the project site was converted to a cattle raising facility. In 1997, a majority of the remaining property was leased to the Quality Turf Company. The San Jacinto Valley has traditionally supported agriculture and rural residential land uses, but has recently been experiencing increased urbanization.

One residence and one small outbuilding are located on the project site (see *Figure 5.13-1*). The residence and the outbuilding (likely a former equipment storage shed) are both abandoned. A

portion of the project site is currently used for sod farming generally in the northwestern portion of the site.

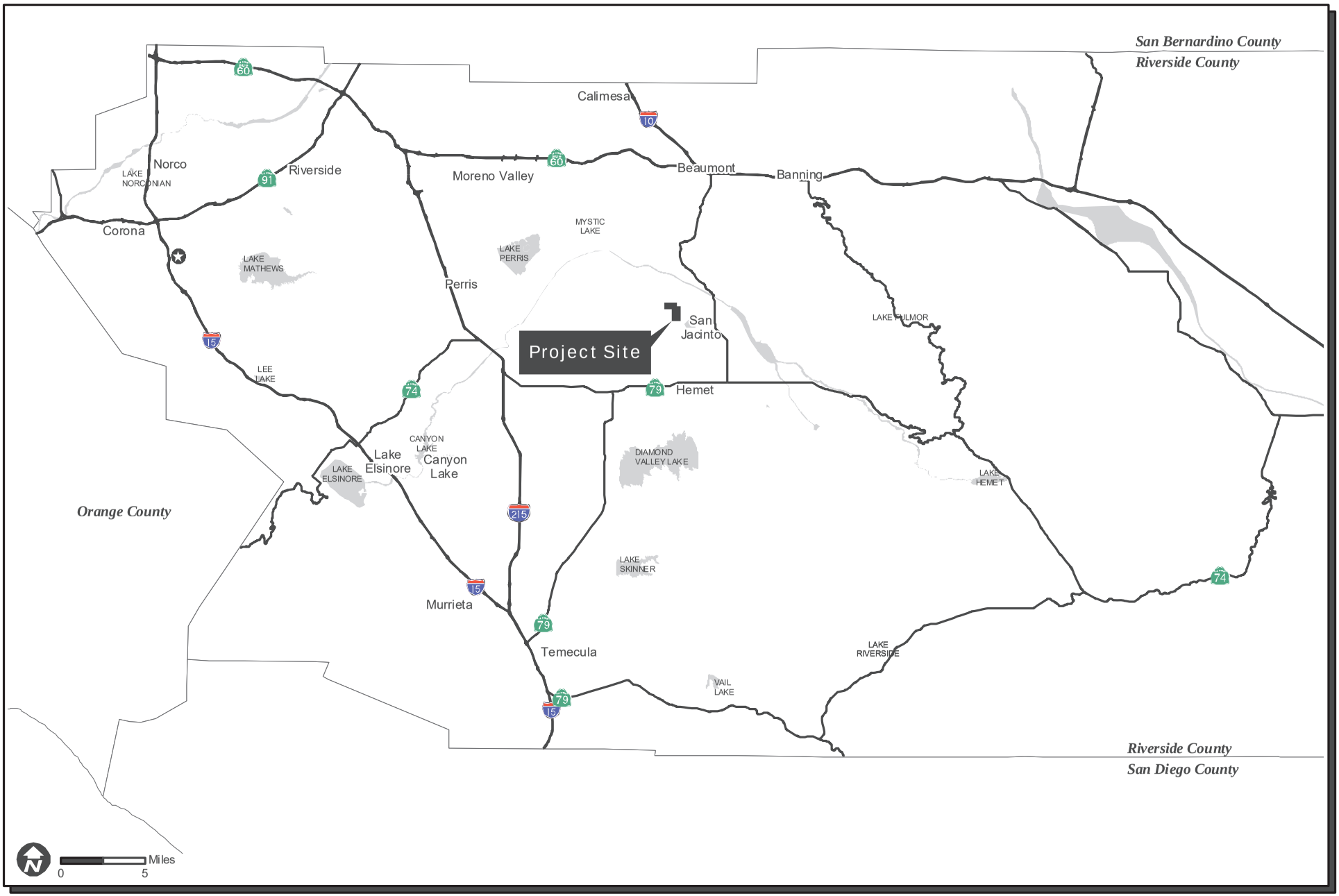
3.3 SITE DESCRIPTION

The site is generally flat and is located on the alluvial plain of the San Jacinto River. The site elevation above sea level ranges from 1,455 feet along the northern edge to 1,490 feet in the southeastern corner. The southeastern corner of the site is a former cattle feed lot with several remaining shade structures associated with that operation. The remainder of the land consists primarily of vacant former agricultural land. Vegetation on site consists of weedy invasive species that have accumulated since the majority of agricultural production was discontinued. There are scattered sod fields in the northern portions of the property, which is the only remaining agricultural operation. Several unnamed, unimproved dirt roadways traverse the site and are associated with former and current agricultural operations. Irrigation canals run along the edges of fields in support of sod farming activities. A detention basin is located along the north-central edge of the project site.

3.4 PROJECT OBJECTIVES

Specific objectives for the proposed project include the following:

- Provide for the establishment of a master-planned community through implementation of a Specific Plan, consisting of a maximum of 1,329 dwelling units, which is consistent with the scale and character of planned uses in surrounding areas.
- Provide a variety of detached single-family lot sizes in traditional subdivision layouts that are marketable within the evolving economic and demographic profile of the City of San Jacinto.
- Provide public and private recreational amenities for the benefit of residents of this community and of the City of San Jacinto.
- Provide drought-tolerant and water-efficient landscaping for the community.
- Incorporate recycled water from EMWD to supply the lake and irrigate landscaping to minimize the use of potable water.
- Provide development opportunities for municipal, office, professional, and neighborhood retail commercial land uses within the community to support the economic growth of the City and to reduce the reliance of automobile use within the surrounding community.
- Consider topographic, geologic, hydrologic, and environmental opportunities and constraints to create a design that safely accommodates seismic and hydrologic hazards.



Villages of San Jacinto EIR
Regional Map

FIGURE 3.0-1

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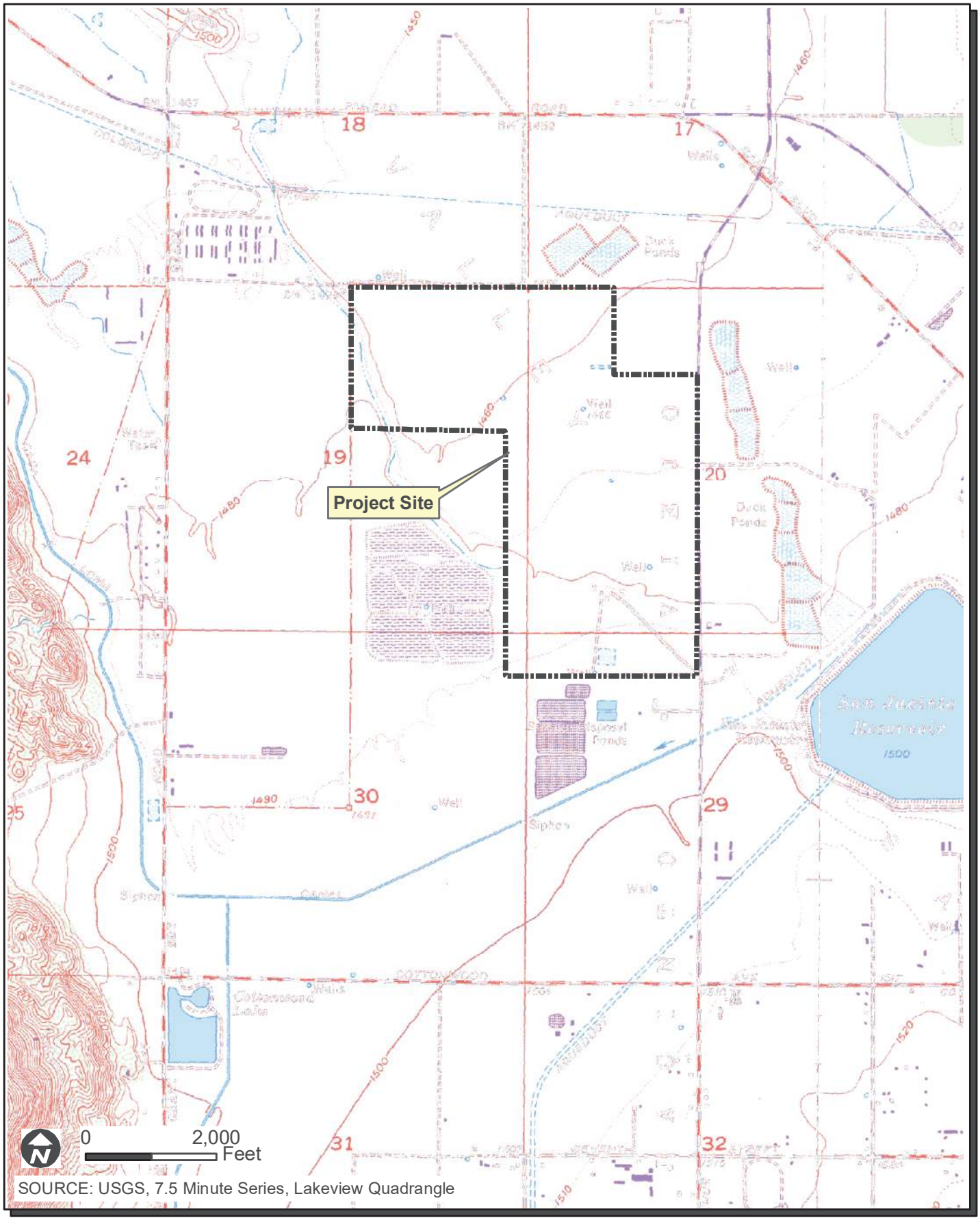

SOURCE: USGS, 7.5 Minute Series, Lakeview Quadrangle

Villages of San Jacinto EIR

Vicinity Map

FIGURE 3.0-2

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Villages of San Jacinto EIR

Site Location Map

FIGURE 3.0-3

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- Provide a system of public and community facilities within residential neighborhoods to support development in an efficient and timely manner.
- Provide a development with unified design elements, such as architecture, landscaping, color palette, paving, walls, fencing, signage, and entry treatments.
- Develop an environment that is visually attractive, efficient, and effectively organized, which includes a pleasing landscape palette.
- Integrate the project with the character of the surrounding community and establish development that results in logical, coordinated growth.
- Establish a circulation system that meets projected traffic volumes and accommodates a variety of transportation modes and encourages alternatives to automobile use within the community.

3.5 PROJECT FEATURES

The project would consist of development of an existing agricultural operation into a suburban development, including residential, commercial, public facility, and open space uses. The 475.1-acre site would be divided into several "Planning Areas" (PAs). Each PA would consist of a distinct land use type. Land use statistics are summarized in *Table 3.0-1, Planned Land Uses*, and land uses and densities anticipated in each PA are listed in *Table 3.0-2, Planned Land Uses by Planning Area*. *Figure 3.0-4, Specific Plan Land Use Plan,* provides a generalized site development plan depicting each PA and associated land use. *Table 3.0-2* provides a summary of the intensity of use planned within each PA.

The following is a detailed description of each of the proposed land uses within the proposed project, which is illustrated on *Figure 3.0-4, Specific Plan Land Use Plan,* and delineated in *Table 3.0-1, Planned Land Uses*.

Residential

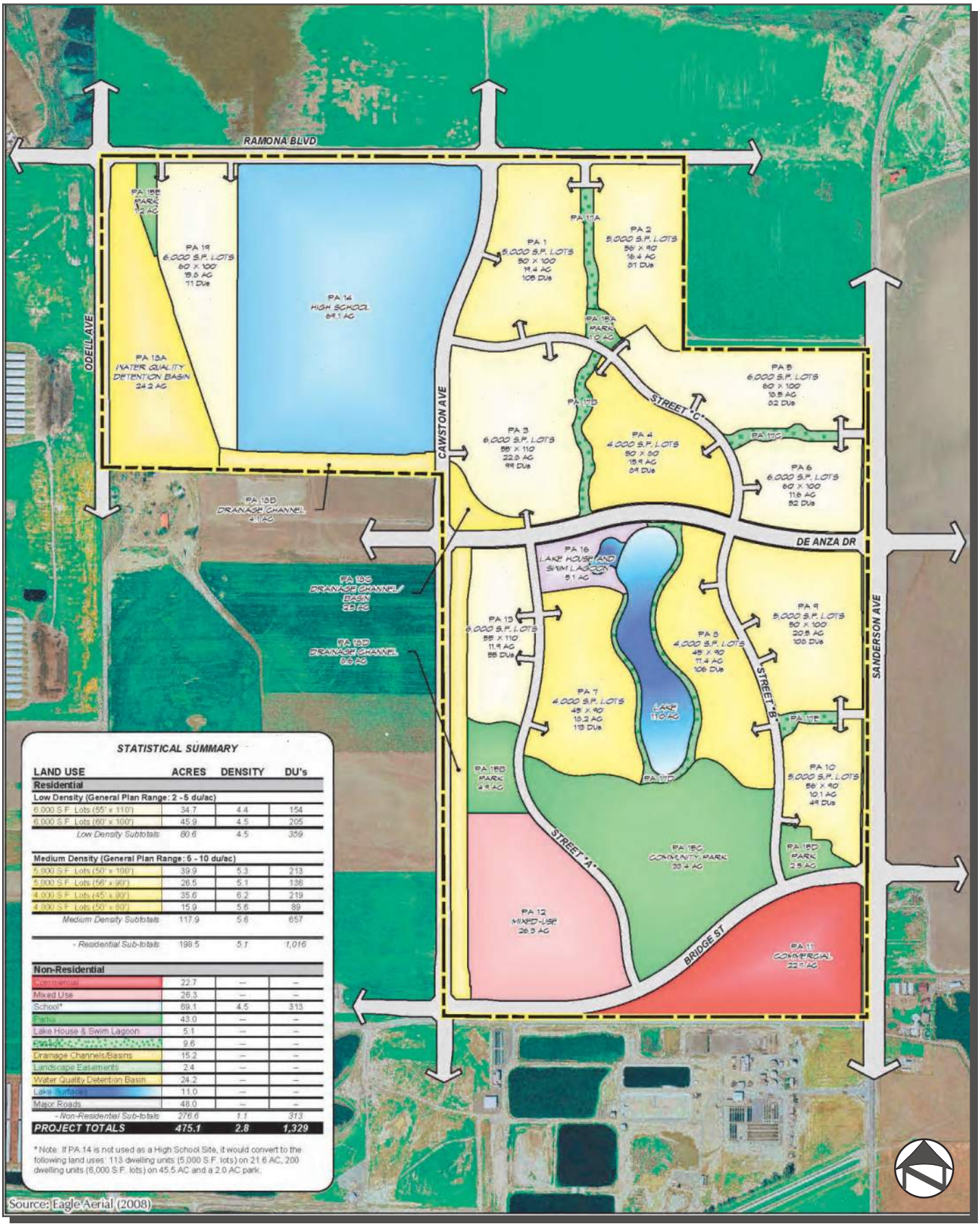
Residential land uses would consist of two General Plan density categories: Low Density Residential, LDR (2.1 to 5.0 dwelling units/acre (DU/AC)), and Medium Density Residential, MDR (5.1 to 10.0 DU/AC) (San Jacinto General Plan 2006). The LDR category will be built within PAs 3, 5, 6, 13, and 19 and will result in a maximum of 359 dwelling units on 80.6 acres. Each residential lot will be a minimum of 6,000 square feet, and overall density will be 4.5 dwelling units per acre. The MDR category will be built within PAs 1, 2, 4, 7, 8, 9, and 10 with a total of 349 residences having 5,000-square-foot minimum lot sizes and 308 residences having 4,000-square-foot minimum lot sizes. In the event that PA 14 is not used by the San Jacinto Unified School District for a proposed new high school, a portion of this area (45.5 acres) would be developed with 200 residential lots under the LDR designation, and the remaining portion

(23.6 acres) would be developed with 113 single-family lots under the MDR designation, including a 2 acre park site.

Table 3.0-1 Planned Land Uses

Land Use Type	Acres	Density (Dwelling Units/Acre)	Maximum Dwelling Units
Residential (overall)	**198.5**	**5.1**	**1,016**
Low Density			
6,000-square-foot lots	80.6	4.5	359
Medium Density			
5,000-square-foot lots	66.4	5.3	349
4,000-square-foot lots	51.5	6.0	308
Non Residential (overall)	**276.6**	**1.1**	**313**
Commercial	22.7	—	—
School	69.1	4.5	313*
Mixed-Use	26.3	—	—
Open Space			
Parks	43.0	—	—
Lake House/Swim Lagoon	5.1	—	—
Paseos	9.6	—	—
Drainage Channels/Basins	15.2	—	—
Landscape Easements	2.4	—	—
Water Quality Detention Basin	24.2	—	—
Lake Surface	11.0	—	—
Major Roads	48.0	—	—
Total	**475.1**	**2.8**	**1,329**

* If PA 14 is not used as a High School Site, it would convert to the following land uses: 113 dwelling units (5,000-square-foot lots) on 21.6 acres, 200 dwelling units (6,000-square-foot lots) on 45.5 acres and a 2.0 acre park.



STATISTICAL SUMMARY

LAND USE	ACRES	DENSITY	DU's
Residential			
Low Density (General Plan Range: 2 - 5 du/ac)			
6,000 S.F. Lots (55' x 110')	34.7	4.4	154
6,000 S.F. Lots (60' x 100')	45.9	4.5	205
Low Density Subtotals	*80.6*	*4.5*	*359*
Medium Density (General Plan Range: 5 - 10 du/ac)			
5,000 S.F. Lots (50' x 100')	39.9	5.3	213
5,000 S.F. Lots (56' x 90')	26.5	5.1	136
4,000 S.F. Lots (45' x 90')	35.6	6.2	219
4,000 S.F. Lots (50' x 80')	15.9	5.6	89
Medium Density Subtotals	*117.9*	*5.6*	*657*
- Residential Sub-totals	*198.5*	*5.1*	*1,016*
Non-Residential			
Commercial	22.7	–	–
Mixed Use	26.3	–	–
School*	69.1	4.5	313
Parks	43.0	–	–
Lake House & Swim Lagoon	5.1	–	–
Lake	9.6	–	–
Drainage Channels/Basins	15.2	–	–
Landscape Easements	2.4	–	–
Water Quality Detention Basin	24.2	–	–
Lake Surfaces	11.0	–	–
Major Roads	48.0	–	–
- Non-Residential Sub-totals	*276.6*	*1.1*	*313*
PROJECT TOTALS	***475.1***	***2.8***	***1,329***

* Note: If PA 14 is not used as a High School Site, it would convert to the following land uses: 113 dwelling units (5,000 S.F. lots) on 21.6 AC, 200 dwelling units (6,000 S.F. lots) on 45.5 AC and a 2.0 AC park.

Source: Eagle Aerial (2008)

SPECIFIC MAP SOURCE: T&B PLANNING CONSULTANTS, May 2009

Villages of San Jacinto EIR

Specific Plan Land Use Plan

FIGURE 3.0-4

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Table 3.0-2 Planned Land Uses by Planning Area

Land Use	Acres	Density (DU/AC)	Dwelling Units
Residential			
PA 1 – 5,000-square-foot lots (50' x 100') (Medium Density)	19.4	5.4	105
PA 2 – 5,000-square-foot lots (56' x 90') (Medium Density)	16.4	5.3	87
PA 3 – 6,000-square-foot lots (55' x 110') (Low Density)	22.8	4.3	99
PA 4 – 4,000-square-foot lots (50' x 80') (Medium Density)	15.9	5.6	89
PA 5 – 6,000-square-foot lots (60' x 100') (Low Density)	18.5	4.4	82
PA 6 – 6,000-square-foot lots (60' x 100') (Low Density)	11.6	4.5	52
PA 7 – 4,000-square-foot lots (45' x 90') (Medium Density)	18.2	6.2	113
PA 8 – 4,000-square-foot lots (45' x 90') (Medium Density)	17.4	6.1	106
PA 9 – 5,000-square-foot lots (50' x 100') (Medium Density)	20.5	5.3	108
PA 10 – 5,000-square-foot lots (56' x 90') (Medium Density)	10.1	4.9	49
PA 13 – 6,000-square-foot lots (55' x 110') (Low Density)	11.9	4.6	55
PA 19 – 6,000-square-foot lots (60' x 100') (Low Density)	15.8	4.5	71
Residential Subtotal	*198.5*	*5.1*	*1,016*
Non Residential			
PA 11 – Commercial	22.7	—	—
PA 12 – Mixed-Use	26.3	—	—
PA 14 – High School*	69.1	4.5	313*
PA 15A and 15E – Private Neighborhood Parks	2.2	—	—
PA 15B, 15C and 15D – Public Neighborhood and Community Parks	40.8	—	—
PA 16 – Beach Club & Swim Lagoon	5.1	—	—
PA 17A–17E – Paseos	9.6	—	—
PA 18A – Water Quality Detention Basin	24.2	—	—
PA 18B, 18C and 18D – Drainage Channels/Basin	15.2	—	—
Landscape Easements	2.4	—	—
Lake Surface	11.0	—	—
Major Roads	48.0	—	—
Non-Residential Subtotal	*276.6*	—	*313**
Total	**475.1**	**2.8**	**1,329**

* If PA 14 is not used as a High School Site, it would convert to the following land uses: 113 dwelling units (5,000-square-foot lots) on 21.6 acres, 200 dwelling units (6,000-square-foot lots) on 45.5 acres and a 2.0-acre park.

Commercial

Commercial development would be focused in the southeast corner of the project site within PA 11. This development is intended to result in approximately 247,000 square feet of neighborhood retail commercial uses on 22.7 acres. This designation is intended to meet the provision for retail commercial land uses as set forth in the San Jacinto General Plan Land Use Element and to provide an accessible local shopping center for the proposed project and nearby communities

that allows for a wide range of businesses, including grocery store, drug store, cleaners, restaurants, fast food, and specialty stores. The Specific Plan for the project (T&B Planning Consultants 2009) includes Conceptual Design Guidelines and Development Standards for commercial development of this PA. Comprehensive Design Guidelines will need to be reviewed and approved by the City prior to development of the PA.

Mixed-Use

Mixed-use development will be provided within the 26.3-acre PA 12. This designation is intended to provide for a broad range of land uses, with the primary focus on municipal uses and other development, such as business and professional park uses, including dental and medical offices, real estate offices, and banks. This area could also provide accessory uses to the primary facilities, such as coffee shop, printers, and postal/shipping outlets. This designation provides for a maximum of 343,000 square feet of building area and will have a maximum height limit of 45 feet. Conceptual Design Guidelines for commercial uses are provided in the project Specific Plan, but Comprehensive Design Guidelines will need to be reviewed and approved by the City prior to development of the PA.

Schools

As noted above in *Table 3.0-2,* PA 14 is designated for a proposed high school by San Jacinto Unified School District (District). The 69.1-acre high school site would be located southwest of the future intersection of Cawston Avenue and Ramona Boulevard. Preliminary plans for the school include baseball and softball fields, a track/football stadium, gymnasium, performing arts facility and classroom space for up to 2,000 students. Final plans for the school would be processed separately from the Villages of San Jacinto Specific Plan through the District Board of Trustees and the California Division of the State Architect. If the San Jacinto Unified School District does not choose to construct a high school on this site, it will instead be used for residential uses. Under this scenario, PA 14 would be developed with 200 low-density residences (minimum 6,000-square-foot lots) and 113 medium-density residences (5,000-square-foot lots) along with a 2-acre park site.

Parks and Recreational Amenities

Following is a summary of the recreational amenities and park facilities planned for the proposed project. Further discussion of parks and recreation, including the requirement for provision of adequate parkland is contained in Section 5.12.4.

Public Parks

The proposed project includes three public parks totaling approximately 41 acres. The largest of the public parks is the 33.4-acre Community Park in Planning Area 15C north of Bridge Street in the southern portion of the proposed development. This park will provide soccer and baseball fields, concession area, as well as barbeque and picnic areas overlooking the proposed lake. Public parks in Planning Areas 15B and 15D provide just over seven acres of various active and passive recreational opportunities.

Private Parks

The two private parks in Planning Areas 15A and 15E will provide passive recreation for nearby residents such as tot lots, shade structures, pathways and picnic areas.

Lake House and Swim Lagoon

Other recreational amenities include a 5.1-acre Lake House Beach Club and Swim Lagoon within Planning Area 16. This will be a private facility for residents and will feature a Swim Lagoon with sandy beach, play island, lap pool, play pool, fire pits, open turf area and shade structures. The clubhouse will provide an exercise room, activity room, restroom/changing rooms and office space.

Lake

The 11-acre private lake will be located primarily between Planning Areas 7 and 8 and adjacent to the Swim Lagoon. It will feature a concrete trail surrounding the lake and connecting to the community park in PA 15C. No swimming or boating will be allowed on the lake, but it will provide recycled water for irrigation of common landscaping within the community.

Paseos

A total of 9.6 acres of landscaped paseos will serve as pedestrian linkages between land uses and will create landscaped buffer areas between Planning Areas. These paseos will be a minimum of 50 feet wide and have 10-foot-wide concrete trails.

Infrastructure

The *Villages of San Jacinto Specific Plan* (T&B Planning Consultants 2009) details a number of infrastructure plans that will be incorporated into project development. These include a Circulation Plan, Drainage Plan, and Water and Sewer Plans. In addition, a Lake Preliminary Design Report was prepared to address lake design and water quality management systems. These plans are summarized below and discussed in more detail in the relevant sections of this EIR.

Circulation Plan

Roadways would be located throughout the development and would provide access to and from as well as within the project. Sanderson Avenue and Odell Avenue would serve as primary access points for the project. Once constructed, Ramona Boulevard would provide connection at the north edge of the project site. Cawston Avenue would serve as the major north–south arterial through the project while De Anza Drive would serve as the major east–west arterial within the development, taking access from Sanderson Avenue and connecting to Cawston Avenue. Bridge Street will also provide east–west access at the southern end of the development from either Cawston Avenue or Sanderson Avenue. The internal roadway network will include three streets designed as Modified Local Streets (Streets A, B, C) that connect the various PAs. The network will also include standard Local Streets that will connect individual neighborhoods. Roadway classifications are in compliance with City of San Jacinto and County of Riverside Road Standards.

Water Plan

Water service will be provided to the project by EMWD and be extended into the project via new conveyance facilities consistent with the EMWD's Northwest San Jacinto Area Master Plan. Domestic water will be conveyed via a proposed 16-inch pipeline in Sanderson Avenue and 12-inch pipelines within De Anza Drive; Bridge Street, Ramona Boulevard; and Streets A, B, and C.

Recycled Water Service

Recycled water pipelines will be installed concurrently with domestic lines. Recycled water would be utilized to maintain the lake water level as well as common area irrigation needs throughout the proposed community. Recycled water will not be used for private landscaping such as front or back yards. Proposed 8-inch recycled water lines will be installed within internal project roadways. Initially, the recycled water system will be provided from domestic water sources within Sanderson Avenue and Ramona Boulevard, but, ultimately, a pumping facility will use stored recycled water in the lake to supply water for irrigation. A Water Supply Assessment was completed by EMWD. The developer will be required to prepare a Plan of Service in accordance with EMWD standards prior to final engineering and construction of all domestic and recycled water lines. This will ensure that pipe sizing and any additional infrastructure facilities are adequate to serve the project and are in conformance with EMWD's Master Plan.

Sewer Plan

The project site is within the EMWD service area for wastewater collection and treatment. There is an existing 8-inch force main along Sanderson Avenue which conveys flows into an existing treatment facility located just south of the project boundary. Proposed sewer facilities will range between 12 to 30 inches per the EMWD Master Plan. Streets A, B, and C will have 10-inch lines

that flow to a 15-inch line in Cawston Avenue, while an additional 15-inch line is planned for Odell Avenue. Both of the 15-inch lines will gravity flow toward a 30-inch line in Ramona Boulevard, which will then continue to gravity flow toward the existing EMWD treatment plant. A Plan of Service Study will be completed in accordance with EMWD standards prior to final engineering and construction of all sanitary sewer lines. This will ensure that pipe sizing and any additional infrastructure facilities are adequate to serve the project and are in conformance with EMWD's Master Plan.

Drainage Plan

The project site generally drains in a northwesterly direction toward the San Jacinto River, primarily in a sheet flow pattern. The northerly portion of the project site is within the 100-year floodplain. The drainage plan provides 100-year flood protection for the interim and ultimate conditions. The interim condition is based on the absence of the San Jacinto Master Drainage Plan (MDP) systems being in place, while the ultimate condition assumes all the MDP facilities are constructed and functional. The implementation of the San Jacinto MDP is based on the timing of the development of the surrounding area. As a result, the construction timeline for the proposed San Jacinto MDP drainage facilities is unknown. Consequently, the project incorporates a drainage plan that will not impact upstream and downstream property owners but will provide flood protection for the overall project site. The Drainage Plan will incorporate a vegetative channel and a detention/water quality basin, which are designated as Line V and Detention Basin V. These two facilities are the major backbone infrastructure that will collect the runoff that emanates from off-site and on-site areas. Line V and Detention Basin V have been designed to convey and control the interim flow rate and ultimate flow rate. The interim flow rate results in a runoff rate that exceeds the ultimate condition flow rate. The interim condition will require the construction of two interim culvert facilities and the reconstruction of an earthen roadway to eliminate ponding east of the DeAnza Drive and Sanderson Avenue intersection. These interim drainage facilities are required to control and convey the interim flow rates originating from the off-site area. Several storm drain laterals will provide flood protection for the on-site PAs. Further details of the Drainage Plan are contained in *Section 5.8 Water Quality and Hydrology*.

Lake Preliminary Design Report

This report discusses safety features for the proposed lake shoreline, water depth and temperature, treatment of runoff, and water quality management. The treatment process involves reduced concentration of dissolved pollutants, nutrients, and salts through flushing of the lake water volume by utilizing the lake as the irrigation supply source; reduction of nutrient concentrations from inflows, nitrogen and phosphorous, and prevention of algal blooms by using constructed gravel biofilter beds that utilize "biological filtration," and maintaining oxygen levels

through aeration promoting oxygen exchange to prevent anaerobic conditions, which allows natural processes to occur, such as denitrification for removal of nitrogen. The lake operation and maintenance program also includes routine debris removal, algae control, aquatic weed control, pump maintenance, and biofilter maintenance. These processes ensure continued aesthetic appeal and desirable water quality as well as control of vectors, such as mosquitoes and flies.

Tentative Map

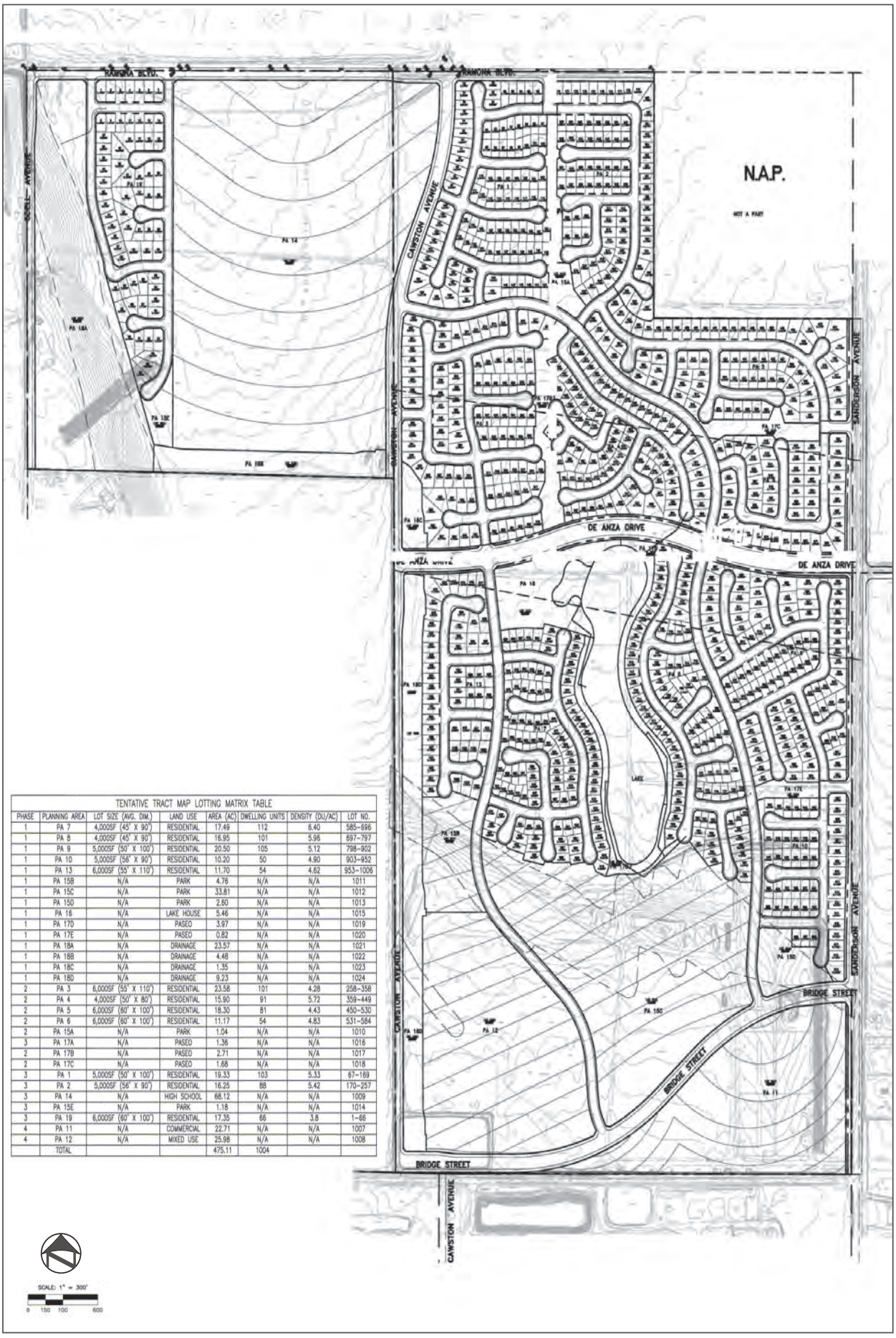
A draft tentative map (TM 36188) has also been prepared for the project. *Figure 3.0-5, Tentative Tract Map*, shows individual residential lots, mixed use and commercial areas and accessory uses, including open space, lakes, and roadways. In summary, the Tentative Tract Map, which further defines the Specific Plan Land Use Plan (described above), would allow the following housing units and other land uses to be developed on the project site:

Unit Type Summary

- 6,000-square-foot lots: 359 units
- 5,000-square-foot lots: 349 units
- 4,000-square-foot lots: 308 units

TOTAL: 1,016 units

- 69.1-acre high school site
- 22.7 acres of commercial uses
- 26.3 acres of mixed-use
- 5.1-acre lake house and Swim Lagoon
- 43.0 acres for parks
- 11.0 acres for lake surfaces
- 24.2 acres for water quality/detention basin facilities
- 15.2 acres for drainage channels
- 9.6 acres for paseos
- 48.0 acres for roadways



TENTATIVE TRACT MAP LOTTING MATRIX TABLE

PHASE	PLANNING AREA	LOT SIZE (AVG. DIM.)	LAND USE	AREA (AC)	DWELLING UNITS	DENSITY (DU/AC)	LOT NO.
1	PA 7	4,000SF (45' X 90')	RESIDENTIAL	17.49	112	6.40	585–696
1	PA 8	4,000SF (45' X 90')	RESIDENTIAL	16.95	101	5.96	697–797
1	PA 9	5,000SF (50' X 100')	RESIDENTIAL	20.50	105	5.12	798–902
1	PA 10	5,000SF (56' X 90')	RESIDENTIAL	10.20	50	4.90	903–952
1	PA 13	6,000SF (55' X 110')	RESIDENTIAL	11.70	54	4.62	953–1006
1	PA 15B	N/A	PARK	4.76	N/A	N/A	1011
1	PA 15C	N/A	PARK	33.81	N/A	N/A	1012
1	PA 15D	N/A	PARK	2.60	N/A	N/A	1013
1	PA 16	N/A	LAKE HOUSE	5.46	N/A	N/A	1015
1	PA 17D	N/A	PASEO	3.97	N/A	N/A	1019
1	PA 17E	N/A	PASEO	0.82	N/A	N/A	1020
1	PA 18A	N/A	DRAINAGE	23.57	N/A	N/A	1021
1	PA 18B	N/A	DRAINAGE	4.48	N/A	N/A	1022
1	PA 18C	N/A	DRAINAGE	1.35	N/A	N/A	1023
1	PA 18D	N/A	DRAINAGE	9.23	N/A	N/A	1024
2	PA 3	6,000SF (55' X 110')	RESIDENTIAL	23.58	101	4.28	258–358
2	PA 4	4,000SF (50' X 80')	RESIDENTIAL	15.90	91	5.72	359–449
2	PA 5	6,000SF (60' X 100')	RESIDENTIAL	18.30	81	4.43	450–530
2	PA 6	6,000SF (60' X 100')	RESIDENTIAL	11.17	54	4.83	531–584
2	PA 15A	N/A	PARK	1.04	N/A	N/A	1010
3	PA 17A	N/A	PASEO	1.36	N/A	N/A	1016
2	PA 17B	N/A	PASEO	2.71	N/A	N/A	1017
2	PA 17C	N/A	PASEO	1.68	N/A	N/A	1018
3	PA 1	5,000SF (50' X 100')	RESIDENTIAL	19.33	103	5.33	67–169
3	PA 2	5,000SF (56' X 90')	RESIDENTIAL	16.25	88	5.42	170–257
3	PA 14	N/A	HIGH SCHOOL	68.12	N/A	N/A	1009
3	PA 15E	N/A	PARK	1.18	N/A	N/A	1014
3	PA 19	6,000SF (60' X 100')	RESIDENTIAL	17.35	66	3.8	1–66
4	PA 11	N/A	COMMERCIAL	22.71	N/A	N/A	1007
4	PA 12	N/A	MIXED USE	25.98	N/A	N/A	1008
	TOTAL			475.11	1004		

SOURCE: C & V Consulting, Inc., February 2009

Villages of San Jacinto EIR
Tentative Tract Map

FIGURE 3.0-5

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Phasing and Construction Planning

The project is designed to be developed in four phases over an approximate 9-year period in response to market demands and according to a logical and orderly extension of roadways, public utilities, and infrastructure. Development may occur more rapidly or more slowly, depending on the marketability of the community. Project Phasing is shown on *Figure 3.0-6, Conceptual Phasing Plan,* and detailed in *Table 3.0-3, Project Phasing Plan*. It should be noted that the public parks, the private lake, Lake House Beach Club and Swim Lagoon, drainage channels, and detention basins will be constructed as part of Phase I; and that the High School site (PA 14), may, if purchased by the school district, be developed earlier than indicated on the Conceptual Phasing Plan.

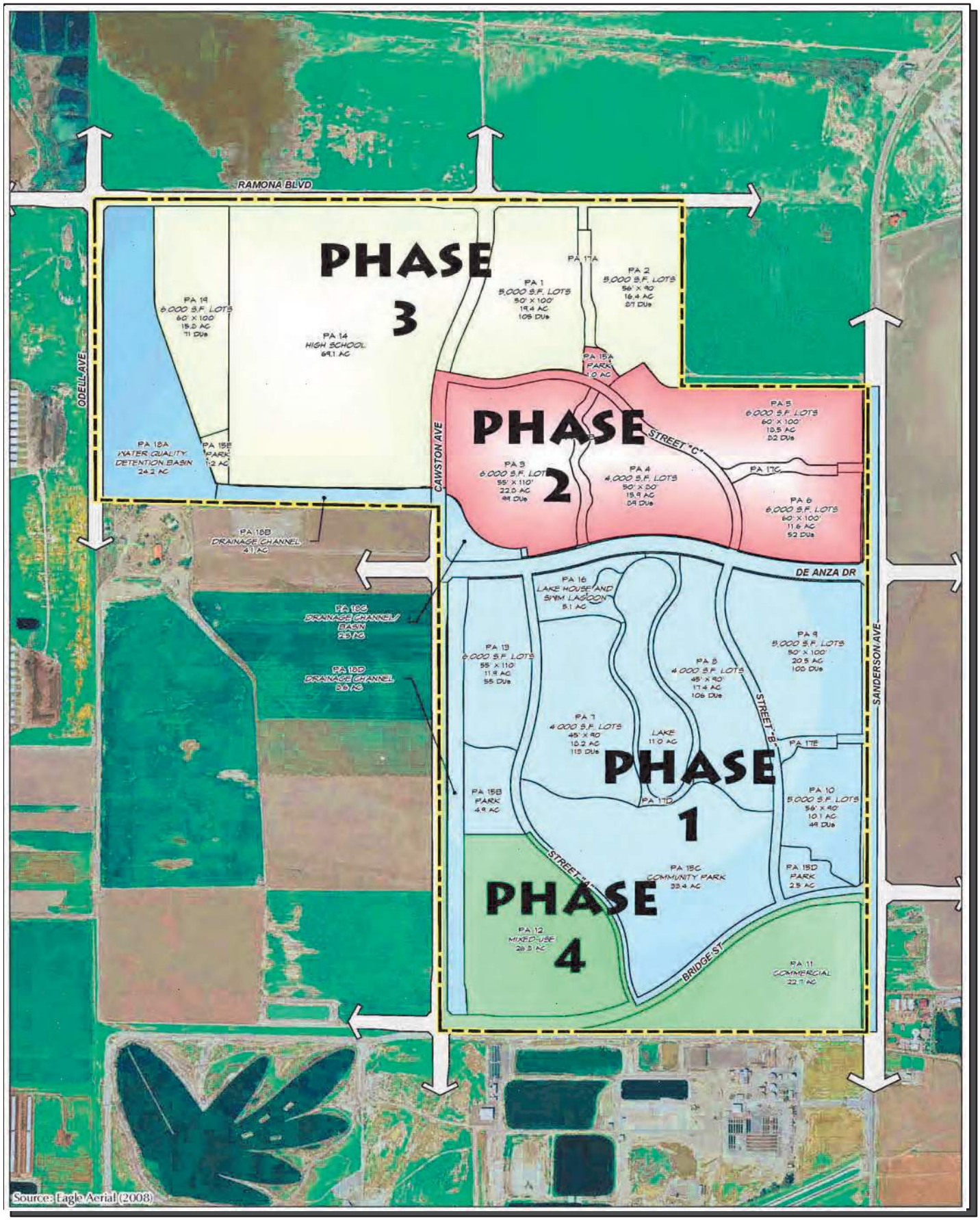
The project will be built out in four phases based on the absorption rate of the prior community phase. Each phase will entail fine grading (mass grading will be performed as part of Phase I), followed by installation of sewer, storm drain, and water infrastructure; installation of water crossings; installation of curb and gutter framework for the street system; paving; and construction of residences and commercial/mixed-use buildings. Phase I is anticipated to begin in the winter of 2011 and will last approximately 49 months. Phase I would include mass grading the entire site and will be finished upon completion of 431 residential units. Construction of Phase II will begin at roughly the time Phase I has sold out (estimated January 2016) and will take approximately 24 months to complete. Phase II will be finished upon completion of 322 residential units. Phase III will begin at roughly the time Phase II has sold out (estimated January 2018) and will take approximately 72 months to complete. Phase III will be finished upon completion of 263 residential units, and the high school (or 313 additional residential units if the high school is not developed on-site). Phase IV will begin at roughly the time Phase III has sold out (estimated January 2024) and will take approximately 120 months to complete. Phase IV will be finished upon completion of the project's commercial/mixed-use development. Completion of the project is estimated to be by December 2033.

Table 3.0-3
Project Phasing Plan

Land Use	Acres	Dwelling Units
Phase I		
PA 7 – 4,000-square-foot lots (45' x 90')	18.2	113
PA 8 – 4,000-square-foot lots (45' x 90')	17.4	106
PA 9 – 5,000-square-foot lots (50' x 100')	20.5	108
PA 10 – 5,000-square-foot lots (56' x 90')	10.1	49
PA 13 – 6,000-square-foot lots (55' x 110')	11.9	55
PA 15B, 15C, and 15D – Parks	40.8	—
PA 16 – Lake House and Swim Lagoon	5.1	—
PA 17 – Lake Trail Paseo	3.6	—
Lake Surface	11.0	—
PA 17E – Paseo	1.0	—
PA 18A – Water Quality/Detention Basin	24.2	—
PA 18B – Drainage Channel	4.1	—
PA 15C – Drainage Channel	2.5	—
PA 18D – Drainage Channel	8.6	—
Sanderson Landscape Easement	2.4	—
Circulation	20.6	—
Phase I Subtotal	**202.0**	**431**
Phase II		
PA 3 – 6,000-square-foot lots (55' x 110')	22.8	99
PA 4 – 4,000-square-foot lots (50' x80')	15.9	89
PA 5 – 6,000-square-foot lots (60' x100')	18.5	82
PA 6– 6,000-square-foot lots (60' x100')	11.6	52
PA 15A – Neighborhood Park	1.0	—
PA 17B – Paseo	2.0	—
PA 17C – Paseo	1.5	—
Circulation	6.5	—
Phase II Subtotal	**79.8**	**322**
Phase III		
PA 1 – 5,000-square-foot lots (50' x 100')	19.4	105
PA 2 – 5,000-square-foot lots (56' x 90')	16.4	87
PA 14 – High School*	69.1	313
PA 15E – Neighborhood Park	1.2	—
PA 17A – Paseo	1.5	—
PA 19 – 6,000-square-foot lots (60' x 100')	15.8	71
Circulation	10.3	—
Phase III Subtotal	**133.7**	**576**
Phase IV		
PA 11 – Commercial	22.7	—
PA 12 – Mixed-Use	26.3	—
Circulation	10.6	—
Phase IV Subtotal	**59.6**	**0**
TOTAL	**475.1**	**1,329**

* If PA 14 is not used as a High School Site, it would convert to the following land uses: 113 dwelling units (5,000-square-foot lots) on 21.6 acres, 200 dwelling units (6,000-square-foot lots) on 45.5 acres and a 2.0-acre park.

SOURCE: T&B Planning Consultants 2009



0 1,000 Feet

Villages of San Jacinto EIR

Conceptual Phasing Plan

FIGURE 3.0-6

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3.6 DISCRETIONARY ACTIONS

A list of discretionary actions known to be required and the agencies responsible for their approval are listed below; however, this EIR covers all federal, state, and local governmental approvals that may be needed to construct or implement the project, whether explicitly listed or not. All known Responsible and Trustee Agencies as defined by CEQA Guidelines 15381 and 15386 and a list of all subsequent actions anticipated within the scope of this EIR are listed.

In order to implement the project as described above, the City Council will need to take the following actions:

- EIR Certification
- Mitigation Monitoring and Reporting Program Adoption
- General Plan Amendment from LDR, MDR, High Density Residential (HDR), Open Space (OS), Park (P), and Community Commercial (CC) to Specific Plan (SP)
- Municipal Zoning Code Amendment from R-1, R-2 Planned Unit Development (PUD), R-3, and C-2 Zones to Specific Plan (SP)
- Specific Plan #1-04 Adoption
- Design Review Approval
- Tentative Tract Map No. 36188 Approval
- Development Agreement Adoption.

The following additional permits/approval may be required of other Responsible and/or Trustee Agencies that may be considered responsible agencies under CEQA. This EIR may be utilized by the following agencies during CEQA compliance for their specific permit issuance or discretionary action approval:

- Regional Water Quality Control Board: Clean Water Act Section 401 Water Quality Certification, Waste Discharge Requirement, and approval of the Storm Water Pollution Prevention Plan (SWPPP).
- Regional Water Quality Control Board: Official closure action and approval of reuse plan pertaining to historical hazardous materials located on site.
- Riverside County Department of Environmental Health: Official closure action and approval of reuse plan pertaining to historical hazardous materials located on site.
- San Jacinto Unified School District: Construction and operational approval for school site.
- California Department of Fish and Game: Section 1600 Streambed Alteration Agreement.
- EMWD: Water Availability Assessment pursuant to SB 610.

3.7 INTERAGENCY CONSULTATIONS

The project will or has required the City to engage in the following interagency consultation processes:

Senate Bill 18

Senate Bill 18 requires a City to notify any Native American tribe or group who has previously expressed interest in the project study area or who has historically inhabited the project area to determine if they view the project site as a significant point of ancestral heritage. This consultation is required when the City is considering a General Plan Amendment such as proposed for this project. The City conducted consultation per Senate Bill 18 during the early planning process for the project (2005). Given the elapsed time, the City will contact all applicable Native American groups during late summer/fall 2009 to determine if they have any further comments regarding the proposed project.

Federal Clean Water Act/California Fish and Game Code

Pursuant to Section 401 of the Federal Clean Water Act and Section 1600 of the California Fish and Game Code, any modification to surface waters must fist obtain a permit from the Regional Water Quality Control Board and California Department of Fish and Game, respectively. The applicant will be required to obtain permits to alter existing onsite water and/or wetlands prior to grading activities.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

The City is a signatory to the Western Riverside County MSHCP and therefore has the obligation to implement the MSHCP in accordance with all applicable protocols. The City reviewed the project biological resource studies to determine consistency with reserve design and other plan requirements. Although the project is not located within MSHCP "criteria cells," the City contacted the Western Riverside County Regional Conservation Authority, the joint powers authority tasked with overall MSHCP implementation, to confirm that the project is not located within criteria cells and therefore submittal of the project for Joint Project Review was not necessary. The Western Riverside County Regional Conservation Authority confirmed that the project was not located within a criteria cell in a letter dated November 17, 2008.

Storm Water Pollution Prevention Plan

Pursuant to the National Pollution Discharge Elimination System, any project that would disturb soils during construction is required to prepare a Storm Water Pollution Prevention Plan. This

Plan shall be approved by the Regional Water Quality Control Board. The applicant will prepare and process this Plan prior to project grading.

Hazardous Material Closure/Reuse

In order to obtain permission for reuse of a site that formerly supported hazardous materials or substances (ie, such as methane or the former leaking underground storage tank), the Regional Water Quality Control Board and the Riverside County Department of Environmental Health must approve a closure and reuse plan prior to site disturbance. The applicant will prepare such a plan and process it through both agencies.

Water Supply Assessment

For all projects that would result in construction of more than 500 dwelling units, local municipalities must consult with the applicable water agency to determine whether adequate water supplies exist to serve the proposed project. Because the project proposes up to 1,329 dwelling units, the 500 unit maximum would be exceeded, therefore this interagency coordination requirement would be triggered. The City received a Water Supply Assessment from Eastern Municipal Water District on December 15, 2004. The City also received confirmation that the December 15, 2004 Water Supply Assessment was still valid in a May 11, 2009 letter.

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SECTION 4.0
ENVIRONMENTAL SETTING

In accordance with Section 15125 of the CEQA Guidelines, the general environmental setting for the project area is provided in this section. More detailed descriptions of the setting specifically pertaining to each environmental issue are provided at the beginning of each impact issue area addressed in *Section 5.0*.

4.1 PHYSICAL SETTING

The site is generally flat and is located on the alluvial plain of the San Jacinto River. The site elevation above sea level ranges from 1,455 feet along the northern edge to 1,490 feet in the southeastern corner. The southeastern corner of the site is a former cattle feed lot with several remaining shade structures. The remainder of the land consists primarily of vacant former agricultural land. Vegetation on site consists of weedy invasive species that have accumulated since the majority of agricultural production was discontinued. There are scattered sod fields in the northern portions of the property, which is the site of the only remaining agricultural operation. Several unnamed, unimproved dirt roadways traverse the site and are associated with former and current agricultural operations. Irrigation canals run along the edges of fields in support of current or former sod farming activities. A detention basin is located along the north-central edge of the project site. There is one abandoned residence and former storage shed located in the east central portion of the site (see *Figure 5.13-1*).

The San Jacinto River is the dominant landform in the project area. The river, which is located less than 1 mile from the project site, is contained within a broad valley formation that is characterized by flat, alluvial terraces surrounded by stark mountains. The project is surrounded by existing agricultural operations on three sides, with the San Jacinto Valley Regional Water Reclamation Facility along the southern boundary of the site. The San Jacinto River area comprises a flat, perennial river characterized by wetland vegetation within the immediate channel and then drier habitats, such as grassland and coastal sage scrub, further from the low flow area. Due to its flat nature and alluvial setting, much of the San Jacinto River floodplain has been utilized for active agriculture for over 100 years.

As discussed previously, agricultural operations on the site have mostly ceased to be active with the exception of some sod farming in the northwest portion of the site. However, the project site contains state-designated Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. *Section 5.3, Agricultural Resources,* describes the impact of converting these designated lands in greater detail. There are no unique aesthetic or visual resources on site (see *Section 5.2, Landform Alteration and Aesthetics*, for additional clarification regarding on-site visual resources). Although the site is highly disturbed from a biological resource perspective,

sensitive and unique wildlife species exist on site (*Section 5.4, Biological Resources,* provides a greater description of on-site biological resources). The project site does not contain any unique cultural resources (*Section 5.5, Cultural Resources,* provides a greater description of on-site cultural resources). The project site contains two fault areas on site (see *Section 5.6, Geology and Soils,* for further discussion of on-site geotechnical resources). The site does not contain any natural hydrologic features; however, it is characterized by the on-site irrigation canals and detention basins. The project site is located near the San Jacinto River; the river's 100-year floodplain traverses part of the project site (see *Section 5.8, Water Quality and Hydrology,* for further discussion on the project's on-site hydrologic features).

On-site infrastructure includes dirt driveways/roadways, a septic system, well water service, and constructed agricultural detention basins to assist with on-site drainage. Currently, public utilities, including electric, gas, and phone service, are located on site.

4.2 APPLICABLE LAND USE PLANS

Section 15125 (d) of the CEQA Guidelines requires that a discussion of the project's relationship to the applicable general plan and relevant regional plans be provided. The consistency analysis for the proposed project with applicable plans, policies, and regulations is provided in *Section 5.1, Land Use, Planning, and Zoning,* of this EIR. The following is a list of plans, policies, and regulations that are applicable to the proposed project:

- City of San Jacinto General Plan
- City of San Jacinto General Plan Update
- City of San Jacinto Municipal Zoning Code
- Western Riverside County Multiple Species Habitat Conservation Plan
- South Coast Air Pollution Control District Regional Air Quality Strategies
- Southern California Association of Government's Regional Comprehensive Plan.

SECTION 5.0
ENVIRONMENTAL ANALYSIS

5.1 LAND USE, PLANNING, AND ZONING

5.1.1 Introduction and Methodology

This section describes the planned land uses associated with the proposed Villages of San Jacinto Specific Plan and Tentative Map and discusses potential project impacts to land use, planning, and zoning that would occur as a result of project implementation. The following discussion includes a description of existing land uses surrounding the project site and provides an analysis of the proposed development's compatibility with planned and existing surrounding land uses. The discussion also evaluates the consistency of the proposed project with all relevant plans and policies, including those policies and development standards of the City's General Plan, Zoning Ordinance, and the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

The character of existing land use was determined by field survey, review of aerial photography of the project site and surrounding area, and review of existing documentation and site descriptions. Issues of land use compatibility were analyzed in the context of existing and planned land uses, policies, and planning programs. In addition, issues of land use compatibility have been analyzed in the context of physical environmental factors, such as agriculture, noise, air quality, aesthetics, and traffic, discussed in detail in the respective sections of this EIR.

Applicable City and regional planning documents were reviewed to identify all applicable plans, policies, and development standards to evaluate potential project impacts to existing planning programs. A consistency analysis was conducted for each applicable policy identified and mitigation measures have been provided to address potential project inconsistencies with relevant plans and policies.

5.1.2 Existing Conditions

Existing Land Uses

The 475.1-acre project site is located in the northwest portion of the City of San Jacinto in an area consisting primarily of agricultural uses. The southeastern corner of the site is a former cattle feed lot with several remaining shade structures. The remainder of the land consists primarily of vacant former agricultural land. Vegetation on site consists of weedy invasive species that have accumulated since the majority of agricultural production was discontinued. There are scattered sod fields in the northern portions of the property, which entail the only remaining agricultural operations.

As illustrated in *Figure 5.1-1, Existing Land Uses*, the project site is located in a rural area within approximately 1.25 miles south of the San Jacinto River. The north property boundary of the project site is generally bound by the proposed road alignment for the Ramona Boulevard extension. Beyond this proposed road extension, land uses north of the site consist primarily of cultivated agricultural use in addition to duck ponds, the Colorado River Aqueduct, and the Ramona Expressway. Agricultural land uses occupy most areas west of the of the project site and include cultivated lands and cattle operations. A municipal wastewater treatment plant is located directly south of the project site and the San Jacinto Reservoir is located southeast of the property. The east side of the project site is generally bound by North Sanderson Avenue. Immediately east of North Sanderson Avenue, land uses consist of agricultural cultivation and low density residential use. Land use patterns begin to transition to urban-related uses continuing east-southeast of the project area toward downtown San Jacinto located southeast of the project site.

The project site is accessible directly from North Sanderson Avenue or indirectly via various agricultural roads taking access from the Ramona Expressway, Cottonwood Avenue, and Warren Road.

According to the Tentative Map/New Development Map accessed on the City's website (City of San Jacinto 2005), a number of new residential and commercial development projects have been approved or are in the City review process within the City including the area surrounding the project site. *Figure 5.1-2, Surrounding Projects,* depicts surrounding projects within the San Jacinto area at the time of EIR publication. Details of these projects can be found in *Table 6-1, Cumulative Projects List,* in *Section 6.0, Cumulative Impacts.*

Land Use Plans and Policies

City of San Jacinto General Plan

The City of San Jacinto General Plan identifies community goals and planning issues for future growth of the City and establishes goals and policies to provide a comprehensive basis for implementation of plans and programs to achieve community goals. The General Plan contains seven individual Elements: Land Use, Housing, Circulation, Natural Resources Management, Noise, Public Safety and Community Services and Facilities. Existing applicable land use designations and policies are addressed in the policy consistency analysis for the proposed project. The most recent General Plan was adopted on May 4, 2006, and the latest General Plan Land Use Map was approved in February 2009.



Villages of San Jacinto EIR

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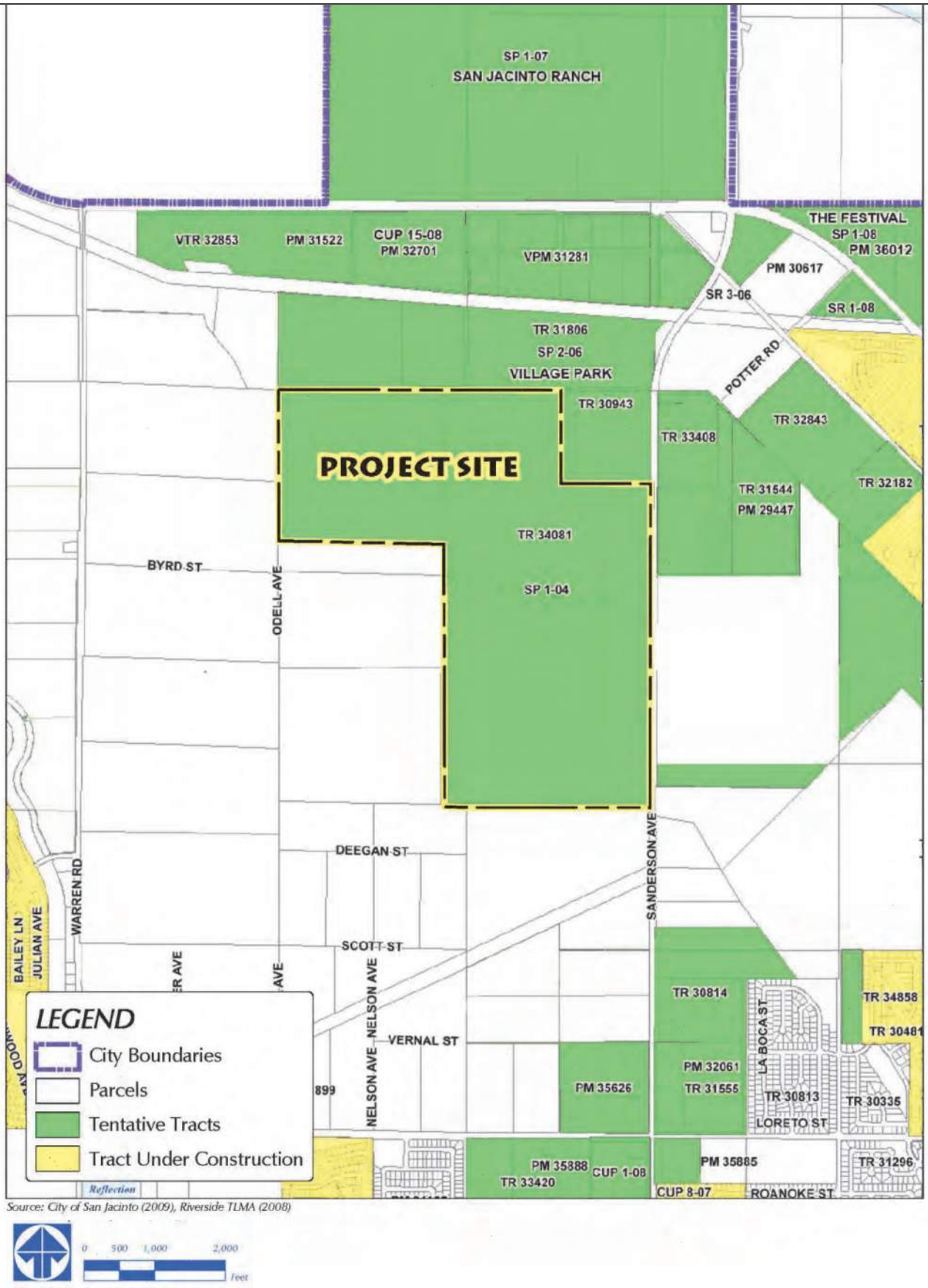

Source: City of San Jacinto (2009), Riverside TLMA (2008)

Villages of San Jacinto EIR

Surrounding Projects

FIGURE 5.1-2

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Figure 5.1-3, General Plan and Specific Plan Comparison, shows that the General Plan designations on the project site have a mix of land uses, which include Community Commercial (CC), Open Space Recreation (OS), Low Density Residential (LDR), and Medium Density Residential (MDR).

As shown on *Figure 5.1-3,* the easternmost portion of the site contains approximately 54.4 acres of the CC land use designation, which typically allows for development of a broad range of service and retail commercial activities at various densities. The central and western portions of the site contain about 44.7 acres of the Open Space land use designation, which is intended to maintain general open space areas for purposes of conservation of natural and scenic resources and protection of public property from natural hazards. Limited residential use is permitted in areas designated as Open Space at a maximum density of 1 unit per 40 acres and limited park and recreation uses are permitted at a maximum Floor Area Ratio (FAR) of 0.10:1.

The remaining portion of the site is designated LDR (136.5 acres) and MDR (239.5 acres). The northwest portion of the site is predominantly designated as LDR, which allows for detached single-family residential development at a maximum density of 5 units per acre. The MDR land use designation exists on approximately half of the site and permits single-family attached and detached units, duplexes, triplexes, fourplexes, townhouses, condominiums, and mobile home parks at a maximum density of 10 units per acre. *Table 5.1-1, General Plan and Specific Plan Comparison,* presents a comparison of acreage and dwelling units of the proposed Specific Plan and existing General Plan designations.

Table 5.1-1
General Plan and Specific Plan Comparison

Land Use	General plan			Specific Plan		
	Acres	Density	Max. DU	Acres	Density	Max. DU
Residential						
Residential Low Density	136.5	2.1-5.0 du/ac	682	80.6	4.5 du/ac	359
Residential Medium Density	239.5	5.1-10.0 du/ac	2395	117.9	5.3-6.0 du/ac	657
Residential Subtotal	376	—	3,077	198.5	—	1,016
Non-Residential						
Commercial	54.4	—	—	22.7	—	—
Mixed Use	—	—	—	26.3	—	—
School	—	—	—	69.1	—	313*
Parks	—	—	—	43.0	—	—
Open Space	44.7	—	—	67.5	—	—
Non-Residential Subtotal	99.1	—	—	276.6	—	313
Total	**475.1**	**—**	**3,077**	**475.1**	**—**	**1,329**

City of San Jacinto Zoning Ordinance

The Zoning Ordinance of the City of San Jacinto contains site-specific zoning designations and associated development standards that serve to implement the goals and policies of the General Plan.

As shown on *Figure 5.1-4 Zoning and Specific Plan Comparison*, the project site is currently zoned One Family Zone (R-1), Two Family Zone -Planned Unit Development Overlay (R-2 PUD), Multiple Family Zone (R-3), and General Commercial Zone (C-2). The distribution of zoning designations on the site generally corresponds with the land use designation with the southeast corner of the site zoned as C-2 for general commercial uses, most of the northwest portion of the site zoned R-1 for low density residential development, and the majority of the site zoned R-2 for medium density residential development. The main difference between the current zoning and proposed Specific Plan is that rather than high density residential as designated in the southwest corner of the site, the project will provide mixed use and park development in that area.

City of San Jacinto Redevelopment Plan

The City of San Jacinto and Soboba Springs Redevelopment Plans and corresponding 5-year implementation plans address issues related to eliminating blighted areas in designated redevelopment project areas. The Redevelopment Plans address a total of 27 project areas located primarily in the urbanized eastern portion of the City. Due to the location of the project area in the more rural western portion of the City, plans and policies associated with the Redevelopment Plans are not applicable to the proposed project.

Transportation Uniform Mitigation Fee 10-Year Strategic Plan (TUMF)

The Western Riverside Council of Governments (WRCOG) is a council comprising members that represent 15 local jurisdictions in western Riverside County, including the City of San Jacinto. The WRCOG functions to facilitate collective examination by the various representative jurisdictions of issues that are regional in nature such as air quality and traffic. In June 2004, the WRCOG adopted the Transportation Uniform Mitigation Fee (TUMF) 10-Year Strategic Plan (TUMF) and Transportation Improvement Program Development Guidelines.





LAND USE (Acres)	GENERAL PLAN	PROPOSED
Residential		
Low Density (General Plan Range: 2.1-5.0 du/ac	136.5	80.6
Medium Density (General Plan Range: 5.1-10.0 du/ac	239.5	117.9
- Residential Sub-totals	*376*	*198.5*
Non-Residential		
Commercial	54.4	22.7
Mixed Use	-	26.3
Schools	-	69.1
Parks	-	43.0
Open Space*	44.7	67.5
Major Roads	-	48.0
- Non Residential Sub-totals	99.1	276.6
PROJECT TOTALS	*475.1*	*475.1*

* Specific Plan Open Space includes: lake house/swim lagoon, paseos, drainage channels, greenbelt, detention basins, lakes

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Villages of San Jacinto EIR

General Plan Comparison – Current Update General Plan vs. Proposed Specific Plan Land Use

FIGURE 5.1-3

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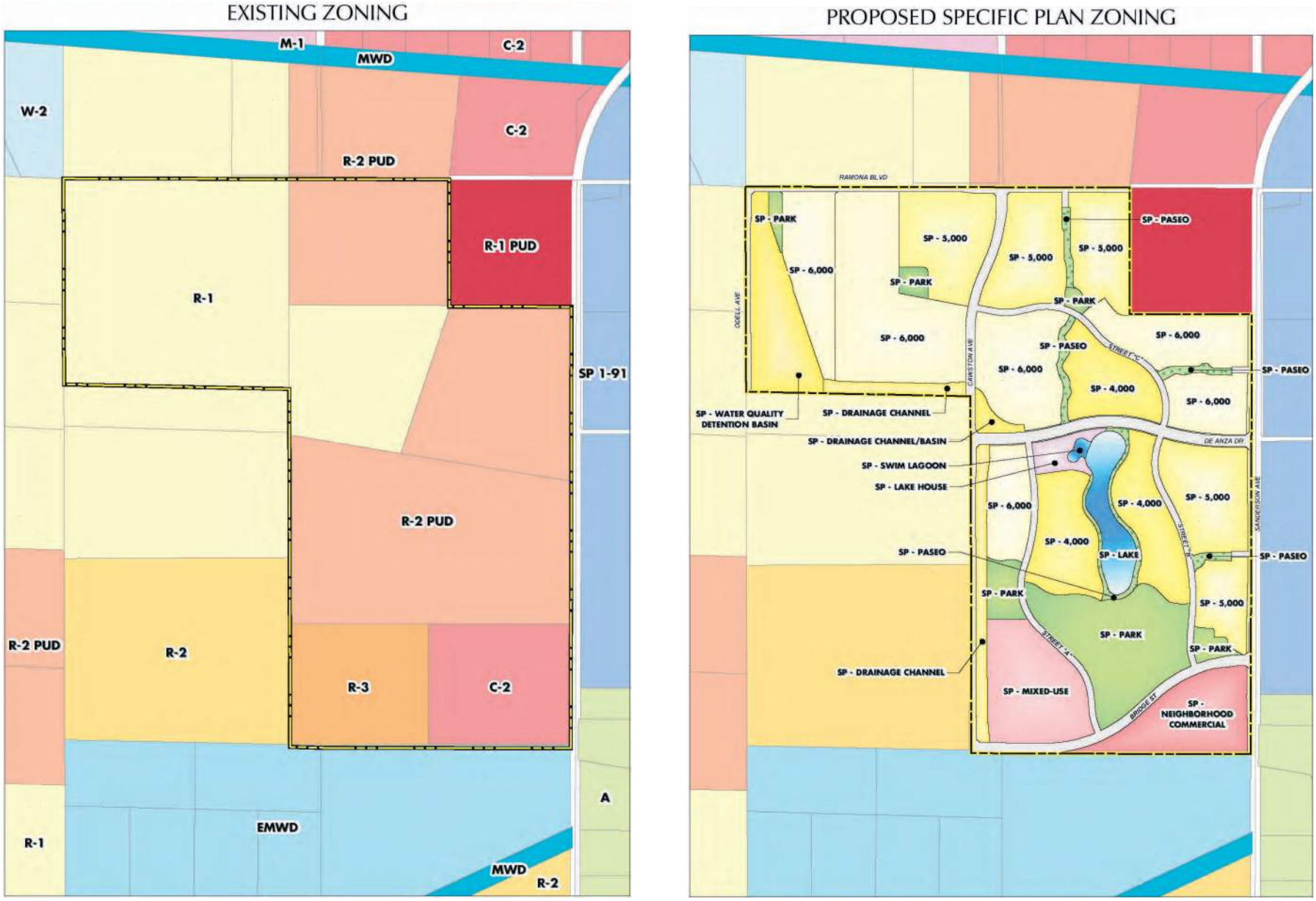

Source: T&B PLANNING CONSULTANTS, July 2009

Villages of San Jacinto EIR

FIGURE 5.1-4

Zoning Comparison - Existing Zoning vs. Proposed Specific Plan Zoning

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The purpose of the TUMF program is to establish a comprehensive funding source to mitigate the cumulative regional transportation impacts of new development on regional arterial highways (Parsons Brinckerhoff Quade & Douglas, Inc, June 2004). The TUMF program has five primary goals that are articulated as a basis for developing specific regional project priorities and selection criteria. These goals are summarized as follows:

- Sustain Mobility – Mitigate the transportation system impacts of new development
- System Continuity – Enhance the continuity of the regional arterial highway system
- Project Development – Encourage systematic project development and provide flexibility to advance TUMF projects promptly through completion
- Leverage Funds – Secure additional matching funds for TUMF system improvements
- Regional Benefit – Ensure TUMF program revenues are distributed to maximize mitigation of new development impacts.

The TUMF program is intended to address cumulative traffic impacts of new development to the region; therefore, TUMF program funded improvements are focused primarily on regional arterial highways. New development in western Riverside County places additional demand on the regional transportation system to provide safe and convenient access for new residents and employees. The additional demand on the transportation facilities reduces mobility absent adequately and timely funded infrastructure improvements constructed to meet growing demands. As such, the WRCOG has developed and implemented the TUMF program which requires new development to contribute revenues to partially fund improvements that will mitigate the transportation impacts of new developments. TUMF investments are then focused on those regional facilities most impacted by new development.

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County MSHCP is a comprehensive, long-term habitat conservation program which addresses the needs of a variety of biological resources. The MSHCP provides for the conservation of approximately 160 species and covers approximately 1.25 million acres of land in Riverside County which is experiencing rapid urbanization. The primary goal of the MSHCP is to develop and manage sustainable preserve areas within existing and expanding urban areas. The preserve areas and management efforts contained in the final MSHCP will affect land use planning in the entire City of San Jacinto area.

Southern California Association of Governments Growth Management Plan

The Southern California Association of Governments (SCAG) Growth Management Plan contains recommendations for methods to direct development and build-out of the region in

ways to minimize traffic congestion and protect environmental resources, including efforts to balance land uses, particularly jobs and housing. Goals of the SCAG Management Plan are reflected in the City's General Plan and individual plan elements.

South Coast Air Quality Management Plan

The South Coast Air Quality Management District (SCAQMD) Governing Board adopted the 2003 Air Quality Management Plan (AQMP) on August 1, 2003. The 2003 AQMP updates the attainment demonstration for the federal standards for ozone and particulate matter (PM_{10}); replaces the 1997 attainment demonstration for the federal carbon monoxide (CO) standard, provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal nitrogen dioxide (NO2) standard that the SCAB has met since 1992.

The South Coast AQMP includes a number of policies and measures to achieve federal and state standards for healthful air quality in the region. The City's General Plan strives to comply with the AQMP by planning land uses in relation to circulation systems, promoting commercial and industrial land uses with convenient access to transportation corridors, and encouraging a balance of land uses that facilitates a complimentary association between jobs and housing.

5.1.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on land use, planning and zoning if it:

1. Physically divides an established community.
2. Conflicts with any applicable plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, zoning ordinance, etc.) adopted for the purpose of avoiding or mitigating an environmental effect.
3. Conflicts with any applicable habitat conservation plan or natural community conservation plan.
4. Introduces a land use that is incompatible with existing or proposed surrounding land uses.

5.1.4 Impacts

Would the project physically divide an established community?

As described in detail in *Section 3.0, Project Description*, the proposed project would develop commercial, residential, recreation and school facility land uses in the Specific Plan project area. *Table 3-1* illustrates the total acreage committed to each proposed land use.

The City's General Plan Land Use Map and Zoning Ordinance generally designate the project site and adjacent surrounding land area for future residential and commercial development and, as such, a variety of residential/commercial developments have been approved in the vicinity or are in the City review process. According to the City's Tentative Map/New Development Map illustrating various development projects recently approved or pending City review, a number of new residential and commercial development projects have been approved, or are in the City review process, in the area surrounding the project site.

The project site's location in an existing rural area surrounded by land that currently supports agricultural uses is likely to result in a physical division of a relative contiguous rural area and associated agricultural community. That said, due to existing residential and commercial land use and zoning designations of the subject site and adjacent land, and the apparent pattern of pending residential and commercial development proposals in the vicinity of the project site, it is anticipated that the project area will experience a pattern of rural agricultural land use conversion to urban-type uses which would ultimately alleviate potential land use conflicts between existing agricultural uses and planned residential development. Therefore, no significant impacts related to the division of an established community would occur.

Would the project conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, zoning ordinance, etc.) adopted for the purpose of avoiding or mitigating an environmental effect?

Land Use Plans and Policies

City of San Jacinto General Plan

The City requires that a Specific Plan be developed for all projects involving 100 acres or more. Government Code Section 65450 states that a planning agency may "prepare specific plans for the systematic implementation of the general plan for all or part of the area covered by the general plan." The project, as proposed, will require an amendment to the General Plan Land Use Map to develop a Specific Plan and modify the land use designations of the project site to remove the HDR designation from the subject property and to reconfigure the existing CC, OS,

LDR, and MDR land use designations, and school site, consistent with the distribution of the land uses for the planned development of the proposed Specific Plan. The proposed Specific Plan is intended to incorporate and implement the comprehensive goals and policies of the City's General Plan for the more detailed development plan of the Villages of San Jacinto. The project land use scenario is generally consistent with the latest General Plan Update Land Use Plan. Therefore, the potential inconsistency with the existing General Plan Land Use Map is considered less than significant from a Land Use Plan Map perspective.

Table 5.1-2, General Plan Policy Consistency Analysis, identifies the City's General Plan policies that are applicable to the proposed Specific Plan and development project. For each listed policy, *Table 5.1-2* includes a discussion of potential project consistency/inconsistency with the policy to determine if the proposed Villages of San Jacinto Specific Plan would conflict with the policy and thereby result in an environmental impact. Environmental issues raised in the policy consistency analysis are also addressed in other sections of this EIR and are referenced where relevant.

Table 5.1-2
General Plan Policy Consistency Analysis

Policy	Project Consistency
Land Use Element: The Land Use Element is a guide to land use planning within the City of San Jacinto and affects many of the issues addressed in the other General Plan elements. The Land Use Element identifies the type and location of future land uses within the City. The specific land uses and their location within the community in turn affect the remaining General Plan elements. For example, the location and type of land uses outlined in the Land Use Element affect the circulation system that is identified in the Circulation Element, and the allowable density of residential land identified in the Land Use Element affects the Housing Element policies. The land uses identified in the Land Use Element also reflect the community's goals for its future form and character.	
Land Use Policy Goal: Balance of Land Uses *– Develop a balanced land use pattern that meets community needs for residential, commercial, industrial, public, and recreational uses.*	
LU Policy 1.1: Promote a land use composition in San Jacinto that provides a balance or surplus between the generation of public revenues and the cost of providing community services and facilities.	The community provides for a variety of public facilities, including educational, municipal, and recreational land uses, as well as residential land uses. The community also designates approximately 22.7 acres for commercial land uses and 26.3 acres of mixed-use land uses. It is anticipated that these mixed-use and commercial land uses will generate additional revenue streams for the City, including sales tax. In addition, the project will be required to contribute development impact fees to cover its "fair share" cost of providing public services and facilities to the site, including fire protection, police protection, and libraries. As such, the balanced land uses provided by THE VILLAGES OF SAN JACINTO will contribute to public revenues and the project is therefore consistent with, and will result in the implementation of, this General Plan policy.
LU Policy 1.2: Create housing opportunities that match employment opportunities within the community.	THE VILLAGES OF SAN JACINTO Specific Plan establishes a high quality, master-planned community that provides for a wide range of residential home product types on lot sizes ranging from 4,000, 5,000, to 6,000 square feet. This variety of lot sizes will result in home sizes designed to appeal to a wide range of potential residents and available in a range of prices.

Table 5.1-2 (Continued)

Policy	Project Consistency
	Furthermore, THE VILLAGES OF SAN JACINTO combines housing, employment, and retail activities on one site. The community contains a maximum of 1,329 residential units, 22.7 acres of commercial land uses, and 26.3 acres of mixed-use land uses (including commercial, office, retail and municipal uses). This balance of land uses within the community contributes towards a greater balance between jobs and housing within the City. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
LU Policy 1.4: Provide public/institutional land use designations and development standards that encourage the location and operation of adequate public facilities to serve the community. LU Policy 1.6: Maintain land use designations and regulations that permit the successful development and operation of public and private educational facilities at appropriate locations within the planning area.	THE VILLAGES OF SAN JACINTO provides a 69.1-acre site for use as a High School campus by the San Jacinto Unified School District in Planning Area 14, 40.8 acres of public parks, and the provision of 26.3 acres of mixed-use land uses (which may include public, municipal, and educational uses). Furthermore, this Specific Plan provides for the development of adequate infrastructure (circulation, water, sewer, etc.) necessary to ensure successful implementation of these public/institutional land uses. Additionally, this Specific Plan provides for amenities, such as landscaping and monumentation, and includes development standards and design guidelines to ensure a high quality of development. Maintenance responsibilities and financing mechanisms also are identified in this Specific Plan to ensure successful long-term operation of these public/institutional land uses. THE VILLAGES OF SAN JACINTO is therefore consistent with these policies.
LU Policy 1.5: Plan and designate adequate open space and parkland to meet the community's parks, open space, and recreational needs.	The community's maximum potential build-out of 1,329 homes would result in approximately 4,000 community residents (at a rate of 3.01 persons per household). The site is planned for a neighborhood park by the General Plan (see Figure CSF-3, Parks and Public Facilities) and per the requirements of the Quimby Act, the community would require approximately 20 acres of active parkland. THE VILLAGES OF SAN JACINTO Specific Plan exceeds this requirement by providing active public park facilities totaling approximately 40.8 acres (Planning Area 15B, 15C, and 15D), in addition to the private recreation facilities and paseos that are provided on 68.7 acres. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
LU Policy 1.3: Attract light industry and other compatible employment generating businesses. LU Policy 1.7: Encourage additional retail development to increase sales tax revenues and expand the range of services available to the community. LU Policy 1.8: Encourage the development of business parks and office parks to expand the number and type of job opportunities in San Jacinto.	THE VILLAGES OF SAN JACINTO includes opportunities for a variety of commercial activities that would generate employment and sales tax revenue. Specifically, 22.7 acres of commercial land uses are located within Planning Area 11 in the southeastern portion of the community and provide for neighborhood retail, entertainment, restaurant and employment opportunities. Additionally, a 26.3-acre mixed-use area (Planning Area 12), which allows for retail commercial, entertainment, office, and municipal land uses, is located in the southwestern portion of the community. The land uses permitted in Planning Area 12 create additional employment opportunities. This variety of land uses within the community would create new jobs, increase sales tax revenues for the City, and expand the range of services available to the surrounding area. THE VILLAGES OF SAN JACINTO is therefore is consistent with these policies.
LU Policy 1.9: Support the provision of outdoor gathering places such as plazas, greens and squares to strengthen social interaction and provide	Section V, *Design Guidelines*, requires the construction of outdoor gathering places such as plazas and green spaces within the commercial and mixed-use area create opportunities for social

Table 5.1-2 (Continued)

Policy	Project Consistency
visual relief in developed areas.	gatherings. The community also includes landscaped paseos and a private lake and swim club to encourage and support social activities within the community. Furthermore, the community features 40.8 acres of public parks containing picnic areas, BBQ pits, benches, tot lots, and other amenities that encourage social interaction. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Land Use Policy Goal: Manage and Direct Growth *– Manage and direct growth so that the community and its neighborhoods are protected and enhanced.*	
LU Policy 2.1: Assure that new development is complementary to the existing character of the City.	THE VILLAGES OF SAN JACINTO will develop the site with a similar building scale and development intensity commonly found in the community. The design theme of THE VILLAGES OF SAN JACINTO is based on a contemporary interpretation of historical southern California architectural styles and features a relaxed landscape feel reminiscent of rural communities. The Specific Plan also includes architectural design standards for site planning, architectural theme and details, building mass and scale, materials and color to create a high-quality living environment, as wellcomplement and enhances the existing character of the City and the surrounding community.
LU Policy 2.2: Encourage infill development to be consistent with and complement the bulk, scale, intensity, and character of the existing surroundings.	
LU Policy 2.3: Ensure that development corresponds to the provision of community services and facilities and new development funds its share of improvements (e.g., parks, schools, trails, utilities).	THE VILLAGES OF SAN JACINTO provides for the development of public parks, public/municipal uses, and a high school. In addition, the community provides for the development of private parks and trails. As described in detail Specific Plan Section IV.7, *Project Phasing Plan*, THE VILLAGES OF SAN JACINTO provides for the development of infrastructure necessary to service the planned land uses and community facilities. The community master developer will also be required to pay development impact fees to cover the project's fair share of community services, including fire protection, police protection, and libraries. Therefore, THE VILLAGES OF SAN JACINTO is consistent with, and results in the implementation of, this General Plan policy.
LU Policy 2.4: Ensure that adequate infrastructure and public services are provided in concert with development so that no negative fiscal or service impact occurs as a result of new development.	
LU Policy 2.7: Locate retail and commercial land uses along major circulation routes at major intersections where there is maximum access and visibility.	THE VILLAGES OF SAN JACINTO includes 22.7 acres of commercial land uses along Bridge Street and Sanderson Avenue. In addition, the community includes 26.3 acres of mixed-use land uses along Bridge Street at the planned extension of Cawston Avenue. Bridge Street acts as a major circulation axis between Sanderson Avenue and Cawston Avenue, and will facilitate efficient access to-and-from the site for patrons and employees, while providing maximum visibility; therefore, ensuring consistency with this policy. It is important to note that the General Plan anticipates that community commercial land uses would be developed on the project site, immediately adjacent to Sanderson Avenue, as depicted on Figure III-2, *General Plan Map*. The project accommodates the commercial uses anticipated by the General Plan, but locates these uses at the southern portion of the site, along Bridge Street (as described above). The layout of mixed-use and commercial land uses planned by THE VILLAGES OF SAN JACINTO is preferred in lieu of the layout identified in the General Plan, as it provides a buffer between the EMWD wastewater treatment plant immediately adjacent to the southern site boundary and the open space and residential uses planned by the project.
LU Policy 2.8: Direct higher density housing and higher intensity employment around commercial uses and job centers near transit nodes and areas served by a well-developed transportation network.	

Table 5.1-2 (Continued)

Policy	Project Consistency
LU Policy 2.9: Where feasible and beneficial to the City and its residents, encourage the joint use of public facilities.	The project includes accommodations for a variety of public facilities (including a high school, public parks, and other municipal uses). The location of these planned uses within the community and their proximity to complementary uses, such as residential and commercial land uses, promotes the joint use of these facilities. Consequently, THE VILLAGES OF SAN JACINTO is consistent with this policy.
Land Use Policy Goal: Environmental Compatibility *– Foster development in San Jacinto that ensures the compatibility of land uses with environmental conditions.*	
LU Policy 3.1: Limit development in the hillsides, ridgelines, floodplains, and other high risk areas.	As discussed in Specific Plan Section III.B, *Environmental Setting*, the site is relatively flat and slopes gently to the northwest; no prominent slopes, hillsides or floodplains exist on-site. The northerly portion of the site is located within the 100-year floodplain. The drainage system (refer to Specific Plan Section IV.3, *Drainage Plan*) has been designed to convey and attenuate 100-year storm flows and provide flood protection for the site. A complete, detailed discussion of potential adverse impacts associated with 100-year storm flows is contained in the EIR accompanying this Specific Plan. As concluded in the EIR, with the incorporation of design measures and mitigation – as needed – implementation of the project will not result in substantial risk to humans or structures.
LU Policy 3.4: Preserve prominent ridgelines by restricting development on slopes of 40% or higher.	
LU Policy 3.2: Explore methods to preserve areas of severe natural hazards, such as landslides, ground subsidence, liquefaction, and flooding as open space.	As discussed in the EIR that accompanies the specific plan for THE VILLAGES OF SAN JACINTO, and as indicated in the Specific Plan, earthquake faults do traverse portions of the site. However, as shown on Figure III-6 of the Specific Plan, *Structural Setbacks*, the site has been designed to preserve areas located in the identified fault zone as recreational open space. As discussed above, the site is not subject to substantial adverse effects related to flooding. Accordingly, THE VILLAGES OF SAN JACINTO is consistent with this policy.
LU Policy 3.3: Permit the joint-use of preserve areas and easements such as seismic faults and drainage basins for open space and recreational uses.	A portion of the Casa-Loma segment of the San Jacinto Fault Zone Complex traverses a portion of the site. The fault segment and the surrounding fault zone buffer is inappropriate for development of residential uses or habitable structures. THE VILLAGES OF SAN JACINTO utilizes a majority of the fault zone area for active and passive recreational uses, site drainage, and internal circulation and is consistent with this policy.
Land Use Policy Goal: Land Use and Circulation Compatibility *– Promote high quality development that ensures compatibility with surrounding land uses and major transportation corridors.*	
LU Policy 4.1: Evaluate the compatibility of new development with surrounding uses when reviewing development proposals and designing the circulation system improvements.	THE VILLAGES OF SAN JACINTO will result in the development of the site with a mix of land uses consistent with the General Plan land use designations for the site. The land uses on-site will be developed with a similar building scale and development intensity commonly found in the surrounding community. Development on-site will be required to be consistent with Section V, Design Guidelines, of THE VILLAGES OF SAN JACINTO, which includes architectural design standards for site planning, architectural theme and details, building mass and scale, materials and color to create a high-quality living environment. In addition, as described in Specific Plan Section III, THE VILLAGES OF SAN JACINTO provides adequate circulation and infrastructure improvements to accommodate development of the site.
LU Policy 4.2: Ensure that new development is compatible with the physical characteristics of the site, surrounding land uses, and available public infrastructure.	

Table 5.1-2 (Continued)

Policy	Project Consistency
LU Policy 4.3: Maximize commercial, retail, and employment opportunities along the City's major corridors and intersections, including SR-79, the Ramona Expressway, Sanderson, and Cottonwood.	As discussed above in the response to General Plan policy 2.7, THE VILLAGES OF SAN JACINTO Specific Plan provides 22.7 acres of commercial land uses and 26.3 acres of mixed-use adjacent to major circulation corridors. The location of mixed-use and commercial land uses along major circulation corridors will maximize visibility of these land uses and will provide site patrons and employees with adequate, efficient circulation to-and-from the site.
LU Policy 4.4: Ensure new development provides roadways that meet the City's standards based on the classifications shown in the Circulation Master Plan and the level of traffic expected to be generated by the proposed project.	THE VILLAGES OF SAN JACINTO Specific Plan includes a roadway network which provides safe and efficient circulation to individual planning areas and land uses. The Specific Plan includes full- and half-width improvements to the following General Plan Circulation Element roadway segments on-site: Sanderson Avenue, De Anza Drive, Bridge Street, Odell Avenue, Cawston Avenue, and Ramona Boulevard. In addition, the project provides for the construction of on-site local roads. All roadways improvements will be constructed to meet City of San Jacinto standards. The community's Circulation Plan, conceptually illustrated on Figure IV-2, *Project Circulation Plan*. The EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan evaluates traffic and circulation impacts that may occur upon implementation of this project and provides mitigation measures to reduce identified impacts to a level below significance, when feasible. The Planning Commission and City Council will review the EIR to ensure adequate provision of circulation facilities. Therefore, THE VILLAGES OF SAN JACINTO Specific Plan is consistent with, and results in the implementation of, this policy of the General Plan.
LU Policy 4.5: Minimize the number of vehicular access points on major corridors by using reciprocal access agreements whenever feasible.	As depicted on Specific Plan Figure IV-2, *Project Circulation Plan*, the project has been designed to minimize vehicular access points on major circulation corridors, including Sanderson Avenue.
LU Policy 4.6: Enhance pedestrian access both within shopping centers and to and from commercial uses to reduce vehicle trips generated within the City.	Section V, *Design Guidelines*, requires that structures within Planning Area 11 (Neighborhood Commercial) and Planning Area 12 (Mixed Use Commercial) be oriented in a pedestrian-friendly manner to take advantage of park views. The commercial land uses are required to provide either street-facing entrances and/or entrances that are easily accessed from the park and parking areas. The scale of the buildings and plan are pedestrian-friendly and encourage pedestrian activity between structures. The design principles set forth in Section V, *Design Guidelines*, requires major projects or individual buildings at key locations within the commercial area to incorporate public plazas at focal points and at activity centers. Furthermore, parking lots within the commercial area shall be pedestrian-friendly in nature, with walkways provided in appropriate locations. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Land Use Policy Goal: Resource Preservation *– Preserve and protect the City's cultural, historic, agricultural, and visual resources.*	
LU Policy 6.1: Balance the benefits of development with potential impacts to existing cultural resources.	The EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan evaluates impacts to cultural resources that may occur upon implementation of this project and provides mitigation measures, as necessary, to reduce identified impacts to a level below significance. The

Table 5.1-2 (Continued)

Policy	Project Consistency
	Planning Commission and City Council will review the EIR to ensure adequate protection of cultural resources.
LU Policy 6.3: Use landscaping for screening, solar control, parking lot shade, and other beautification purposes throughout the City.	THE VILLAGES OF SAN JACINTO Specific Plan includes an extensive set of landscape design guidelines to ensure the community is developed with a cohesive theme that weaves together the residential, recreational, and other components of the community. The landscape design guidelines include provisions for streetscapes, edge conditions between uses, monumentation and community walls and fences, as well as provisions to screen incompatible uses. In addition, the Specific Plan includes guidelines for site design and landscaping and provides solar control and maximizes energy efficiency (see Specific Plan Section V.E., *Energy Efficiency Guidelines*. Therefore, THE VILLAGES OF SAN JACINTO Specific Plan is consistent with this General Plan policy.
LU Policy 6.4: Encourage outdoor gathering spaces, such as mini-parks and plazas that encourage social interaction and also enhance the visual character of the community.	The land use plan for THE VILLAGES OF SAN JACINTO includes numerous outdoor gathering spaces, including public community parks, private paseos, a private lake, and a private lake house and swim lagoon. These outdoor spaces will include passive and active recreational opportunities, picnic areas, BBQ pits, benches, tot lots, landscaping and other amenities that encourage social interaction (as described in Specific Plan Section V, *Design Guidelines*).
LU Policy 6.5: Encourage the use of project design features that reduce impacts to important and local regional environmental resources.	THE VILLAGES OF SAN JACINTO has been carefully planned to minimize impacts to important environmental resources. The drainage plan for the project has been designed to minimize water quality impacts and maximize protection from flood flows; the landscape plan has been designed to maximize water conservation. In addition, the lake on-site will contain recycled water and will be used to irrigate on-site landscaping, further reducing the impact on the water supply. The EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan includes a detailed evaluation of the project's potential to result in significant direct and/or indirect impact to the environment impacts. The EIR includes mitigation measures that will be required in order to reduce impacts to below a level of significance, when feasible. The Planning Commission and City Council will review the EIR to ensure adequate protection of environmental resources. Accordingly, THE VILLAGES OF SAN JACINTO is consistent with this General Plan policy.
LU Policy 6.10: Promote the maintenance of private and public properties to enhance the visual appearance of the community.	Section IV, Specific Plan, of THE VILLAGES OF SAN JACINTO Specific Plan includes a comprehensive maintenance plan (Table IV-4) and a list of potential maintenance entities for various public and private amenities within the community (Table IV-5). It is anticipated that maintenance responsibilities for common public facilities will be divided between the Master Homeowners' Association, Neighborhood Associations, and the City's Landscaping, Lighting and Park District #2 (LLPD#2), and the Riverside County Flood Control District. Final decisions regarding maintenance entities shall be made at a future stage of project design review and in concert with City departments. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.

Table 5.1-2 (Continued)

Policy	Project Consistency
Land Use Policy Goal: Economic Development *– Capitalize on the City's many economic development opportunities to promote a strong and economically health community.*	
LU Policy 7.1: Promote the economic stability of the San Jacinto Area by encouraging diversification of the City's commercial and industrial base by: Encouraging a variety of industries to locate in San Jacinto, including retail, high technology, manufacturing, and professional services in order to promote the development of a mixed economic base; and Encourage the expansion of existing businesses if possible and extending efforts at business retention.	The project includes approximately 26.3 acres of mixed-use and 22.7 acres of commercial land uses. The Specific Plan allows these areas to be developed with a variety of uses, including but not limited to retail commercial, entertainment, restaurant, municipal, professional service, and office park land uses. Development of these uses on-site will positively contribute to the economic stability of the San Jacinto Area. As such, THE VILLAGES OF SAN JACINTO is consistent with, and results in the implementation of, this General Plan policy.
Land Use Policy Goal: Community Design *– Encourage thoughtful community design that enhances San Jacinto's quality of life.*	
LU Policy 9.1: Ensure new development is compatible with its natural surroundings and the built environment in terms of architecture, scale, grading, and massing.	The design theme of THE VILLAGES OF SAN JACINTO is based on a contemporary interpretation of historical southern California architectural styles and features a relaxed landscape feel reminiscent of rural communities. The Specific Plan also includes architectural design standards for site planning, architectural theme and details, building mass and scale, materials and color to create a high-quality living environment. The implementation of this design theme and development standards will ensure that land uses provided by this Specific Plan complement the natural surroundings as well as the growth and development that is anticipated to occur.
LU Policy 9.3: Support pedestrian-friendly and pedestrian-scaled development that encourages more social interaction and less automobile use, including mixed use and clustered developments.	THE VILLAGES OF SAN JACINTO includes an extensive sidewalk, trail, and paseo system connecting residences with the commercial areas, high school site, mixed-use area, and recreational amenities, thereby encouraging pedestrian activity. Furthermore, the community's mixed-use area may include public, professional offices, entertainment uses, churches, libraries emergency services, theatres and public plazas. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
LU Policy 9.4: Provide public spaces and activity centers that encourage involvement, physical activity, and community pride.	THE VILLAGES OF SAN JACINTO provides for parks to encourage active recreation, and a system of trails and paseos is provided to encourage pedestrian and bicycle activity within the community. In addition, the community also features a lake and a lake house and swim lagoon, which will serve as a focal point of the community activities and source of community identification. The planned high school in Planning Area 14 is another element of the community that may be a source of community activities. Accordingly, the project would be consistent with this General Plan policy.
LU Policy 9.5: Support "green" and "sustainable" developments that respect and conserve the region's important resources.	Section V, *Design Guidelines*, includes a plant palette that requires the use of drought-tolerant plants and recycled water for irrigation. Furthermore, Section V, *Design Guidelines*, includes detailed Energy Efficiency Guidelines that identify elements in the site planning, design and construction phases of this Specific Plan that can and should be implemented to achieve a standard of energy efficient performance which is desirable for the homeowner, the landlord, the environment, and builder/developer. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.

Table 5.1-2 (Continued)

Policy	Project Consistency
LU Policy 9.6: Require the use and maintenance of extensive landscaping in new development and redevelopment projects to beautify the surroundings, screen outdoor uses, provide shade, establish pedestrian paths, buffer incompatible land uses, and provide visual interest.	Specific Plan Section V, *Design Guidelines*, includes a detailed description of the landscape design guidelines for the project, including streetscapes, monumentation, walls and fences. Implementation of the landscape design guidelines will provide visual interest throughout the community while uniting the various components of the community (i.e., residential uses, recreational uses, commercial uses) with a common design vocabulary. Specific Plan Section IV.8, *Comprehensive Maintenance Plan*, provides a comprehensive list of maintenance responsibilities for public and private entities to ensure that the community maintains a high level of quality. THE VILLAGES OF SAN JACINTO is consistent with, and results in the implementation of, this General Plan policy.
LU Policy 9.7: Encourage public art, such as murals, sculptures, creative street furniture, and fountains in new public and private developments.	THE VILLAGES OF SAN JACINTO Specific Plan provides for entry treatments and includes design criteria to encourage the creation of public gathering places with site amenities (which may include murals, sculptures, fountains, etc.). In addition, the project provides street furniture in accordance with City of San Jacinto requirements. As such, the project is consistent with this General Plan policy.
LU Policy 9.8: Develop and enforce development standards and design guidelines that provide clear yet flexible direction for achieving quality community design in new development and redevelopment projects throughout the community.	Section V, *Design Guidelines*, establishes standards to provide for high-quality development and to provide an aesthetically cohesive environment for THE VILLAGES OF SAN JACINTO community. The Landscaping Design Guidelines are comprised of key components such as, streetscapes, edge conditions between land uses, monumentation, community walls and fences, parks, and paseos. These guidelines also present requirements relating to the appropriate and water conserving plant palette and ensure that they are compatible with the community design theme. The Architectural Design Guidelines are intended to provide a basis for decisions regarding the structural environment to be built. The architectural design guidelines also include standards for site planning and home layout, as well as for commercial and mixed use development. The guidelines identified in Specific Plan Section V provide developers with clear, yet flexible, guidelines to provide quality development on-site.
Community Services and Facilities Element: The Community Services and Facilities Element addresses the services and infrastructure needed to serve the community. Much of the City of San Jacinto is undeveloped or under agricultural production and is not adequately served by existing community services and facilities to meet the needs of future development. As a result, most future development in the City requires the expansion of services and facilities to meet this increase in demand. Planning for this future increase in demand will ensure that the community service and facility need of future residents are met, while avoiding adverse impacts to the existing community.	
Community Services and Facilities Goal: Law Enforcement *– Provide for the protection of San Jacinto residents and businesses through maintenance of an adequate force of police officers, appropriate physical planning of new development, and a high level of public involvement in crime prevention.*	
CS&F Policy 1.1: Maintain adequate levels of law enforcement service.	The project master developer will be required to pay sufficient development impact fees to cover the project's share of community services and facilities, including police protection services. In addition, one or more Home Owners' Associations will be established for the community. The Home Owners' Association(s) may establish a
CS&F Policy 1.2: Improve law enforcement services through increased cooperation with County, State and Federal law enforcement agencies.	

Table 5.1-2 (Continued)

Policy	Project Consistency
CS&F Policy 1.3: Provide sufficient staffing and facilities to minimize response times to emergency situations.	community involvement crime prevention program (for example, a neighborhood watch program). THE VILLAGES OF SAN JACINTO is therefore consistent with these General Plan policies.
CS&F Policy 1.4: Continue collaboration with other jurisdictions in providing back-up services, equipment, and personnel, when feasible and necessary.	
CS&F Policy 1.5: Expand community outreach programs and promote community involvement in crime prevention.	
CS&F Policy 1.6: Require design features in new development to reduce potential for crime.	THE VILLAGES OF SAN JACINTO Section V, *Design Guidelines*, includes numerous design features that promote safety and reduce criminal activity. These design features include special considerations for the siting of parks, paseos and cul-de-sacs, the use of locked key or security card access gates at paseo/park connections, the lighting of house numbers, the orientation of alley-loaded or rear-load homes towards the adjacent paseo areas, security lighting and sizing of trails within paseos to allow police patrol, and more. Parks have been oriented to provide for "eyes on the street" by surrounding residences and easy police patrol and emergency vehicle access from adjacent streets. Furthermore, homes shall be oriented to face park areas, and to fencing material shall be carefully selected to ensure maximum visibility of the parks from public areas. Common parking areas within the commercial, mixed-use, park, and school areas shall be well-lit for security purposes. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Community Services and Facilities Goal: Fire Protection *– Work with RCOFD to provide a sufficient level of fire protection.*	
CS&F Policy 2.1: Work closely with RCOFD in determining and meeting community needs for fire protection services, facilities, and personnel.	The project master developer will be required to pay sufficient development impact fees to cover the project's share of community services and facilities, including fire protection services. Payment of these fees will offset the incremental increase in demand for fire protection services/facilities that will result from the project. In addition the RCOFD is a reviewing agency of this Specific Plan and subsequent implementing actions will be required to comply with all applicable RCOFD site design standards and regulations. Accordingly, THE VILLAGES OF SAN JACINTO is consistent with these General Plan policies.
CS&F Policy 2.2: Periodically evaluate the level of fire protection service to ensure that San Jacinto has appropriate levels of fire protection service to maintain the adopted level of service standards.	
CS&F Policy 2.4: Plan for the location of convenient and adequate fire stations to serve the existing and future residents of San Jacinto.	
CS&F Policy 2.3: Enforce the continued maintenance of private property, such as weed abatement, to reduce the incidents of fire hazards.	Private property within the community shall be maintained by the HOA or the individual homeowners. Furthermore, Section IV, *Specific Plan*, of THE VILLAGES OF SAN JACINTO Specific Plan establishes comprehensive maintenance plan (Table IV-4) and a list of potential maintenance entities for various public and private amenities within the community (Table IV-5). THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 2.5: Provide and maintain adequate infrastructure, including fire hydrants, fire stations, fire flows, and access points, that meet RCOFD's standards.	The project circulation plan provides adequate primary and secondary emergency access. In addition, the master water plan has been designed to ensure that future development of the site can accommodate applicable infrastructure requirements (including minimum fire flows). Fire protection infrastructure (e.g., fire hydrants) and fire

Table 5.1-2 (Continued)

Policy	Project Consistency
	protection design features (e.g., fire lanes) will be identified on future site plans and/or conditional use permits and are subject to review and approval by the City of San Jacinto. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Community Services and Facilities Goal: Public Education *– San Jacinto is located within the San Jacinto Unified School District (SJUSD) and the Hemet Unified School District (HUSD). Mount San Jacinto College (MSJC) is also located within the City. The City must closely coordinate with SJUSD, HUSD, and MSJC to ensure a sufficient level of public education is available to the community.*	
CS&F Policy 3.2: Promote the development and siting of quality educational facilities to meet the needs of future residents through increased cooperation between the City and school districts.	THE VILLAGES OF SAN JACINTO provides a 69.1-acre site for use as a High School campus by the San Jacinto Unified School District in Planning Area 14 and allows for possible expansion of the High School campus into Planning Area 19. Additionally, THE VILLAGES OF SAN JACINTO Specific Plan permits the development of Planning Areas 12 and 13 as school sites. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 3.5: Minimize the impacts of schools on adjacent properties.	Section V, *Design Guidelines*, of THE VILLAGES OF SAN JACINTO Specific Plan includes design guidelines for transitions between various types of land uses, including residential and public facility/educational uses. The intent of these guidelines are to anticipate and eliminate possible conflicts between land uses. Future development of the site will be required to be consistent with the design guidelines for land use transitions, thus ensuring that impacts of schools on adjacent properties are minimized.
Community Services and Facilities Goal: Water Service *– Work with local, regional, and State water agencies to provide sufficient levels of water service.*	
CS&F Policy 4.1: Provide sufficient levels of water service to meet the water needs of the community through the orderly extension of infrastructure and provision of adequate water supplies. CS&F Policy 4.2: Work closely with the Eastern Municipal Water District and the Lake Hemet Municipal Water District to maintain an adequate level of water service in the planning area.	The Eastern Municipal Water District (EMWD) has prepared a Water Supply Assessment report for the project. The report concludes that EMWD is projected to have adequate water supply to service the project. In addition, the project would minimize its demand for water supplies through the extensive use of recycled water for landscape irrigation; the use of drought-tolerant, native landscape materials; the recommended use of water-efficient faucets, toilets, and shower heads; and the recommended use of water-efficient, zoned irrigation systems. A detailed discussion of the project's impacts to the local water supply is found in the EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan. The master water plan for the community provides a water distribution system that is based on EMWD requirements and will adequately serve the community in a manner consistent with the EMWD Northwest San Jacinto Area Master Plan. Based on the foregoing, THE VILLAGES OF SAN JACINTO is consistent with these General Plan policies.
CS&F Policy 4.3: Encourage water conservation as a means of preserving water resources.	As shown in Figure IV-5, *Master Water Plan*, recycled water pipelines will be installed concurrently with domestic lines. The water from this recycled water system will be used to manage the lake and for irrigation purposes. In addition, Section V, *Design Guidelines*, includes a plant palette that requires the use of drought-tolerant plants. Furthermore, Section V, *Design Guidelines*, includes detailed Energy Efficiency

Table 5.1-2 (Continued)

Policy	Project Consistency
	Guidelines, including water conservation measures that identify elements in the site planning, design and construction phases of this Specific Plan that can and should be implemented to achieve a standard of energy efficient performance which is desirable for the homeowner, the landlord, the environment, and builder/developer. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Community Services and Facilities Goal: Sewer Service *– Work with the Eastern Municipal Water District to provide a wastewater collection, treatment, and disposal system to adequately serve existing and future development in San Jacinto.*	
CS&F Policy 5.3: Ensure compatible development occurs surrounding the San Jacinto Waste Water Treatment Facility.	THE VILLAGES OF SAN JACINTO has been carefully designed and planned to ensure that development on-site is compatible with the San Jacinto Waste Water Treatment Facility, which is located immediately adjacent to the southern project boundary. The mixed-use and commercial land uses (Planning Areas 11 and 12) buffer the community from the Waste Water Treatment Facility and complement the residential and recreational components of the community. In addition, three public parks (Planning Areas 15B, 15C, and 15D) provide an additional buffer between the off-site Waste Water Treatment Facility and planned residential uses. Accordingly, implementation of THE VILLAGES OF SAN JACINTO Specific Plan would ensure that compatible development occurs adjacent to the Waste Water Treatment Facility and would ensure that community residents are not exposed to adverse edge-effects. As such, the project is consistent with this General Plan policy.
CS&F Policy 5.4: Encourage water conservation as a means of reducing sewage generation.	THE VILLAGES OF SAN JACINTO encourages the use of water-efficient faucets, high-efficiency toilets, and water conserving shower heads to maximize water conservation and reduce sewage generation. The project encourages the use of a pool filtration system with a zero water backwash system to reduce the need to drain the pool for regular maintenance purposes. In addition, as described in Section V, Design Guidelines, the plant palette for the project has been designed to feature native or naturalized, drought-resistant plant material, and the conceptual landscape design will minimize the use of turf. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 5.5: Expand the use of reclaimed water.	As shown in Figure IV-5, *Master Water Plan*, recycled water pipelines will be installed concurrently with domestic lines. The water from this recycled water system will be used to maintain the lake volume and provide water storage for irrigation purposes. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 5.6: To reduce potential negative impacts to groundwater, minimize the use of septic systems.	THE VILLAGES OF SAN JACINTO Specific Plan does not provide for the use of septic systems on site. Wastewater generated by the community will conveyed via a sanitary sewer system to existing EMWD sewer facilities, as described in Specific Plan Section 4.B, and conceptually illustrated in Figure IV-6, *Master Sewer Plan*.
Community Services and Facilities Goal: Power *– Work effectively with providers of natural gas and electricity to provide sufficient levels of these services.*	
CS&F Policy 6.1: Work closely with local service providers in determining and meeting the needs of the community for energy.	Energy demands associated with the project are addressed through long-range planning by energy purveyors and can be accommodated as they occur. Therefore, project implementation is not anticipated to result in adverse impacts related to energy demand. Required electrical transmission lines on-site would be installed by the responsible energy
CS&F Policy 6.4: Minimize the visual and environmental impacts of the development and	

Table 5.1-2 (Continued)

Policy	Project Consistency
operation of energy facilities on the community.	utility. THE VILLAGES OF SAN JACINTO is consistent with these policies of the General Plan.
Community Services and Facilities Goal: Communications *– Work effectively with providers of communications to provide sufficient levels of these services.*	
CS&F Policy 7.2: Encourage all new development to provide the technology to support multiple telecommunications facilities and providers such as multi-media products, wireless technologies, and satellite communications.	THE VILLAGES OF SAN JACINTO will accommodate telecommunications as necessary and required to service the project site. If feasible, the master developer will work with an internet provider to establish a project-wide wifi network. THE VILLAGES OF SAN JACINTO is, therefore, consistent with the San Jacinto General Plan.
Community Services and Facilities Goal: Flood Control *– Work effectively with providers of flood control services and facilities to provide and maintain sufficient levels of service.*	
CS&F Policy 8.1: Ensure that adequate flood control facilities are provided to protect the lives and property of San Jacinto's residents.	As described in THE VILLAGES OF SAN JACINTO EIR, the community provides for adequate flood control facilities. Furthermore, a portion of the regional area drainage plan, the San Jacinto Valley Master Drainage Plan, traverses THE VILLAGES OF SAN JACINTO community along its western boundary. The community design acknowledges and accommodates these regional drainage facilities, utilizing a series of storm water channels, water quality control basins, and detention basins to collect and transport stormwater through the site. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Community Services and Facilities Goal: Waste Disposal *– Work effectively with providers of waste disposal to provide sufficient levels of these services.*	
CS&F Policy 9.1: Reduce the amount of solid waste requiring disposal at landfills.	Section V, *Design Guidelines*, includes detailed Energy Efficiency Guidelines that identify elements in the site planning, design and construction phases of this Specific Plan that can and should be implemented to achieve a standard of energy efficient performance which is desirable for the homeowner, the landlord, the environment, and builder/developer. Included within the Energy Efficiency Guidelines are specific recommendations to minimize the amount of landfill waste generated by the project, including the use of long-lasting construction products (for example, engineered lumber) and sustainable building materials. In addition, THE VILLAGES OF SAN JACINTO Specific Plan encourages the provisions of exterior storage areas for recyclables and adequate recycling containers in public areas, in addition to the establishment (by the HOA) of community compost sites for green waste. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Community Services and Facilities Goal: Recreation and Open Space *– Provide sufficient parks, recreational, and open space facilities.*	
CS&F Policy 10.1: Work with the Valley-Wide Recreation and Park District and other organizations to provide active and passive parks, recreational, and open space facilities that meet the needs of all segments of the community.	The community's maximum potential buildout of 1,329 dwelling units would result in approximately 4,000 community residents (at a rate of 3.01 persons per household). Per the requirements of the Quimby Act, the community would require approximately 20 acres of active parkland. THE VILLAGES OF SAN JACINTO Specific Plan exceeds this requirement by providing an extensive paseo and trail system and 40.8 acres of active public park facilities (Planning Area 15B, 15C, and 15D). In addition to the public parks, paseos, and trails, the community includes a 1.0-acre private neighborhood park (Planning Area 15A), a 1.2-acre private neighborhood park (Planning Area 15E), and a private 5.1-acre Lake

Table 5.1-2 (Continued)

Policy	Project Consistency
	House and Swim Lagoon. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 10.2: Cooperate with private developers and public agencies to create a network of equestrian, biking, and hiking trails that link to adjacent regional and local trails networks.	THE VILLAGES OF SAN JACINTO links the residential, commercial, recreational, mixed-use, and school land uses via a 9.6-acre system of paseos, which connects to city sidewalks. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 10.3: Use flood control facilities for passive recreational activities when appropriate.	Flood control facilities, including drainage channels and detention basins, have been incorporated into the design of the project (Planning Areas 18A-18D). The flood control facilities provided on-site are not considered appropriate for recreational activities. As such, THE VILLAGES OF SAN JACINTO is consistent with this General Plan policy.
CS&F Policy 10.4: Encourage the joint use of City and other public agency facilities for recreational purposes, education, and flood control whenever feasible.	THE VILLAGES OF SAN JACINTO provides for a high school campus and a mixed-use area (which may accommodate public/municipal/ institutional land uses). The distribution of these land uses adjacent to recreational and residential uses promotes the joint use of public facilities.
CS&F Policy 10.5: When feasible, use less developable or undevelopable lands, including utility corridors, fault zones, channels, and easements for passive and active recreational uses that have minimal potential for impacts on the environment.	The project site contains a portion of the Casa-Loma segment of the San Jacinto fault zone project. The fault segment and the surrounding fault zone buffer are inappropriate for development with residential uses or habitable structures. THE VILLAGES OF SAN JACINTO utilizes a majority of the fault zone area for active and passive recreational uses, flood control facilities, and internal circulation – uses that have a minimal potential for impacts on the environment or residents/visitors of the site. Accordingly, the project is consistent with this General Plan policy.
CS&F Policy 10.6: Encourage the development of private recreational facilities to expand recreational opportunities of the City's residents.	THE VILLAGES OF SAN JACINTO includes a variety of public and private recreational amenities. In addition to the 40.8 acres of public parks and an extensive paseos and trails system, the community includes a 1.0-acre private neighborhood park (Planning Area 15A), a 1.2-acre private neighborhood park (Planning Area 15E), and a 5.1-acre Lake House and Swim Lagoon. In addition, the uses permitted in Planning Area 12 include private recreation such as skating rinks, health clubs, etc. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
CS&F Policy 10.7: Encourage neighborhood groups, organizations, clubs and businesses to take a greater interest and financial responsibility in the improvement of the park and recreation system in the City.	THE VILLAGES OF SAN JACINTO Specific Plan provides 40.8 acres of active public park facilities (Planning Area 15B, 15C, and 15D). In addition to the public parks, the community includes a 1.0-acre private neighborhood park (Planning Area 15A), a 1.2-acre private neighborhood park (Planning Area 15E), a 5.1-acre Lake House and Swim Lagoon, and a paseo system. Private recreational facilities will be maintained by a Homeowners' Association and public facilities will be maintained by the City of San Jacinto, pursuant to the maintenance responsibility schedule established within this Specific Plan. THE VILLAGES OF SAN JACINTO is consistent with this policy.
CS&F Policy 10.8: Actively pursue all available sources of financing for parkland acquisition and maintenance.	

Table 5.1-2 (Continued)

Policy	Project Consistency
Circulation Element: The City of San Jacinto is served by a diverse circulation network consisting of roadways, rail service and trails. Convenient access to the community has been provided for many years by a combination of regional and local roadways. The Circulation Element guides the continued development and improvement of the circulation system to support existing and planned development, while the Land Use Element identifies the City's existing and planned development pattern. The development of additional land in the future will increase the demand for local and regional roadway improvements and construction. The Circulation Element also establishes acceptable roadway service levels and identifies improvements to maintain the service levels. The use of other modes of transportation, such as transit, walking and bicycling is promoted to reduce the demand on the circulation system and to improve air quality.	
Circulation Goal: Local Circulation System *– Provide for the protection of San Jacinto residents and businesses through maintenance of an adequate force of police officers, appropriate physical planning of new development, and a high level of public involvement in crime prevention.*	
C Policy 1.1: Provide a balanced circulation system that ensures the safe and efficient movement of people and goods throughout the City. C Policy 1.2: Improve the San Jacinto circulation system to desired standards in concert with land development to maintain sufficient levels of service.	THE VILLAGES OF SAN JACINTO Specific Plan includes a roadway network which provides safe and efficient vehicular and pedestrian circulation to individual planning areas and land uses. The Specific Plan includes full- and half-width improvements to the following General Plan Circulation Element roadway segments on-site: Sanderson Avenue, De Anza Drive, Bridge Street, Odell Avenue, Cawston Avenue, and Ramona Boulevard. In addition, the project provides for the construction of on-site local roads. All roadways improvements will be constructed to meet City of San Jacinto standards. The community's Circulation Plan, conceptually illustrated on Figure IV-2, *Project Circulation Plan*. The EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan evaluates traffic and circulation impacts that may occur upon implementation of this project and provides mitigation measures to reduce identified impacts to a level below significance, when feasible. The Planning Commission and City Council will review the EIR to ensure adequate provision of circulation facilities. Therefore, THE VILLAGES OF SAN JACINTO Specific Plan is consistent with, and results in the implementation of, this policy of the General Plan.
C Policy 1.6: Require new development to provide roadway, sidewalk, and median improvements that enhance the visual character of the roadway system and encourage pedestrian and bicycle safety.	THE VILLAGES OF SAN JACINTO is consistent with this policy and implementation program because the community includes a Circulation Plan that allows traffic to move efficiently on-site and off-site. As described in THE VILLAGES OF SAN JACINTO EIR, implementation of the proposed Circulation Plan would result in an efficient and safe roadway system for vehicles, pedestrians, and bicyclists. The Master Developer for THE VILLAGES OF SAN JACINTO is required to provide roadway, sidewalk, landscaped parkways, and raised or landscaped median improvements to internal project roadways and project frontage roads in accordance to the traffic study prepared by Urban Crossroads. Furthermore, Specific Plan Section V, *Design Guidelines*, includes landscape guidelines that serve to ensure the aesthetic and cohesive appearance of the community's streetscapes. An extensive trails and paseo system is also included in THE VILLAGES OF SAN JACINTO. Furthermore, THE VILLAGES OF SAN JACINTO Circulation Plan is consistent with the circulation requirements and roadway configurations included in the adopted General Plan. THE VILLAGES OF SAN JACINTO is therefore is consistent with this policy.

Table 5.1-2 (Continued)

Policy	Project Consistency
C Policy 1.7: Encourage the provision of traffic calming measures in new residential areas and planned developments.	As described in Specific Plan Section IV.2, *Circulation Plan*, THE VILLAGES OF SAN JACINTO traffic calming measures may be installed along major pedestrian corridors within the community, Cawston Avenue between De Anza Drive and Ramona Boulevard (if determined to be necessary and appropriate by the project traffic engineer and the City). These traffic calming measures will promote safe pedestrian circulation through the site and will ensure consistency with this General Plan policy.
Circulation Goal: Alternative Modes of Travel *– Promote the increased use of public and multi-modal transportation, and provide adequate facilities for these modes of transportation.*	
C Policy 4.1: Require developers to incorporate facilities for public and other alternative modes of transportation, such as park-and-ride lots, bicycle and pedestrian trails, bicycle racks, and bus turnouts in the design of future developments.	THE VILLAGES OF SAN JACINTO encourages alternative modes of transportation through an extensive trails, paseo, and sidewalk system. Furthermore, park and ride lots may be accommodated within Planning Area 11 (Commercial) of Planning Area 12 (Mixed-Use), and Sanderson Avenue is a bus route. Any amenities for public transportation, (such as bus benches or turn-outs) would be incorporated into the design of the project at the tentative map stage as directed by the City of San Jacinto. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
C Policy 4.2: Incorporate design features such as bus turnouts, bicycle racks and park-and-ride lots into public improvement projects that promote and support the use of public and alternative modes of transportation.	
C Policy 4.3: Link Community Commercial development, employment centers, public facilities, and community parks and open spaces to the alternative transportation system, wherever feasible.	THE VILLAGES OF SAN JACINTO provides an extensive, interconnected circulation system that links residential, educational, recreational, mixed-use and commercial land uses and promotes pedestrian and bicycle travel via trails, paseos, and sidewalks. The project is therefore consistent, and results in the implementation of, these policies.
C Policy 4.4: Require Specific Plans and Planned Unit Developments to include well-developed and funded alternative transportation features.	
Circulation Goal: Trails System *– Provide an extensive and regionally linked public bicycle, pedestrian, and equestrian trails system.*	
C Policy 5.1: Provide and maintain an extensive trails network that supports bicycles, pedestrians and horses and is linked to the trails systems of adjacent jurisdictions.	As illustrated in Figure V-29, *Conceptual Trails and Parks Plan*, the project provides an extensive system of sidewalks, trails, and paseos that link the residential, educational, recreational, mixed-use and commercial components of the community. The sidewalks, trails, and paseos have been designed to accommodate pedestrian and bicycle use. THE VILLAGES OF SAN JACINTO is consistent with this policy.
C Policy 5.2: Link major activity centers, residential neighborhoods, schools, shopping centers and employment centers through bicycle, equestrian and pedestrian trails.	
C Policy 5.3: Encourage the use of open space and utility easements for bicycle and pedestrian trails, where feasible.	
C Policy 5.4: Require Specific Plans and Planned Unit Developments to include well-developed and designed trails that link to adjacent existing or planned local and/or regional trails.	

Table 5.1-2 (Continued)

Policy	Project Consistency
Circulation Goal: Transportation Demand Management *– Create transportation management strategies to comply with the County Congestion Management Plan.*	
C Policy 6.1: Create and implement transportation demand and congestion management mitigation measures in areas experiencing high levels of congestion.	The EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan evaluates the project's consistency with the Congestion Management Plan and establishes mitigation measures (as necessary) to reduce identified impacts to below a level of significance (as feasible). The Planning Commission and City Council will review the EIR to ensure adequate provision of circulation facilities and future development will be required to comply with the mitigation measures established in the EIR. As such, THE VILLAGES OF SAN JACINTO is consistent with these General Plan policies.
C Policy 6.2: Review development proposals for compliance with the Congestion Management Plan.	
C Policy 6.3: Require developers to assist with improvements to the circulation system that will minimize congestion related to their projects.	THE VILLAGES OF SAN JACINTO is consistent with this policy and implementation program because the project includes street design which allows traffic to move efficiently on-site and off-site. As part of implementation of the Specific Plan, the Master Developer is responsible for constructing full-width improvements to internal roadways, including Street "A," Street "B," Street "C," De Anza Drive, and portions of Cawston Avenue. The Master Developer is also responsible for constructing half-width improvements to community frontage roads, including Ramona Boulevard, Sanderson Avenue (from Ramona Boulevard to the southern community boundary), O'Dell Avenue, and portions of Cawston Avenue. A traffic study was prepared by Urban Crossroads, which provides recommendations for improvements. As described in THE VILLAGES OF SAN JACINTO EIR, implementation of the proposed Circulation Plan would result in an efficient and safe roadway system.
Resource Management Element: The San Jacinto Resource Management Element meets the State requirements for the Conservation ands Open Space Elements as defined in Sections 65302(d) and 65301(e) of the Government Code, respectively. According to these requirements, the Conservation Element must contain goals and policies to protect and maintain natural resources such as water, soils, wildlife and minerals, and prevent wasteful resource exploitation, degradation and destruction. The Open Space Element must contain goals and policies to manage open space areas including undeveloped lands and environmentally constrained areas. Specifically, the Open Space Element must address several open space categories such as those used for the preservation of natural resources and managed production of resources, as well as open space maintained for public health and safety reasons. This last category of open space is addressed in more detail in the Public Safety Element. Although briefly mentioned in this Element, the Community Services and Facilities Element provides a detailed description of the parks, trails and recreational facilities in San Jacinto.	
Resource Management Goal: Natural Resources *– Conserve and protect natural resources.*	
RM Policy 1.2: Work closely with the County of Riverside to implement the Multiple Species Habitat Conservation Plan that meets the goal of preservation, but allows for economic development of the community.	The Specific Plan is consistent with this policy. As stated in Section 5.4, Biological Resources, the project is consistent with the Western Riverside County MSHCP, and will not interfere with the City, other jurisdictions or the Western Riverside County Regional Conservation Authority's ability to implement the MSHCP. .
RM Policy 1.7: Encourage the planting of native trees and drought tolerant vegetation.	THE VILLAGES OF SAN JACINTO Section V, *Design Guidelines*, includes the community's plant palette. This palette includes California native and drought tolerant plants which compatible with the San Jacinto area climate, and which reflect the overall theme of THE VILLAGES OF SAN JACINTO Specific Plan, and are drought tolerant. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.

Table 5.1-2 (Continued)

Policy	Project Consistency
Resource Management Goal: Water Resources *– Conserve and protect surface water, ground water and imported water resources.*	
RM Policy 2.1: Coordinate water quality and supply programs with responsible water agencies.	A Waster Supply Assessment report has been prepared for the project by EMWD. Based on the findings of the Water Supply Assessment, EMWD projects that they will have adequate supply to serve the project. Accordingly, THE VILLAGES OF SAN JACINTO is not anticipated to adversely affect the local water supply and would be consistent with this General Plan policy.
RM Policy 2.2: Ensure the placement of infrastructure for water supply and treatment to support development in areas designated for urban growth.	THE VILLAGES OF SAN JACINTO Section IV, *Specific Plan*, describes the community's Master Water Plan. Based on EMWD requirements, the recommended water distribution system to provide services to THE VILLAGES OF SAN JACINTO is shown on Figure IV-5, *Master Water Plan*. Prior to final engineering and construction of all domestic and recycled water lines, a Plan of Service Study will be completed in accordance with EMWD standards to ensure the aforementioned pipe sizes and any additional infrastructure facilities as required to serve this project are in conformance with EMWD's Master Plan. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
RM Policy 2.3: Ensure sufficient water capacity is available for new development.	
RM Policy 2.4: Protect the aquifer and encourage ground water recharge.	As discussed in the EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan, implementation of the project is not anticipated to result in any adverse impacts related to local groundwater resources or groundwater recharge. The project is therefore consistent with these policies.
RM Policy 2.5: Cooperate with federal, State, and county governments and other agencies on the maintenance and improvement of the quality and quantity of local and regional groundwater resources.	
RM Policy 2.6: Promote water conservation by encouraging the use of reclaimed water, promoting the use of water efficient landscaping and requiring development to utilize water conservation measures such as water efficient plumbing and xeriscape landscaping.	As shown in Figure IV-5, *Master Water Plan*, recycled water pipelines will be installed concurrently with domestic lines. The water from this recycled water system will be used to restore the lake and for irrigation purposes. In addition, Section V, Design Guidelines, includes a plant palette that requires the use of drought-tolerant plants. Furthermore, Section V, *Design Guidelines*, includes detailed Energy Efficiency Guidelines that identify elements in the site planning, design and construction phases of this Specific Plan that can and should be implemented to achieve a standard of energy efficient performance which is desirable for the homeowner, the landlord, the environment, and builder/developer. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
RM Policy 2.10: Expand the use of reclaimed water, whenever feasible.	
Resource Management Goal: Agricultural Resources *– Where appropriate, conserve agricultural lands and avoid the premature conversion of agricultural land to urban uses.*	
RM Policy 5.2: Foster development techniques and agricultural practices that minimize the incompatibility of agricultural activities with urban development while maximizing agricultural production.	THE VILLAGES OF SAN JACINTO has been designed to minimize impacts on adjacent land uses, including agricultural uses. Development of the site is expected to follow the phasing plan depicted on Figure IV-9, *Conceptual Phasing Plan*. Conformance with the phasing plan will further minimize incompatibility with adjacent residential uses.
RM Policy 5.3: Protect agricultural lands from premature conversion to urban uses.	The project site is planned for residential and commercial development as shown in the General Plan, and is neither protected by an agricultural overlay zone nor located in an agricultural preserve. Implementation of THE VILLAGES OF SAN JACINTO will develop the site in accordance with the City's overall vision for the area as identified in the General Plan and will

Table 5.1-2 (Continued)

Policy	Project Consistency
	not result in the premature conversion of agricultural lands to urban uses.
Resource Management Goal: Air Quality *– Improve Air Quality*	
RM Policy 6.3: Achieve a greater balance between jobs and housing in San Jacinto.	THE VILLAGES OF SAN JACINTO combines housing, employment, and retail activities on one site. The community contains 1,329 residential units, 22.7 acres of commercial land uses, and 26.3 acres of mixed-use land uses. This balance of land uses within the community would contribute towards a greater balance between jobs and housing within the City. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
RM Policy 6.8: In appropriate areas, allow mixed use development that combines housing, employment, and retail activities on one site.	
RM Policy 6.5: Promote energy conservation and recycling by the public and private sectors.	Section V, *Design Guidelines*, includes detailed Energy Efficiency Guidelines that identify elements in the site planning, design and construction phases of this Specific Plan that can and should be implemented to achieve a standard of energy efficient performance which is desirable for the homeowner, the landlord, the environment, and builder/developer. Included within the Energy Efficiency Guidelines are specific recommendations to maximize energy efficiency and water quality/conservation (i.e., green building standards), minimize landfill waste (by providing adequate recycling areas/containers, for example), and encouraging pedestrian activity and use of bike paths.
RM Policy 6.10: Support sustainable development patterns and green building standards that reduce energy use.	
RM Policy 6.6: Encourage alternative modes of transportation to reduce vehicular emissions and improve air quality.	THE VILLAGES OF SAN JACINTO includes an extensive trails, paseo, and sidewalk system that encourages alternative modes of transportation between the residences, school, commercial areas, recreational amenities, and mixed-use area. Use of the alternative circulation options by pedestrians and bicycles will reduce vehicular emissions and will improve local air quality. THE VILLAGES OF SAN JACINTO is therefore consistent with these policies.
RM Policy 6.7: Encourage pedestrian scale development and pedestrian friendly access to reduce vehicle emissions.	
Resource Management Goal: Energy Conservation *– Promote the conservation of energy.*	
RM Policy 7.1: Encourage the efficient use of energy resources.	Section V, *Design Guidelines*, includes detailed Energy Efficiency Guidelines that identify elements in the site planning, design and construction phases of this Specific Plan that can and should be implemented to achieve a standard of energy efficient performance which is desirable for the homeowner, the landlord, the environment, and builder/developer. The design recommendations have been categorized according to the following goals: 1) Maximize Energy Efficiency; 2) Maximize Water Quality and Conservation; 3) Minimize Landfill Waste; 4) Promote Health by Improving Indoor Air Quality; and 5) Encourage Pedestrian Activities and Use of Bike Paths. The use of energy efficient building materials, equipment, and design will reduce operating costs and contribute to the reduction in environmental impacts associated with air quality, hydrology, water quality, hazards, and utilities. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
RM Policy 7.3: Support the use of energy efficient building materials, equipment, and design in City facilities and infrastructure.	
Public Safety Element: The purpose of the Public Safety Element is to identify and address those features or characteristics existing in or near the City that represent a potential hazard to the citizens, structures, and infrastructure in the community. The Public Safety Element establishes policies to minimize the danger to residents, workers and visitors while identifying actions needed to manage crises such as earthquakes, fires and floods. Additionally, the Public Safety Element contains specific policies and programs to regulate existing and proposed development in hazard-prone areas. Emergency preparedness and evacuation routes are also addressed.	

Table 5.1-2 (Continued)

Policy	Project Consistency
Public Safety Goal: Natural Hazards *– Minimize the risk of injury and the loss of life and property related to geologic conditions, seismic activity, wildfires, and flooding.*	
PS Policy 1.1: Reduce the risk of impacts from geologic and seismic hazards by applying proper and up to date land use planning, development engineering, building construction, and retrofitting requirements.	The project site contains a portion of the Casa-Loma segment of the San Jacinto fault zone project. The fault segment and the surrounding fault zone buffer are inappropriate for development with residential uses or habitable structures. THE VILLAGES OF SAN JACINTO utilizes a majority of the fault zone area for active and passive recreational uses, flood control facilities, and internal circulation – uses that have a minimal potential for impacts on the environment or residents/visitors of the site. In addition, a geotechnical engineering report was prepared for the project and is discussed in the EIR that accompanies THE VILLAGES OF SAN JACINTO Specific Plan. Mandatory compliance with the design recommendations included within the project geotechnical report, State building code, and City of San Jacinto building requirements will ensure that adverse impacts related to geologic and seismic hazards will be reduced to the maximum feasible extent. Accordingly, implementation of the project is consistent with this General Plan policy.
PS Policy 1.2: Encourage landscaped open space uses for areas within identified fault zones, and prohibit residential development in these areas.	As described in the geotechnical report prepared by Leighton & Associates for THE VILLAGES OF SAN JACINTO EIR, a California Earthquake Fault Hazard Zone traverses several portions of the project. Based on analysis of the fault trace and disturbance zones, the report recommended structural setback limits from faults for residential development. These setback criteria were utilized during the design process, resulting in parks provided on the portions of the project where faults exist. THE VILLAGES OF SAN JACINTO is therefore is consistent with this policy.
PS Policy 1.5: Protect the community from flooding hazards by providing and maintaining flood control facilities and limiting development within the flood plain.	The northerly portion of the site is located within the 100-year floodplain. The drainage system (refer to Specific Plan Section IV.3, *Drainage Plan*) has been designed to convey and attenuate 100-year storm flows and provide flood protection for the site. A maintenance plan has been established in THE VILLAGES OF SAN JACINTO Specific Plan to ensure that on-site drainage facilities operate at maximum efficiency. A complete, detailed discussion of potential adverse impacts associated with 100-year storm flows is contained in the EIR accompanying this Specific Plan. As concluded in the EIR, with the incorporation of design measures and mitigation – as needed – implementation of the project will not result in substantial adverse impacts related to flood hazards.
Public Safety Goal: Human Activity Hazards *– Protect the community from hazards related to air pollution, dam inundation, hazardous materials, structural fires, ground transportation, and criminal activity.*	
PS Policy 2.6: Provide sufficient levels of police, fire, and emergency response service to reduce the risk of criminal activity.	Upon ultimate development of the site, the master developer of THE VILLAGES OF SAN JACINTO will be required to contribute development impact fees to cover its "fair share" cost of providing sufficient public services and facilities to the site, including fire protection, police protection, and emergency response service. The project is therefore consistent with this General Plan policy.

Table 5.1-2 (Continued)

Policy	Project Consistency
PS Policy 2.7: Ensure projects include design features that promote safety and reduce criminal activity.	THE VILLAGES OF SAN JACINTO Section V, Design Guidelines, includes numerous design features that promote safety and reduce criminal activity. These design features include special considerations for the siting of paseos and cul-de-sacs, the potential use of locked key or card gates at paseo/park connections, the lighting of house numbers, the orientation of alley-loaded or rear-load homes towards the adjacent paseo area, and more. Homes shall be oriented to face park areas, and to fencing material shall be careful selected to ensure maximum visibility of the park from public areas. Common parking areas within the commercial, mixed-use, park, and school areas shall be well-lit for security purposes. THE VILLAGES OF SAN JACINTO is therefore consistent with this policy.
Noise Element: The Noise Element addresses noise sources in the community and identifies ways to reduce the impacts of these noise sources. The Noise Element contains policies and programs to achieve and maintain noise levels compatible with various types of land uses. The Element identifies those land uses that are sensitive to noise and assures that noise-generating land use are located so that they do not impact those sensitive areas.	
Noise Goal: Noise and Land Use Planning *– Minimize the effects of noise through proper land use planning and development techniques.*	
N Policy1.1: Use the City's adopted noise/land use compatibility standards as a guide for future planning and development decisions.	THE VILLAGES OF SAN JACINTO incorporates several design elements to minimize noise impacts on sensitive receptors. A buffer is provided along Sanderson Avenue to minimize effects of traffic related noise on community residents, and on-site residential uses are buffered from the off-site Waste Water Treatment Facility and on-site mixed-use and commercial land uses. A noise analysis was conducted for THE VILLAGES OF SAN JACINTO and is summarized in the EIR accompanying this Specific Plan. As described in the EIR, this analysis evaluated potential noise impacts and provided mitigation to reduce levels to below the required CNEL for residential and non-residential land uses. With incorporation of these mitigation measures, no significant noise impacts will result upon implementation of THE VILLAGES OF SAN JACINTO, and the project is therefore consistent with this policy.
N Policy 1.2: Require noise control measures, such as berms, walls, and sound attenuating construction in areas of new development or rehabilitation.	
N Policy 1.3: When necessary, require buffer areas between noise sources and sensitive receptors.	
N Policy 1.4: Use creative techniques to mitigate potential noise incompatibilities, particularly in areas with a mixture of uses.	
Noise Goal: Transportation Related Noise *– Minimize the effects of transportation-related noise.*	
N Policy 2.1: Reduce transportation-related noise impacts to sensitive land uses through the use of noise control measures.	Where appropriate and necessary, THE VILLAGES OF SAN JACINTO provides buffers to minimize transportation-related noise impacts to sensitive land uses. In addition, the Specific Plan establishes planning and site design criteria that would result in the reduction of unwanted sound, to the maximum feasible extent. As described in detail in the EIR accompanying THE VILLAGES OF SAN JACINTO Specific Plan, a noise analysis was prepared for the project and provided mitigation to reduce levels to acceptable levels for sensitive uses. With mandatory compliance with these mitigation measures, no significant noise impacts will result upon implementation of THE VILLAGES OF SAN JACINTO, and the project is therefore consistent with this policy.
N Policy 2.2: Require sound-reduction design in development projects impacted by transportation-related noise, particularly along highways and major arterials.	

Table 5.1-2 (Continued)

Policy	Project Consistency
Housing Element: The Housing Element is a guide for housing within the City of San Jacinto. The Element provides an indication of the need for housing in the community in terms of affordability, availability, adequacy, and accessibility. The Element provides a strategy to address housing needs and identifies a series of specific housing programs to meet community needs. A detailed Housing Needs Assessment was prepared as part of the Housing Element update and serves as the technical background document to the Housing Element.	
Housing Goal: Provide Adequate Housing Sites *– Provide Adequate sites for new residential construction to meet the needs of all segments of the community without compromising the character of the City.*	
Housing Goal: Assist in Development of Housing *– Assist in the development of a housing supply which is affordable to all segments of the community.*	
H Policy 2.2: Provide adequate sites for a range of housing types and prices.	THE VILLAGES OF SAN JACINTO provides for a maximum of 1,329 homes in a variety of residential product types and styles and home sizes, including single-family homes on 4,000 s.f., 5,000 s.f., and 6,000 s.f. lots. This variety of residential housing products would appeal to homebuyers of different incomes and family sizes. These homes would be required to conform to the Design Guidelines included in Section V, ensuring the development of an attractive and safe community. THE VILLAGES OF SAN JACINTO is therefore is consistent with this policy.
H Policy 3.1: All for the development of housing affordable to all income groups by utilizing a variety of public and private efforts.	
H Policy 3.3: Promote the development of attractive and safe housing to meet community needs.	

City of San Jacinto Zoning Ordinance

The proposed Specific Plan includes a zone change for the property which would result in removing the existing C-2, R-1, R-2 (PUD) and R-3 zoning designations and application of a Specific Plan zoning designation to the entire site. The Villages of San Jacinto Specific Plan is generally consistent with the provisions of the General Plan and Zoning Ordinance which require initiation of Specific Plans for large-scale planned development. When adopted by legislative action, the Specific Plan document will serve both planning and regulatory functions for the proposed development. The intent of the Specific Plan zoning designation is to establish base zoning and applicable development standards specific to the defined project area to direct new growth and development in the process of implanting the General Plan. Adopted Specific Plan zoning and development standards will take precedence over the general standards of the Zoning Ordinance, except where the Specific Plan does not contain an applicable development standard, in which case the standards of the Zoning Ordinance apply.

Transportation Uniform Mitigation Fee 10-Year Strategic Plan (TUMF)

The WRCOG is a council which is comprised of members representing 15 local jurisdictions in western Riverside County, including the City of San Jacinto. The WRCOG functions to facilitate collective assessment of regional issues, such as traffic, by the various representative jurisdictions. In June 2004, WRCOG adopted the TUMF 10-Year Strategic Plan and Transportation Improvement Program Development Guidelines.

The purpose of the TUMF program is to establish a comprehensive funding source for infrastructure improvements to mitigate cumulative regional transportation impacts of new development on regional arterial highways (Parsons Brinckerhoff Quade & Douglas, Inc. 2004). The WRCOG has developed and implemented the TUMF program which requires new development to contribute revenues to partially fund improvements that will mitigate the transportation impacts of new developments. The proposed project would be required to contribute funds to the TUMF program based on the proposed number of residential dwelling and the applicable defined residential land use fee rate to ensure project compliance with the program. Additional discussion of the proposed project's compliance with applicable TUMF program requirements is included in *Section 5.9, Transportation, Circulation, and Access.*

South Coast Air Quality Management Plan

The South Coast Air Quality Management District Governing Board adopted the 2003 Air AQMP on August 1, 2003, and adopted the 2007 AQMP on June 1, 2007. The 2003 AQMP updates the attainment demonstration for the federal standards for O_3 and PM_{10}; replaces the 1997 attainment demonstration for the federal CO standard, provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992. The 2007 AQMP includes the same updates as the 2003 AQMP and also incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. As part of the 2007 AQMP, the SCAQMD request that EPA "bump up" the O_3 nonattainment status from severe to extreme to allow additional time for the SCAB to achieve attainment with the federal standard. The additional time would provide for implementation of state and federal measures that apply to sources over which the SCAQMD does not have control. The 2007 AQMP has been approved by CARB but is undergoing review by EPA.

The South Coast AQMP includes a number of policies and measures to achieve federal and state standards for healthful air quality in the region. The City's General Plan strives to comply with the AQMP by planning land uses in relation to circulation systems, promoting commercial and industrial land uses with convenient access to transportation corridors, and encouraging a balance of land uses that facilitates a complimentary association between jobs and housing. Additional discussion of potential project air quality impacts and applicable AQMP program requirements is included in *Section 5.10.*

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County MSHCP is a comprehensive, long-term habitat conservation program which addresses the needs of a variety of biological resources. The primary goal of the MSHCP is to develop and manage sustainable preserve areas within existing and expanding urban areas. The preserve areas and management efforts contained in the final MSHCP will affect land use planning in the entire City of San Jacinto area. *Section 5.4, Biological Resources*, provides an in depth discussion of the project's relationship and consistency with the Western Riverside County MSHCP.

Would the project introduce a land use that is incompatible with existing or proposed surrounding land uses?

The proposed project would potentially result in significant urban/rural land use conflicts between the planned residential, commercial and mixed use development and existing agricultural uses surrounding the project site. Such conflicts could include fertilizer and pesticides application drift into the proposed residential area, residential complaints about noise and dust resulting from site preparation activities associated with adjacent agricultural activities, and increased trespassing onto agricultural lands. Additional discussion of potential project impacts associated with rural agricultural and urban residential land use conflicts is included in *Section 5.3, Agricultural Resources.*

Development of the proposed Villages of San Jacinto Specific Plan area is located immediately adjacent to the Hemet/San Jacinto Regional Water Reclamation Facility currently owned and operated by the Eastern Municipal Water District (EMWD). New residential development located near industrial-type facilities such as the wastewater treatment plant can result in potentially significant land use conflicts derived from residential complaints about noise and odors generated from plant operations. However, the proposed Specific Plan would designate land directly adjacent to the wastewater treatment facility as commercial and mixed-use business park. The commercial and mixed-use areas are buffered from on-site residential land uses by parks and intervening roadways. The nearest residential lots to the treatment plant would be located over 1,000 feet from the plant boundary. As such, the proposed Villages of San Jacinto development incorporates buffers into the development to minimize potential land use impacts between the proposed residential, commercial development, and the adjacent wastewater treatment facility. Additional discussion of potential land use conflicts associated with plant operation odors is included in *Section 5.10, Air Quality,* and plant operation noise is included in *Section 5.11, Noise.* Noise impacts potentially associated with traffic generated by the project are

not expected to result in significant noise impacts along access roads to and within the project area, as described in *Section 5.11*.

5.1.5 Mitigation Measures

The proposed project would not divide an established community or conflict with applicable plans, policies or regulations including the Western Riverside Multiple Habitat Conservation Plan. Therefore, no mitigation is proposed for these issues. Mitigation is provided in *Section 5.2, Landform Alteration and Aesthetics*, and *Section 5.11, Noise*, which requires notification of homeowners in the vicinity of the school site that there may be lighting impacts and noise associated with outdoor activities in the future should the school district proceed with plans for the proposed high school. Additionally, mitigation requiring notification for potential urban/rural land use conflicts between the project and existing agricultural uses is provided in *Section 5.3, Agricultural Resources* .

5.1.6 Residual Impacts/Level of Significance after Mitigation

Land use and planning impacts, outside of those related to noise, aesthetics, and agricultural resources (as indicated above in *Section 5.1.5*), have not been identified, therefore mitigation measures are not necessary.

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5.2 LANDFORM ALTERATION AND AESTHETICS

5.2.1 Introduction and Methodology

This section addresses the potential for the Villages of San Jacinto project to produce visual impacts or affect visual character upon implementation. The analysis primarily focuses on the large-scale configuration and distribution of land use types on the site, and architectural/design standards of the Specific Plan.

Existing visual conditions were compiled through a site visit and review of aerial photographs. Public vantage points near the proposed project site were identified and the existing visual character summarized. Analysis of impacts is based on an assessment of how the view would change in addition to an assessment of the project's compliance with viewshed and other aesthetic policies in the City's General Plan.

5.2.2 Existing Conditions

Existing Setting

The project site is located in the San Jacinto Valley. The San Jacinto Valley is a northwest/southeast trending geographic feature formed by an "elbow" in the San Jacinto Mountain Range. The face of the San Jacinto Range faces southwest along the easterly side of San Jacinto Valley; at the southern end of the San Jacinto Valley near the town of Hemet, the San Bernardino range swings westward and the face of the range is oriented northwest. On the westerly side of the San Jacinto Valley, the valley is defined by the Lakeview Mountains and Bernaconi Hills. Vistas of the surrounding mountain ranges are essentially available in all directions within San Jacinto and are an important component of the regional aesthetic landscape. The San Jacinto River flows in a generally northwest to southeast direction approximately 1.5 miles north of the project site. This river is a dry wash during most of the year except for short periods following substantial rainfall or snowmelt occurring in the San Jacinto Mountains. The river course is not visible from the project site.

The project site is oriented with a long axis approximately north/south. The project site is essentially flat with surface elevation ranging from approximately 1,455 feet above mean sea level (AMSL) along the northern edge to approximately 1,490 feet AMSL in the southeastern corner. By contrast, Mt. Rudolph (the highest peak in the Lakeview Mountains west of the site) is at elevation 2,649 AMSL. The Bernaconi Hills have a peak elevation of approximately 2,100 feet AMSL; Mt. Edna (a part of the San Bernardino Range north of the project) is at elevation 2,587 AMSL; San Jacinto Peak towers above the valley floor at approximately 10,830 feet AMSL. Given the elevation difference between the ground surface at the site and surrounding mountain features, background mountain views are currently available across the subject site

from the public roadways surrounding the site. Existing views from surrounding roadways are discussed in greater detail in the sub-section below.

Existing Visual Quality of Project Site

The visual character of the site itself can be described as primarily vacant, former agricultural land. Vegetation on site consists of weedy invasive species or natural vegetation that has accumulated since the majority of agricultural production was discontinued. Existing on-site improvements and activities include covered shade structures as part of a former cattle feed lot in the southern portion of the property, an abandoned house and scattered debris in the south-central portion of the site, primarily fallow field along the eastern property boundary, and scattered sod fields in the northern portions of the property. The aesthetic quality of the site itself would be considered low for the portions containing structural development and moderate for the cultivated agricultural portions of the site. However, as shown in the site photos below, cultivated agriculture is not highly visible from adjacent roadways.

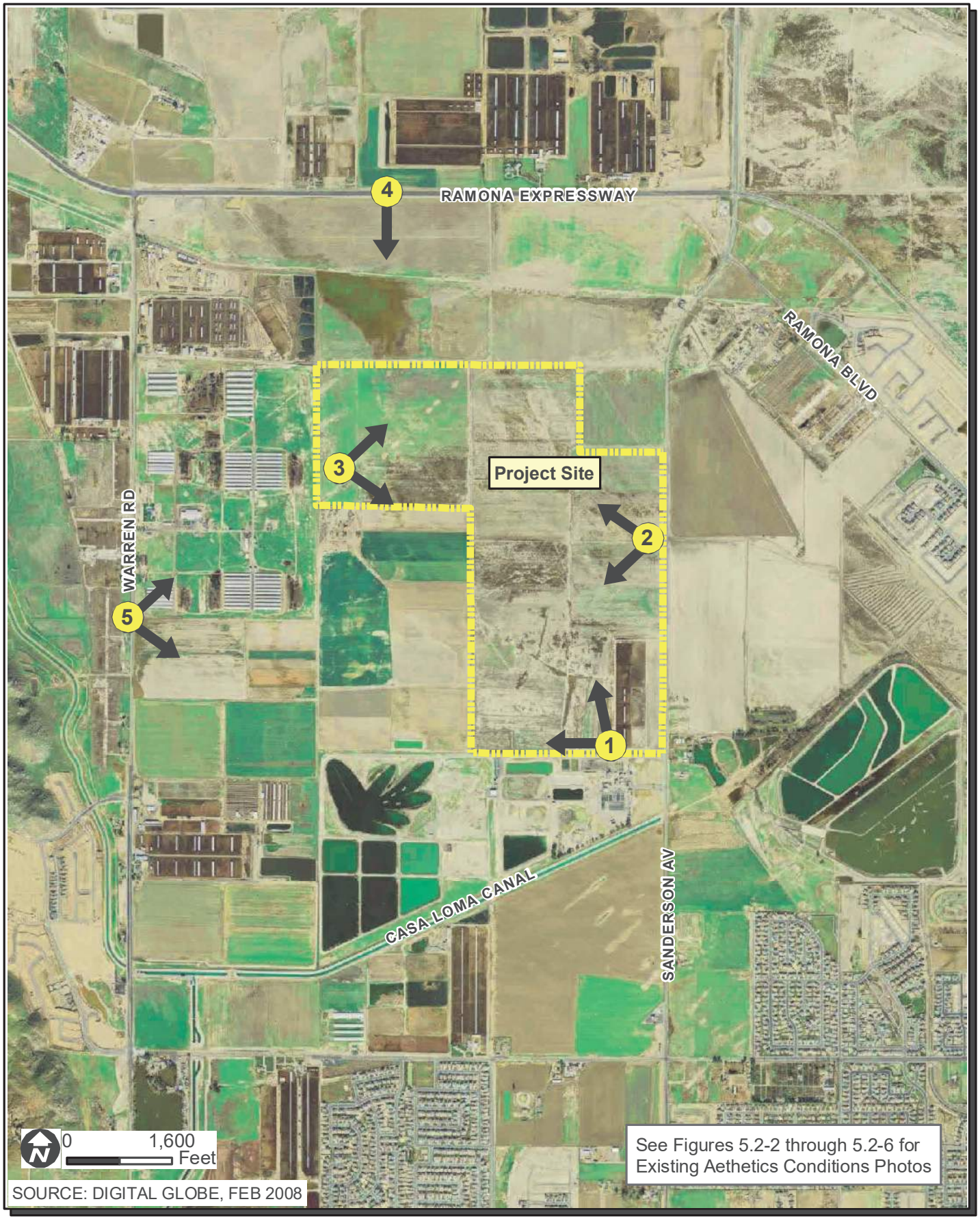
The site is essentially flat and there are no unique visual resources on site, such as tree stands, rock outcrops or water bodies. Therefore there are no current landforms of visual significance that exist on the site.

Figures 5.2-1 through *5.2-6* depict the existing visual quality of the project site as well as existing mountain views available from within and adjacent to the site.

Existing Views

The project site is generally visible from three existing primary viewpoints within the City of San Jacinto, each associated with a roadway. The project site is not visible from any existing roadway facility to the south of the subject site. Sanderson Avenue (east), Ramona Expressway (north), and Warren Avenue (west) each provide existing view opportunities of the project site. Each of the existing views described below are illustrated in *Figures 5.2-2 to 5.2-6.*

Sanderson Avenue is currently a heavily traveled regional roadway facility oriented north/south and located along the east side of the subject property. The roadway is at the same elevation as the site and views of the site are directly available to drivers on this roadway. The posted speed is 55 MPH and the site is approximately 6,000 feet (or roughly 1 mile) long; mobile viewers therefore have approximately 1 minute of exposure to direct views of the site along Sanderson Avenue when driving at the posted speed limit. Clearly visible elements of the property's visual character from this vantage *(Figures 5.2-2* and *5.2-3*) include covered shade structures associated with the former feed lot, an abandoned house to the west of former feed lot, and fallow agricultural land in the foreground with mountain vistas in the background to the west and north.



Villages of San Jacinto EIR

Existing Aesthetics Conditions Photo Index Map

FIGURE 5.2-1

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Photo 1: View from southern property boundary facing west to north.

Villages of San Jacinto EIR

Existing Aesthetics Conditions

FIGURE 5.2-2

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Photo 2: View from Sanderson Avenue facing west.

Villages of San Jacinto EIR

Existing Aesthetics Conditions

FIGURE 5.2-3

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Photo 3: View from western property boundary facing east.

Villages of San Jacinto EIR

Existing Aesthetics Conditions

FIGURE 5.2-4

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Photo 4: Existing View from Ramona Expressway South Across Subject Property

Villages of San Jacinto EIR

Existing Aesthetics Conditions

FIGURE 5.2-5

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Photo 5: View from Warren Avenue facing east.

Villages of San Jacinto EIR

Existing Aesthetics Conditions

FIGURE 5.2-6

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Ramona Expressway is currently a heavily traveled regional roadway facility oriented roughly east/west and located approximately one half mile to the north of the project's northern property boundary. At this vantage distance, the site is primarily a component of the background vista which is subordinate to the mountains (San Jacinto Range). The posted speed is 65 MPH and the site is approximately 4,800 feet wide; mobile viewers therefore have approximately 1 minute of exposure to distant views of the site along Ramona Expressway while driving at the posted speed limit (*Figure 5.2-5*). The existing on-site structures are barely visible from this vantage point, and would probably not be noticed by a mobile viewer.

Warren Avenue is currently a heavily traveled regional roadway facility oriented north/south and located approximately one half mile to the west side of the subject property. At this vantage distance, the site is again primarily a component of the background vista, which is subordinate to the mountains (San Bernardino Range and San Jacinto Mountains). The posted speed is 45 MPH and the site is approximately 6,000 feet (or roughly one mile) long; however, structures on the property immediately adjacent to the west side of the project site occupy about two thirds of the length of the project site. Therefore, distant views from Warren Avenue to the site are available roughly along the southern-most 2,000 feet of the property. This one glimpse of the site, at 45 MPH would equate to about 0.5 minute for the mobile viewer (*Figure 5.2-6*). The existing improvements on the property (i.e., covered shade structures and abandoned house) are barely visible and are completely subordinate to the background mountain views.

Figure 5.2-4 depicts an internal view from the northwest corner of the subject property facing east. Primary views from this location include fallow agricultural land in the foreground; sod fields that can be seen in the mid-foreground, scattered in the distance adjacent to Sanderson Avenue; and the dominant view is of the San Jacinto Mountains in the background.

Applicable Visual Policies

City of San Jacinto General Plan

The current City of San Jacinto General Plan was adopted May 4, 2006. The General Plan is the primary long-range planning document that guides growth and development in San Jacinto. There are a number of goals and policies in the Land Use Element and Resource Management Element that are relevant to visual resources as described below.

Land Use Element

The following goals and policies relate to maintaining and enhancing the visual character of the community and surrounding scenic vistas.

Land Use Goal 2 Manage and direct growth so that the community and its neighborhoods are protected and enhanced.

Policy 2.1 Assure that new development is complementary to the existing character of the City.

Policy 2.7 Locate retail and commercial land uses along major circulation routes at major intersections where there is maximum access and visibility.

Land Use Goal 6 Preserve and protect the City's cultural, historic, agricultural, and visual resources.

Policy 6.7 Preserve and enhance public views of the mountains and hillsides and other scenic vistas.

Policy 6.10 Promote the maintenance of private and public properties to enhance the visual appearance of the community.

Land Use Goal 9 Encourage thoughtful community design that enhances San Jacinto's quality of life.

Policy 9.1 Ensure new development is compatible with its natural surroundings and the built environment in terms of architecture, scale, grading and massing.

Policy 9.6 Require the use and maintenance of extensive landscaping in new development and redevelopment projects to beautify the surroundings, screen outdoor uses, provide shade, establish pedestrian paths, buffer incompatible land uses and provide visual interest.

Policy 9.8. Develop and enforce development standards and design guidelines that provide clear yet flexible direction for achieving quality community design in new development and redevelopment projects throughout the community.

Resource Management Element

Resource Management Goal 3 Prevent incompatible development in areas that should be preserved for scenic, historic, conservation, mineral extraction, or public safety purposes.

Policy 3.1: Ensure incompatible development is avoided in those areas that are designated for scenic, historic, conservation, mineral extraction, or public safety purposes.

5.2.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on landform alteration and aesthetics if it:

1. Has a significant adverse effect on a scenic vista
2. Substantially damages scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
3. Substantially degrades the existing visual character or quality of the site and its surroundings
4. Creates a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

5.2.4 Impacts

The proposed Specific Plan contains several aesthetic features that have been assumed as part of the project and therefore shape the following impact analysis.

Applicable Visual Policies

An assessment of the project's relationship to visual resource policies in the General Plan is summarized below in *Table 5.2-1, Consistency Determinations for General Plan Policies*.

Table 5.2-1
Consistency Determinations for General Plan Policies

Policy	Consistency Determination
General Plan Land Use Element	
Land Use Goal 2: Manage and direct growth so that the community and its neighborhoods are protected and enhanced.	
Policy 2.1: Assure that new development is complementary to the existing character of the City.	The Specific Plan sets forth the architectural and site design guidelines for the project, which ensures consistent high quality development that reflects the scale and development intensity of the community while allowing for flexibility in design. Therefore, the project is consistent with this policy.
Policy 2.7: Locate retail and commercial land uses along major circulation routes at major intersections where there is maximum access and visibility	The commercial portion of the project will be located adjacent to Sanderson Avenue, a major entry point into the City where it intersects with the future Bridge Street, which is one of the main project access points. Therefore, the project is consistent with this policy.
Land Use Goal 6: Preserve and protect the City's cultural, historic, agricultural, and visual resources.	
Policy 6.7: Preserve and enhance public views of the mountains and hillsides and other scenic vistas.	Mountain views are currently afforded across the site from public roadways in the project vicinity. Some lower mountain views may be temporarily obstructed by the project in some areas. Although there may be brief, interrupted views for passing motorists, there will be no permanent view blockage from surrounding areas.
Policy 6.10: Promote the maintenance of private and public properties to enhance the visual appearance of the community.	The project will provide a significant enhancement to the community by utilizing a variety of compatible architectural styles, and specific standards and design guidelines for each Planning Area. It will also include extensive landscape treatments along adjacent highways and internal streets as well as the paseo walkways between land uses.
Land Use Goal 9: Encourage thoughtful community design that enhances San Jacinto's quality of life.	
Policy 9.1: Ensure new development is compatible with its natural surroundings and the built environment in terms of architecture, scale, grading and massing.	The project Specific Plan establishes compatible design guidelines, including landscape design for roadways, parks, and other common use areas, and architectural guidelines for all residences, commercial and mixed-use development. These guidelines will ensure that each of the project components relate to one another as well as to surrounding land uses.
Policy 9.6: Require the use and maintenance of extensive landscaping in new development and redevelopment projects to beautify the surroundings, screen outdoor uses, provide shade, establish pedestrian paths, buffer incompatible land uses and provide visual interest.	The project Specific Plan establishes landscaping design guidelines that provide a variety of landscape treatments along adjacent highways and internal streets, which include planted medians, parkway trees, shrubs, and groundcovers. There will also be landscaped walkways, drainages, and parks, which separate the various land uses.
Policy 9.8: Develop and enforce development standards and design guidelines that provide clear yet flexible direction for achieving quality community design in new development and redevelopment projects throughout the community	The Specific Plan Design Guidelines for architecture and landscaping ensure consistent development standards throughout the project and will therefore be consistent with this policy.

Would the project have a significant adverse effect on a scenic vista?

The General Plan identifies hillside and mountain views as significant resources which should be protected and enhanced. Views to mountain backdrops/background are currently available across the site from existing roadways west, north, and south of the site. Due to the distance of the site from Ramona Expressway and Warren Road, future structural development of the Villages of San Jacinto would not physically obstruct the distant "background" views of the San Bernardino or San Jacinto mountain ranges from these roadways. The skyline and surrounding rural landscape is typical of what motorists experience as they travel along the adjacent roadways to the project site. However, development of the project may result in partial obstruction of existing lower mountain views for auto travelers along Sanderson Avenue, although this would be perceived only for a short distance, as views of the distant mountains would open up again once they have driven by the development. The project would not obstruct views of the surrounding mountains as seen from any nearby parks, trails, or other recreational uses, as these types of uses are not found in close proximity to the project site. Consequently, the proposed development, including the required 11-foot sound barrier along Sanderson Avenue (see *Section 5.11.5, Mitigation Measures, Mitigation Measure 5.11-a*), will not result in a significant visual impact to the existing views of the surrounding mountain backdrops. However, in order to soften the potential visual monotony of a continuous 11-foot wall along Sanderson Avenue, the wall will be constructed atop a landscaped berm of varying heights between 3 to 5 feet high, and would have extensive landscaping between the street and wall to help minimize any perceived visual impact of the wall. Therefore, the wall, combined with the berm will constitute an 11-foot sound barrier. According to the Specific Plan, this project frontage along Sanderson Avenue will include a 6-foot meandering sidewalk within a 16-foot landscaped parkway that features clusters of palm trees, pine trees, background shrubs and other shrub and ground cover plantings. The project site is not located within or adjacent to a State Scenic Highway (http://www.dot.ca.gov), and the project would not have a significant adverse visual impact on existing residences.

The project will include an extensive system of parks and paseos along with landscaping on major internal and adjacent roadways that will provide a consistent plant theme throughout the project. These elements along with the other open space enhancements as described above will result in a net visual improvement of the project site that provides a high quality aesthetically attractive development. Therefore, the project will not have a significant adverse impact on a scenic vista and no mitigation measures are required.

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

State Highway 74, which is approximately four miles south of the project site, is listed as an eligible but not officially designated State Scenic Highway on the California Scenic Highway Mapping System (http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm) in the

project vicinity. State Highway 74 is an Officially Designated State Scenic Highway approximately 5.5 miles southeast of the project site where it descends from the San Jacinto Mountains. However, due to the distance from this highway and intervening uses, the proposed project will not be visible. The proposed project does not currently support rock outcroppings or trees, and therefore would not involve disturbance of any trees, rock outcroppings or historic buildings, and would not damage a scenic resource.

Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Visual Quality of Site

The existing visual quality of the site varies from very low, for those portions with structures or other improvements, to moderate, for those areas employed for grass sod cultivation. However, the most prominent visual feature of the project site, where it is most visible along Sanderson Road, is vacant agricultural land consisting of weedy invasive species that have accumulated since the majority of agricultural production was discontinued. The cultivated agricultural portions are not highly visible from adjacent roadways. Therefore, the overall visual quality of the project site itself is considered low.

Implementation of the Villages of San Jacinto project would result in the development of the site with urban uses and structures including commercial, residential, and school buildings. The character of the site will be changed from one of mixed agriculture and fallow agriculture fields to one of a suburban/developed nature. However, the proposed project includes five parks totaling approximately 40 acres, including three public parks and two private neighborhood parks that provide a significant open space buffer among developed areas. Other open space amenities include an 11-acre lake and associated swim lagoon and beach area as well as a system of landscaped trails or "paseos" that serve as pedestrian linkages between land uses. There will also be extensive landscape treatments along adjacent highways and internal streets, which include planted medians, parkway trees, shrubs, and groundcovers, which will enhance the roadways and provide further visual contrast between proposed uses. Another feature that provides visual transition is a vegetated detention basin/drainage channel system along the western perimeter of the project site. The proposed system of open spaces would provide both on-site and off-site visual benefits to compensate for the loss of existing open space character of the site and surroundings, and would not conflict with the planned residential, commercial and open space uses in the adjacent community.

The project Specific Plan establishes compatible design guidelines including landscape design for roadways, parks and other common use areas and architectural guidelines for all residences, commercial and mixed-use development. These guidelines will ensure consistent development standards throughout the project that will not result in substantially degrading the existing visual

character or quality of the site and its surroundings. As discussed in Section 3.0, Project Description, the project will result in up to 1,329 low and medium density single-family residences, 22.7 acres of commercial uses, and 26.3 acres of mixed-use development. The residences will have a variety of architectural styles and will vary between one and two stories up to a maximum height of 35 feet. Architectural design guidelines will also be used to provide direction and inspiration for final design of the commercial and mixed use portions of the project. Building masses will be clustered to avoid long straight building facades and variation of building heights up to a maximum height of 35 feet will be required. Approval and implementation of the Specific Plan shall constitute compatibility with existing visual character, and no further mitigation measures are required.

Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Light and Glare

The project would introduce additional night lighting within the project vicinity as well as potential new sources of glare (i.e., glass and reflective exterior surfaces). Particularly the commercial components of the site have the potential to produce significant night lighting impacts upon adjacent uses in the vicinity as well as proposed residential land uses within the project itself. Additionally, the project will require street lighting, trail lighting, and lighting associated with outdoor recreational activities. The Specific Plan requires that there are uniform lighting standards throughout the project and that lighting along trails shall be a minimum of 20-feet from rear or side yards to reduce light spill-over effects. All exterior lights are required to be shielded and focused to minimize spill light into the night sky or adjacent properties. Should Planning Area 14 be purchased by the San Jacinto Unified School District for development as a high school, any potential light or glare impacts would need to be addressed by the School District in the course of their environmental compliance for that project. However, a mitigation measure has been added (see *Section 5.2.5, Mitigation Measures, Mitigation Measure 5.2-b)* which requires notification of homeowners in the vicinity of the school site that there may be lighted ball fields in the future should the school district proceed with plans for the proposed high school. Metal or other reflective exterior surfaces and finishes within the commercial components of the site could create new sources of light or glare resulting in significant glare impacts for adjacent residential, park, and agricultural uses. In order to reduce this potential impact to a less than significant level, mitigation is provided (see *Section 5.2.5, Mitigation Measures, Mitigation Measure 5.2-a).*

5.2.5 Mitigation Measures

5.2-a To avoid light and glare impacts, future submittals for commercial portions of the project development shall be required to prepare a photometric lighting plan. The lighting plan shall demonstrate that project lighting is shielded from surrounding properties and that only the minimum amount of lighting required for safety purposes is provided to avoid adverse effects on surrounding areas. In general, lighting fixtures shall be shielded downward and away from the adjacent residential areas and public roadways. Commercial development plans shall also be reviewed by the City to ensure the avoidance of substantial areas of reflective surfaces for building exteriors.

5.2-b A Notice-to-Property Owner shall be recorded on a separate buyer information sheet with the final map providing notice to potential future property owners in the vicinity of the school site (i.e., Planning Areas 1, 3, and 19) that there may be lighted ball fields in the future should the school district proceed with plans for the proposed high school.

5.2.6 Residual Impacts/Level of Significance after Mitigation

With the application of the above mitigation measure, project impacts related to light and glare would be reduced to levels below significance. No significant impacts related to aesthetics, visual conditions, or landform modification have been identified.

5.3 AGRICULTURAL RESOURCES

5.3.1 Introduction and Methodology

This section describes existing agricultural uses of the project site and discusses potential project impacts to local, regional, and statewide agricultural resources.

The character of existing agricultural uses of the subject site and surrounding areas was determined based on a field survey and review of aerial photography. In addition, State of California (2006) Resources Agency on-line mapping information was reviewed to assist in characterizing the agricultural resources of the site. Finally, the agricultural characteristics of the site as they relate to agricultural viability and importance as a significant agricultural resource were defined and analyzed utilizing the California Agricultural Land Evaluation Site Assessment (LESA) model (State of California 1997), included as *Appendix B*. The LESA model evaluates soil resource quality of the site, project site size, water availability, surrounding agricultural lands, and surrounding protected resource lands. These characteristics are then rated, weighed, and combined, resulting in a single numeric score that is the basis for making a determination of the project site's agricultural value, and thereby to identify the significance of potential project impacts of converting the agricultural land resources to other land uses. The LESA model is identified in the CEQA Guidelines as an optional methodology for addressing impacts to farmland and agricultural resources. Additional information regarding the LESA model is provided in *Section 5.3.4*.

5.3.2 Existing Conditions

Existing Land Uses

The 475.1-acre project site is located in the northwest portion of the City of San Jacinto in an area consisting primarily of rural agricultural uses. The project site has been used as pasture land and/or a farming operation, similar to surrounding properties, for over 100 years. The subject site formerly occupied predominantly by active agricultural cultivation in the form of turf farming with various support facilities, including roads, irrigation systems, and minor appurtenant buildings used for storage of farm materials and equipment. However, only a small portion of the project site is currently being used for turf farming, with the remainder being vacant and containing mostly weedy invasive plants or natural vegetation. In addition, the southeast portion of the site, approximately 16 acres, has been recently utilized as a feedlot (supporting an average of 500 head of cattle). Water resources used to sustain the existing agricultural operations is provided primarily as recycled water by the Eastern Municipal Water District (EMWD), which is supplemented by groundwater produced by three on-site wells for which there are no restrictions on private use. Currently, irrigation for the turf farm operation consists of a combination of 95%

reclaimed water and 5% groundwater. Water supply for the feedlot operation consists of groundwater produced by an on-site well.

Land uses north of the site continue to consist primarily of cultivated agricultural use in addition to duck ponds, the Colorado River Aqueduct, and the Ramona Expressway. Agricultural land uses occupy most areas directly west and east of the project site, including cultivated land and greenhouse operations, with the exception of rural residential development located just southeast of the project site and a residential neighborhood located northeast of the property where North Sanderson Avenue and the Ramona Expressway intersect. A municipal wastewater treatment plant owned and operated by EMWD is located directly south of the project site, and the San Jacinto Reservoir is located southeast of the property. The San Jacinto Valley has traditionally supported agriculture and rural residential land uses, but has recently been experiencing increased urbanization.

On-line mapping information posted by the State of California (2006) Resources Agency pursuant to the Farmland Mapping and Monitoring Program (accessed at www.conservation.ca.gov) indicates that the project site contains Prime Farmland, Unique Farmland, and Farmland of Statewide Importance and Local Importance defined as follows:

- Prime Farmland has the best combination of characteristics for producing crops. It produces sustained high yields when properly managed, and is not in or committed to urban development.
- Unique Farmland is other than prime farmland but capable of producing high-value crops.
- Farmland of Statewide or Local Importance does not qualify as Prime or Unique Farmlands, but is irrigated land determined to be important by state and local governments.

5.3.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on agricultural resources if it:

1. Would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use
2. Would conflict with existing zoning for agricultural use, or a Williamson Act contract
3. Would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

5.3.4 Impacts

Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The proposed project is located on a site that has been designated by the California Resources Agency as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. This impact is considered significant and is further quantified by use of the State of California (1997) Department of Conservation LESA model (see below).

Agricultural land throughout western Riverside County is under increasing pressure of conversion to urban uses. The proposed project would result in conversion of the entire project site, approximately 475.1 acres of land consisting of designated important agricultural resources, to urban-related uses.

Although analysis of agricultural impacts through use of the California Agricultural LESA model (State of California 1997) is not specifically tied to a significance criterion, the recent conversion of agricultural uses to urban land uses throughout the western Riverside County area is an issue of concern for many stakeholders. Therefore, in an abundance of caution, the LESA model is used for rating the relative quality of land resources based upon site-specific measurable features, such as soil resource quality, project site size, water availability, surrounding agricultural lands, and surrounding protected resource lands. The LESA method was developed by the Department of Conservation (in 1995), intended to provide CEQA lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process (Public Resources Code Section 21095).

The LESA model is composed of six different factors. Two Land Evaluation factors are based on measures of soil resource quality. Four Site Assessment factors provide measures of project size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is the total project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds.

The LESA model worksheets are found in *Appendix B*. Using the LESA model, the Land Evaluation portion of the model equals 22.53, and the Site Assessment portion equals 38.93, for a total project score of 61.46. According to the LESA manual, a score of 60 to 79 points is considered significant unless either the Land Evaluation or Site Assessment subscore is less than

20 points. Because the Land Evaluation and the Site Assessment subscores (22.53 and 38.93, respectively) are both greater than 20, the overall score of 61.46 indicates that the agricultural lands of the project site are considered a significant resource and, therefore, conversion of the project site's agricultural lands would significantly impact the agricultural resources of the project site.

The proposed project would irreversibly convert land currently under agricultural production and identified as containing significant agricultural resources to urban uses and would contribute to incremental urbanization of a predominantly rural area sustaining existing agricultural land uses. As such, the proposed project would potentially result in a significant, unmitigable, adverse impact to agricultural resources of both local and regional importance. As discussed below in Section 5.3.6, Residual Impacts/Level of Significance after Mitigation, there are no feasible mitigation measures to reduce this impact below a level of significance.

In addition, development of the proposed project would potentially result in significant urban/rural land use conflicts between the planned development and existing agricultural uses surrounding the project site. Conflicts would potentially include fertilizer and pesticide application drift into the proposed residential area, residential complaints about noise, odor and dust resulting from site preparation activities associated with adjacent agricultural uses, and increased trespassing onto agricultural lands. Implementation of *Mitigation Measure 5.3-a,* identified in *Section 5.3.5, Mitigation Measures,* would serve to alleviate land use conflicts associated with new residential development and existing agricultural land uses. Further, fencing and vegetation set-backs contained in the Specific Plan will help to reduce potential inconsistencies with surrounding agricultural land. However, potentially significant impacts to sustained agricultural resources would result from the proposed project development, as the identified land use conflicts associated with urbanization of agricultural lands may ultimately result in making agricultural operations more difficult to sustain, and thereby more susceptible to conversion over time, resulting in cumulative impacts to agricultural resources of the area.

Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The proposed project would not conflict with existing zoning for agricultural use. No portion of the project site is currently zoned for agricultural use; therefore, no conflicts are anticipated to occur with respect to the proposed residential conversion of the property and existing zoning designations. In addition, the site is not covered by special agricultural status, such as a Williamson Act contract. Therefore, no impacts related to agricultural zoning or a Williamson Act contract would occur.

Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

The project itself may contribute to surrounding lands being more susceptible to conversion over time, resulting in cumulative impacts to agricultural resources of the area.

5.3.5 Mitigation Measures

Project-Specific Mitigation Measures

5.3-a A Notice-to-Property-Owner shall be recorded on a separate buyer information sheet with the final map providing notice to potential future property owners of the proposed development that the property is located in an area of active agricultural land uses that may potentially result in inconvenience and/or discomfort associated with adjacent agricultural operations including noise, odors and dust generation, and chemical drift.

5.3.6 Residual Impacts/Level of Significance after Mitigation

The proposed project would result in the direct loss of agricultural land resources determined to be significant pursuant to the California Agricultural LESA model, and which are identified as important farmlands by the State of California (2006) Resources Agency Farmland Mapping and Monitoring Program. There are no identified mitigation measures that would substantially reduce the impacts associated with the permanent loss of the site's agricultural resources. The City's General Plan EIR (January 2006) discusses a number of reasons mitigation for loss of agriculture is infeasible. Rising land costs to replace agricultural lands, rising water costs, labor costs, urbanization and environmental regulations all contribute to ongoing conversion of farmland. Although the conclusion that agricultural preservation was infeasible for the above reasons was conducted several years ago, these factors are still prevalent and remain as constraining factors to agricultural conservation. Without property owner cooperation and substantial financial incentives, it is infeasible to provide permanent on or offsite mitigation to replace converted farmland. Mitigation measures for the proposed development have been identified to reduce the magnitude of significant impacts associated with potential land use conflicts resulting from development of the proposed residential development in an area supporting existing agricultural uses. However, a residual significant, unmitigable impact would remain due to the inherent incompatibility of agricultural and urban land uses, and due to the cumulative effects of pressure to convert adjacent agricultural lands associated with urban development encroachment into the predominantly rural project area.

Therefore, given the above considerations, potential project impacts to agricultural resources are considered significant and not fully mitigable. As such, pursuant to CEQA, approval of the proposed project is likely to result in significant unavoidable agricultural resource impacts and requires that the decision makers provide findings of overriding consideration of project benefits that make the significant effects acceptable.

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5.4 BIOLOGICAL RESOURCES

5.4.1 Introduction and Methodology

This section describes existing biological resources on the project site and discusses potential project impacts to resources. This analysis is based on the August 2005 Dudek and Associates Biological Resources Technical Report prepared for the project. This report is included as *Appendix C* to this EIR. Methods used to conduct the biological resources field reconnaissance and impact analysis are contained therein.

5.4.2 Existing Conditions

Setting

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional habitat conservation plan (HCP) focusing on conservation of species and their associated habitats in Western Riverside County. This plan is one of several large, multi-jurisdictional habitat-planning efforts in Southern California with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region. The MSHCP will allow Riverside County and its cities to better control local land-use decisions and maintain a strong economic climate in the region while addressing the requirements of the state and federal Endangered Species Acts.

The MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP allows the participating jurisdictions to authorize "Take" of plant and wildlife species identified within the plan area. The United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) have authority to regulate the take of threatened, endangered, and rare species. Under the MSHCP, the wildlife agencies have granted "take authorization" for otherwise lawful actions—such as public and private development that may incidentally take or harm individual species or their habitat outside of the MSHCP conservation area—in exchange for the assembly and management of a coordinated MSHCP conservation area.

The MSHCP is a "criteria-based plan" and does not rely on a hardline preserve map. Instead, within the MSHCP Plan Area, the MSHCP reserve will be assembled over time from a smaller subset of the Plan Area referred to as the Criteria Area. The Criteria Area consists of Criteria Cells (Cells) or Cell Groupings, and flexible guidelines (Criteria) for the assembly of conservation within the Cells or Cell Groupings have been developed for each Cell/Cell

Grouping. Cells and Cell Groupings also may be included within larger units known as Cores, Linkages, or Habitat Blocks.

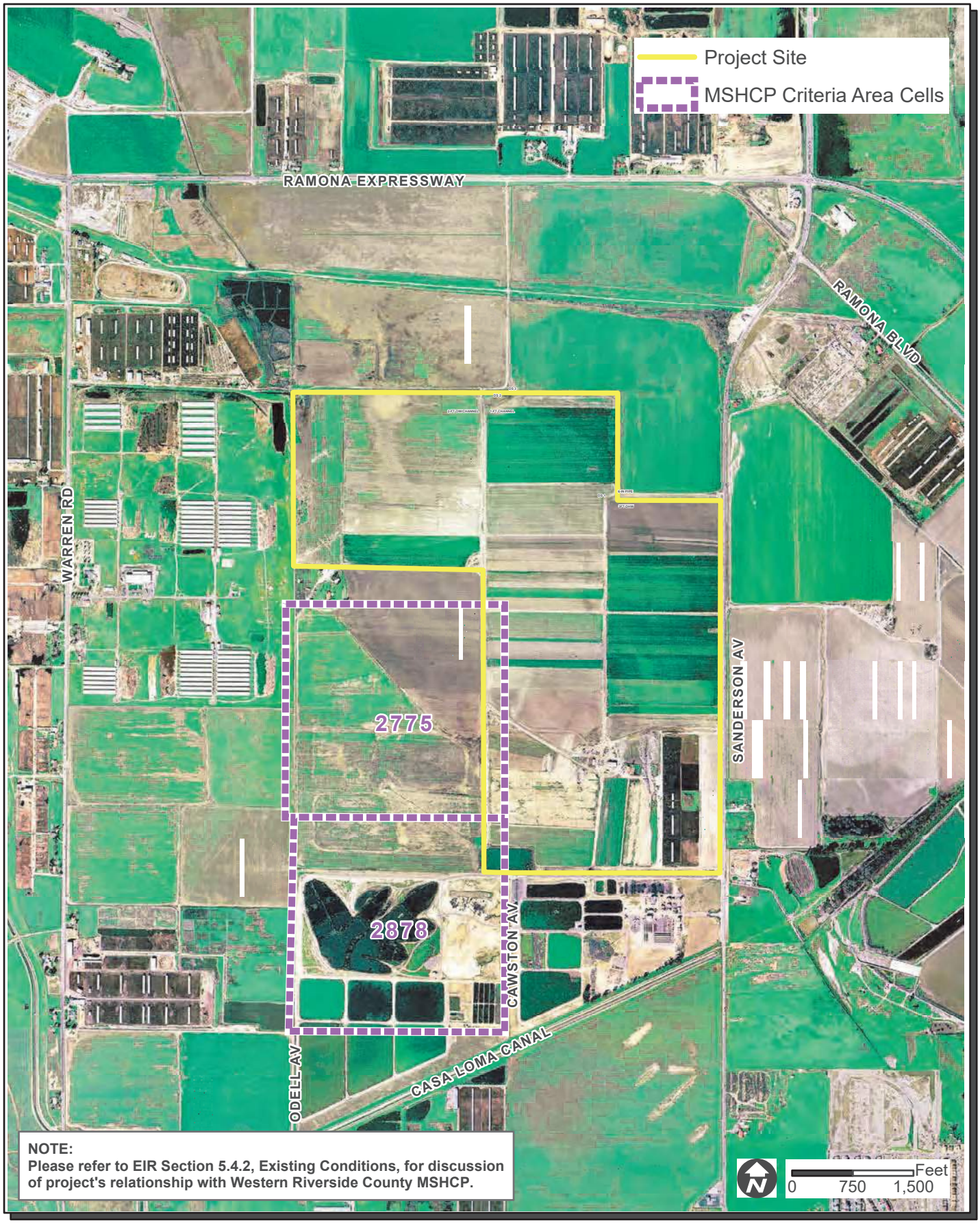
The Villages of San Jacinto project is located within the San Jacinto Valley Area Plan of the MSHCP. A GIS overlay of MSHCP San Jacinto Valley Area Criteria Cells with the Villages of San Jacinto project boundary shows that the project lies outside of the Criteria Area with the exception of a small overlap of the southwestern portion of the site with Cells 2775 and 2878. This overlap is approximately 250 feet wide and extends approximately 3,240 feet along the western property boundary. This slight Cell overlap does not correspond to any observable change in site features such as biological resources or topography; the site is in active agriculture (turf grass farm) both within and outside the area of overlap. For this reason, it was agreed (personal communication, Ken Graff, Riverside Regional Conservation Authority) that the overlap is a map registration issue, and MSHCP Criteria for Cells 2775 and 2878 would not apply to the Villages of San Jacinto Project but rather to the adjacent parcels to the west (see *Figure 5.4-1, Project Relationship to Western Riverside County MSHCP*). A letter from Charles V. Landry, Executive Director of the Western Riverside County Regional Conservation Authority (RCA), dated November 17, 2008, provides written confirmation of the previous conversation with Mr. Graff. This letter and the letter from the City requesting the RCA's written confirmation is provided in *Appendix C*. However, certain plan-wide requirements would apply to the project, including habitat assessments/survey requirements for narrow endemic plant species and burrowing owl. The project has also been analyzed for consistency with MSHCP Section 6.1.2, Riparian/Riverine Resources.

Topography

The study area ranges from flat in the central and southern regions of the project site to gently sloping in the northeastern region just east of the proposed Odell Avenue. The highest elevational area on site is the western boundary of the site [approximately 1,480 feet above mean sea level (amsl)]; the lowest elevational area is on the north-central boundary of the site [approximately 1,460 feet amsl].

Soils

The project site consists of several soil categories. All of the soils developed in alluvium from granitic parent materials. Dello, Chino, and Grangeville soils are present in alluvial areas or on floodplains; Traver soils are present on valley plains and in basins. With the exception of Grangeville soils, these soils are all in shallowly-sloping areas (0%–5% slopes); Grangeville soils are sloped from 0%–15%. Dello and Chino soils are slowly permeable, while Grangeville and Traver soils are moderately well-drained. Traver soils are from slightly to strongly saline, and, in addition to other soil types not mapped on the project study area, are often associated with narrow endemic plant species.



Villages of San Jacinto EIR

Project Relationship to Western Riverside County MSHCP

FIGURE 5.4-1

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Vegetation Communities

Several native vegetation communities/land cover types as well as non-native/non-natural land covers are located on the project site. Wetland vegetation communities are also found on the project site. A total of nine vegetation communities were identified on the project site—six native and three non-native. The three non-native types include agriculture, ruderal land and disturbed/developed land. The native vegetation types include open water, freshwater marsh, southern willow woodland, disturbed herbaceous wetlands, cismontane alkali marsh, and intermittent unvegetated stream channel.

Wildlife Resources

Wildlife found in the project area includes species generally associated with the habitat types identified above. A complete list of observed and expected sensitive wildlife species is provided in *Appendix C* to this EIR.

Site Observations

Figure 5.4-2, Biological Resources Map, depicts resources observed and mapped on site during the January through August 2005 field visits to the site. It should be noted that the project site undergoes regular mechanical disturbance associated with the agricultural operations, therefore updated biological resource studies have not been prepared.

Vegetation Communities

The entire 475.1 acre site was surveyed for biological resources. This survey area includes developed lands associated with the existing agricultural operations on site in addition to remaining undeveloped/undisturbed portions of the site. *Table 5.4-1*, *Existing Biological Resources*, provides a summary of each type of vegetation community found on the project site. A description of each vegetation community is included in *Table 5.4-1*.

Table 5.4-1
Existing Biological Resources

Vegetation Community	Existing Acreage
Native Plant Communities/Land Cover Types	
Open Water	4.22
Freshwater Marsh	0.23
Southern Willow Woodland	0.07
Disturbed Herbaceous Wetlands	0.05
Disturbed Herbaceous Wetlands (CDFG jurisdiction only)	0.16
Cismontane Alkali Marsh	0.01
Intermittent Unvegetated Stream Channel	0.01
Subtotal	*4.75*

Table 5.4-1 (Continued)

Vegetation Community	Existing Acreage
Non-Native Habitat Types	
Agriculture	307.08
Ruderal	126.87
Disturbed/Developed	36.42
Subtotal	*470.37*
Total	**475.12**

Open Water

Open water (i.e., pond) is a type of aquatic area that typically lacks emergent vegetation but supports hydrophytic vegetation, such as mule fat scrub, southern willow scrub, and freshwater marsh around its margins. Ponds represent an important resource for a variety of migratory waterfowl and provide habitat for amphibians and numerous species of aquatic insects. Areas of open water, in concert with the surrounding riparian vegetation, may receive considerable use by species more typical of upland habitats during the drier times of the year.

Three areas of open water totaling 4.22 acres are present within the study area: two detention basins—one along the northern property boundary and one along the southwestern property boundary—and one shallow depression along the southeastern property boundary. At the time of the wetlands delineation, these areas were filled with water and supported a variety of waterfowl. Since the areas of open water on site have no connection to navigable Waters of the U.S., they are under the jurisdiction of CDFG and RWQCB only.

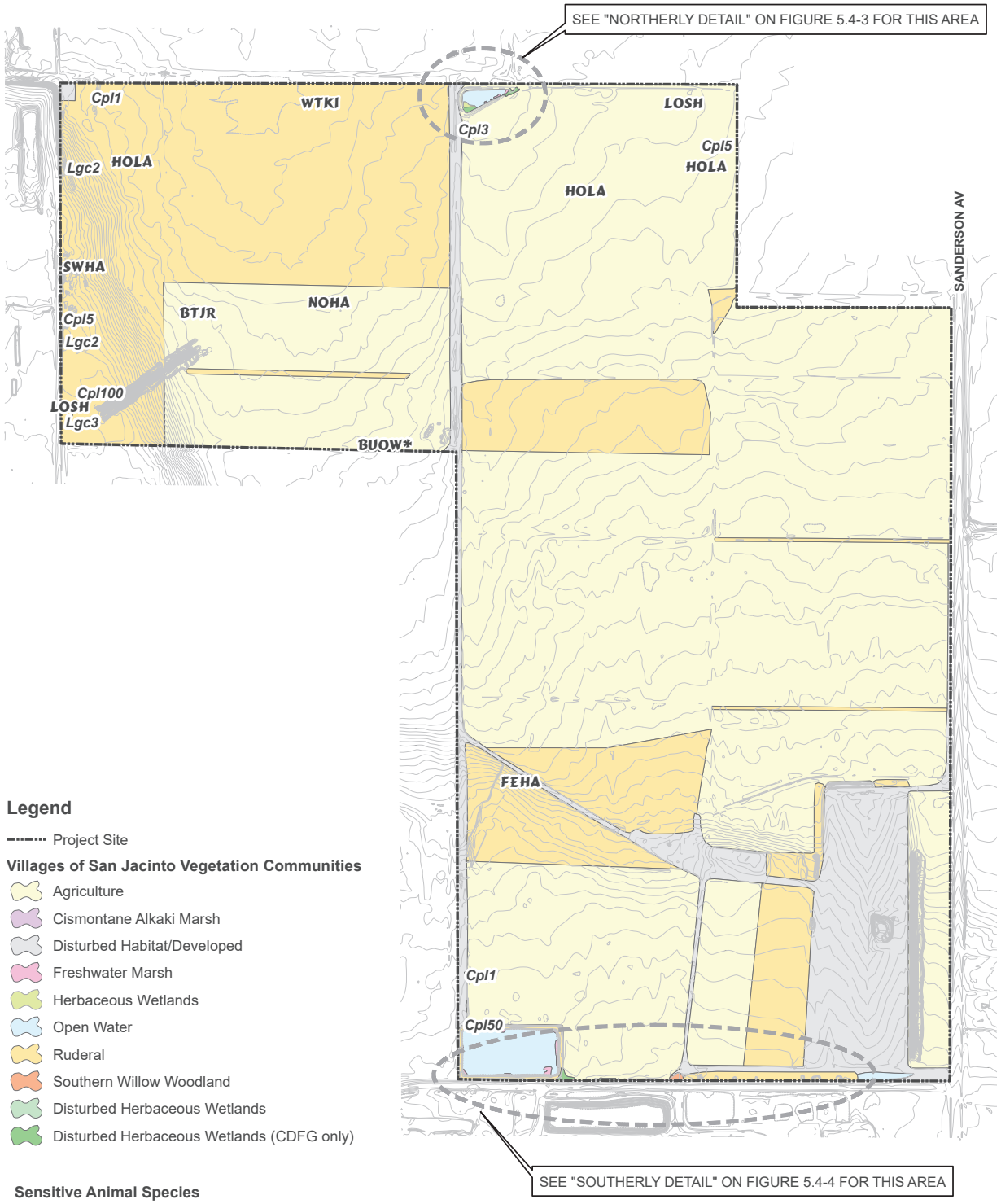
None of these areas mapped as open water on site would be classified as MSHCP riparian/riverine since they were artificially created.

Freshwater Marsh

Freshwater marsh is a wetland habitat type that develops where the water table is at or just above the ground surface, such as around the margins of lakes, ponds, slow-moving streams, ditches, and seepages. It typically is dominated by tall, emergent monocots, such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.).

Freshwater marsh on site is located around the perimeters of the detention basins and along the intermittent stream channel along the southern boundary of the site. This vegetation community occupies 0.23 acre and is dominated by cattails and bulrushes. Freshwater marsh on site is under the jurisdiction of CDFG and RWQCB only.

None of the areas mapped as freshwater marsh on site would be classified as MSHCP riparian/riverine since there were artificially created.



Legend

Project Site

Villages of San Jacinto Vegetation Communities

- Agriculture
- Cismontane Alkaki Marsh
- Disturbed Habitat/Developed
- Freshwater Marsh
- Herbaceous Wetlands
- Open Water
- Ruderal
- Southern Willow Woodland
- Disturbed Herbaceous Wetlands
- Disturbed Herbaceous Wetlands (CDFG only)

Sensitive Animal Species

- BTJR . . . *Blacktailed jackrabbit*
- BUOW* . . *Burrowing owl pair & 3 burrows*
- FEHA . . . *Ferruginous hawk*
- HOLA . . . *Horned lark flock*
- LOSH . . . *Loggerhead shrike*
- NOHA . . . *Northern harrier (in flight)*
- SWHA . . . *Swainson's hawk*
- WTKI . . . *White-tailed kite*

Sensitive Plant Species

Cpl . . . Centromadia pungens ssp. laevis
Lgc . . . Lasthenia glabrata ssp. coulteri

NOTE: Number after the plant label indicates individual plant count at that location.

Feet
0 300 600

TOPO SOURCE: RBF Consulting, September 2004

Villages of San Jacinto EIR
Biological Resources Map

FIGURE 5.4-2

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Southern Willow Woodland

Southern willow woodland is similar to the southern willow scrub plant community described by Holland (1986) as "dense, broadleafed, winter-deciduous riparian thickets dominated by several species of Salix [willows], with scattered emergent *Populus fremontii* [Freemont cottonwood] and *Platanus racemosa* [western sycamore]." The understory is usually arrested in growth owing to the dense canopy. The 0.07-acre area of the study site mapped as southern willow woodland consists of a small group of larger, more mature Goodding's black willows (*Salix gooddingii*) with an open understory. Soils within this vegetation type are hydric (Chroma 1), and evidence of hydrology exists as water stained leaves and drainage patterns. This habitat is fed by two 1-foot pipes that outlet onto the property along the southern boundary. However, since this wetlands habitat type is not connected to navigable Waters of the U.S., it is not under the jurisdiction of the ACOE. Southern willow woodland on site is under the jurisdiction of CDFG and RWQCB only.

None of the areas mapped as southern willow woodland on site would be classified as MSHCP riparian/riverine since there were artificially created.

Disturbed Herbaceous Wetlands

Herbaceous wetlands were mapped in association with the northern detention basin on site. Herbaceous wetlands support a predominance of low, herbaceous, hydrophytic vegetation. Within this 0.05-acre habitat type on site, yellow nutsedge (*Cyperus esculentus*), a hydrophytic species, dominates the cover. Drainage patterns are evident, and soils are considered hydric (Chroma 2 with mottles). This habitat type lacks a surface connection to navigable Waters of the U.S., however, and thus is under the jurisdiction of CDFG and RWQCB only.

Disturbed herbaceous wetlands were also mapped in an area dominated by the non-native perennial pepperweed (*Lepidium latifolium*). No indicators of hydrology are present, and soils are not hydric (Chroma 2 without mottles), so disturbed herbaceous wetlands on site are under the jurisdiction of CDFG only. A total of 0.16 acre of disturbed herbaceous wetlands are present on site.

None of the areas mapped as disturbed herbaceous wetlands on site would be classified as MSHCP riparian/riverine since there were artificially created.

Cismontane Alkali Marsh

According to Holland (1986), vegetation classified as cismontane alkali marsh occurs in areas of alkaline soils that are saturated or inundated during most of the year. Characteristic species often in cismontane alkali marsh include yerba mansa (*Anemopsis californica*), sedges, salt grass, rushes, alkali heath (*Frankenia salina*), cattails, salt marsh fleabane (*Pluchea purpurascens*), and

cattails. Species dominating the 0.01-acre patch of cismontane alkali marsh along the southern property boundary include salt grass, alkali-mallow (*Malvella leprosa*), and salt heliotrope (*Heliotropium curassavicum*).

None of the areas mapped as cismontane alkali marsh on site would be classified as MSHCP riparian/riverine since there were artificially created.

Unvegetated Intermittent Stream Channel

Unvegetated channel refers to the intermittent drainage connecting several small patches of wetlands vegetation south of the detention basin along the southern boundary of the site. Intermittent waters generally have a surface flow that, although not perennial, may be present for relatively long periods (greater than 24 hours) following rainfall events. Intermittent waters on site vary from two to three feet in diameter and occupy 0.01 acre of the project site. These channels are under the jurisdiction of CDFG and RWQCB.

None of the areas mapped as intermittent stream channel on site would be classified as MSHCP riparian/riverine since there were artificially created.

Agriculture

Agricultural lands, occupying 307.08 acres, compose the majority of the site. Most of the areas mapped as agriculture consist of an active turf-grass farming operation. A cattle feed lot, in the southeastern portion of the site, was also mapped as agriculture.

Ruderal

Ruderal habitat was mapped in areas not in active turf-farming operations which have been allowed to recolonize with weedy, non-native vegetation. Ruderal areas on site occupy 126.87 acres and are dominated by weedy species such as henbit (*Lamium amplexicaule*), knotweed (*Polygonum arenastrum*), red-maids (*Calindrinia ciliata*), rescue grass (*Bromus catharticus*), shepherd's purse (*Capsella bursa-pastoris*), (*Sisymbrium irio*), sow thistles (*Sonchus* spp.), short-podded mustard (*Hirschfeldia incana*), cheeseweed (*Malva parviflora*), and common purslane (*Portulaca oleracea*).

Disturbed/Developed

Areas mapped as disturbed or developed refer to areas lacking vegetation, such as dirt roads, graded areas, structures, and buildings. A total of 36.42 acres of disturbed/developed area is present within the study area.

Wildlife Diversity

A total of 79 species of both non-sensitive and special-status wildlife was observed or detected on site. The complete list of wildlife species identified is provided as *Appendix B* of the Biological Resources Technical Report, included as *Appendix C* to this EIR.

Birds

Sixty bird species were observed during the survey visits (*Appendix B*). The diversity of birds is limited due to the high levels of agriculture and relatively low habitat quality, or lack of native habitats throughout the study area. The habitats and land covers within the study area provide foraging habitat for a variety of special-status bird species such as the burrowing owl (Speotyto [Athene] *cunicularia hypugaea*) (which is a MSHCP survey species), white-tailed kite (*Elanus caeruleus*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), northern harrier, (*Circus cyaneus*), American kestrel (*Falco sparverius*) and horned lark (*Eremophila alpestris*). The ponds on site provide habitat for waterfowl including western grebe (*Aechmorphus occidentalis*), white-faced ibis (*Plegadis chihi*), northern shoveler (*Anas clypeata*), mallard (*Anas platyrhynchos*), lesser scaup (*Aythya affinis*), bufflehead (*Bucephala albeola*), ruddy duck (*Oxyura jamaicensis*), American coot (*Fulica americana*), common moorhen (*Gallinula chloropus*), least sandpiper (*Calidris minutilla*), and common snipe (*Gallinago gallinago*). A full list of species detected is presented in *Appendix B* to the Biological Resources Technical Report.

Reptiles and Amphibians

Two reptile species were observed on site: side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*). These species are not considered special-status. No amphibian species were observed during the survey; however, one or more of the following non-sensitive species may occur within the study area: garden slender salamander (*Batrachoseps attenuatus*), western toad (*Bufo boreas*) and Pacific treefrog (*Hyla regilla*). Habitat quality for reptiles and amphibians is low, and the diversity of these species is expected to be low because of the small amount of habitat available and the likely negative effects of the active agriculture on site.

Mammals

Nine mammal species, or their sign, were observed within the study area during the survey including: black-tailed jackrabbit (*Lepus californicus*), brush rabbit (*Sylvilagus bachmani*), desert cottontail (*Sylvilagus audubonii*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*), and domestic cattle (*Bos bovis*). Brush rabbit and black-tailed jackrabbit are considered special-status.

Invertebrates

Seven non-sensitive species of butterfly and one fairy shrimp species were recorded during surveys including: Sara orange-tip (*Anthocharis sara sara*), cabbage butterfly (*Pieris rapae*), common white (*Pontia protodice*), pygmy blue (*Brephidium exile*), West Coast lady (*Vanessa annabella*), red admiral (*Vanessa atalanta rubria*), painted lady (*Vanessa cardui*), and versatile fairy shrimp (*Branchinecta lindahli*).

Sensitive Biological Resources

Sensitive Habitats

Sensitive habitats are those that are considered rare within the region, support sensitive plant and/or wildlife species, function as corridors for wildlife movement, or are regulated by local, state or federal agencies. Habitat types found on site that are considered sensitive include open water, freshwater marsh, southern willow woodland, disturbed herbaceous wetland, cismontane alkali marsh and intermittent unvegetated stream channel.

MSHCP Riparian/Riverine Areas, Vernal Pools and Fairy Shrimp Habitat

No MSHCP riparian/riverine areas or vernal pools were located on site. However, some water resources on site were initially determined potentially suitable for threatened or endangered species of fairy shrimp; therefore, focused vernal pool branchiopod (i.e., fairy shrimp) surveys were conducted. No sensitive species of fairy shrimp were found on site (see *Table 5.4-2, Jurisdictional Waters (Including Wetlands) Present on the Villages of San Jacinto Project Site*).

Table 5.4-2
Jurisdictional Waters (Including Wetlands)
Present on the Villages of San Jacinto Project Site

Plant Community	Area (Acres)	MSHCP Riverine/Riparian?	RWQCB- and/or CDFG-jurisdictional
Freshwater Marsh	0.23	No	Both RWQCB and CDFG
Southern Willow Woodland	0.07	No	Both RWQCB and CDFG
Herbaceous Wetlands	0.03	No	Both RWQCB and CDFG
Disturbed Herbaceous Wetlands	0.02	No	Both RWQCB and CDFG
Disturbed Herbaceous Wetlands	0.16	No	CDFG only
Intermittent Unvegetated Ephemeral Stream Channel	0.01	No	Both RWQCB and CDFG
Open Water	4.22	No	Both RWQCB and CDFG

These areas are also under the jurisdiction of wetlands agencies as discussed below.

Jurisdictional Waters

Since none of the wetlands or non-wetlands waters on site show a surface connection with "navigable Waters of the U.S.," none of these areas are under the jurisdiction of the U.S. Army Corps of Engineers (ACOE). All of these areas are under the jurisdiction of both RWQCB and CDFG, or, in the case of some areas of disturbed herbaceous wetlands, CDFG only (see *Table 5.4-2, Jurisdictional Waters (Including Wetlands) Present on the Villages of San Jacinto Project Site*). A total of 4.22 acres of open water, 0.23 acre of freshwater marsh, 0.07 acre of southern willow woodland, 0.05 acre of herbaceous wetlands (including 0.02 acre of disturbed herbaceous wetlands), 0.01 acre of cismontane alkali marsh, and 0.01 acre of intermittent unvegetated stream channel, all under the jurisdiction of RWQCB and CDFG, are present on site. An additional 0.16 acre of disturbed herbaceous wetlands under the jurisdiction of CDFG only is also present on site (See *Table 5.4-2* and *Figures 5.4-2, 5.4-3, and 5.4-4*). Data station forms for the wetlands delineation can be found in *Appendix F* of the Biological Resources Technical Report (included in *Appendix C* to this EIR).

Sensitive Plants (MSHCP Narrow Endemic Plant Species)

Because the MSHCP includes coverage for certain plant species for which limited information was available at the time of creation of the MSHCP plan (generally plants of limited distribution considered narrow endemic plants), these plants were conditionally covered by the MSHCP. For these species, surveys are required within suitable habitat. The Villages of San Jacinto project is located within MSHCP Narrow Endemic Plant Species Survey Area (NEPSA) 3. Species of concern in NEPSA 3 are Munz's onion, San Diego ambrosia, many-stemmed dudleya, spreading navarretia, California Orcutt grass and Wright's trichocoronis. Focused surveys were conducted for these species. Because suitable habitat was present for the San Jacinto Valley crownscale, Parish's brittlescale, Davidson's saltscale, smooth tarplant, Coulter's goldfields, thread-leaved brodiaea, little mousetail and mud nama, focused surveys were also conducted for these species.

Prior to the survey, a search was also conducted using the CNDDB (2004) to thoroughly assess the sensitive floral resources that may occur on site. Table 4 in the Biological Resources Technical Report (included as *Appendix C* to this EIR) lists potentially occurring sensitive species according to the detailed search of the CNDDB and Dudek's knowledge of biological resources of this area. *Table 3* in the Biological Resources Technical Report (included as *Appendix C*) includes a list of all sensitive plant species, their sensitivity status, habitat associations and likelihood for presence on site. No sensitive plant species in the NEPSA 3 survey suite were located on site. Approximately 170 smooth tarplant individuals were observed on site as were approximately seven Coulter's goldfields individuals.

Sensitive Wildlife

Table 4 in the Biological Resources Technical Report (included in *Appendix C*) includes a list of all sensitive wildlife species, their sensitivity status, habitat associations and likelihood for presence on site. A summary of this table follows:

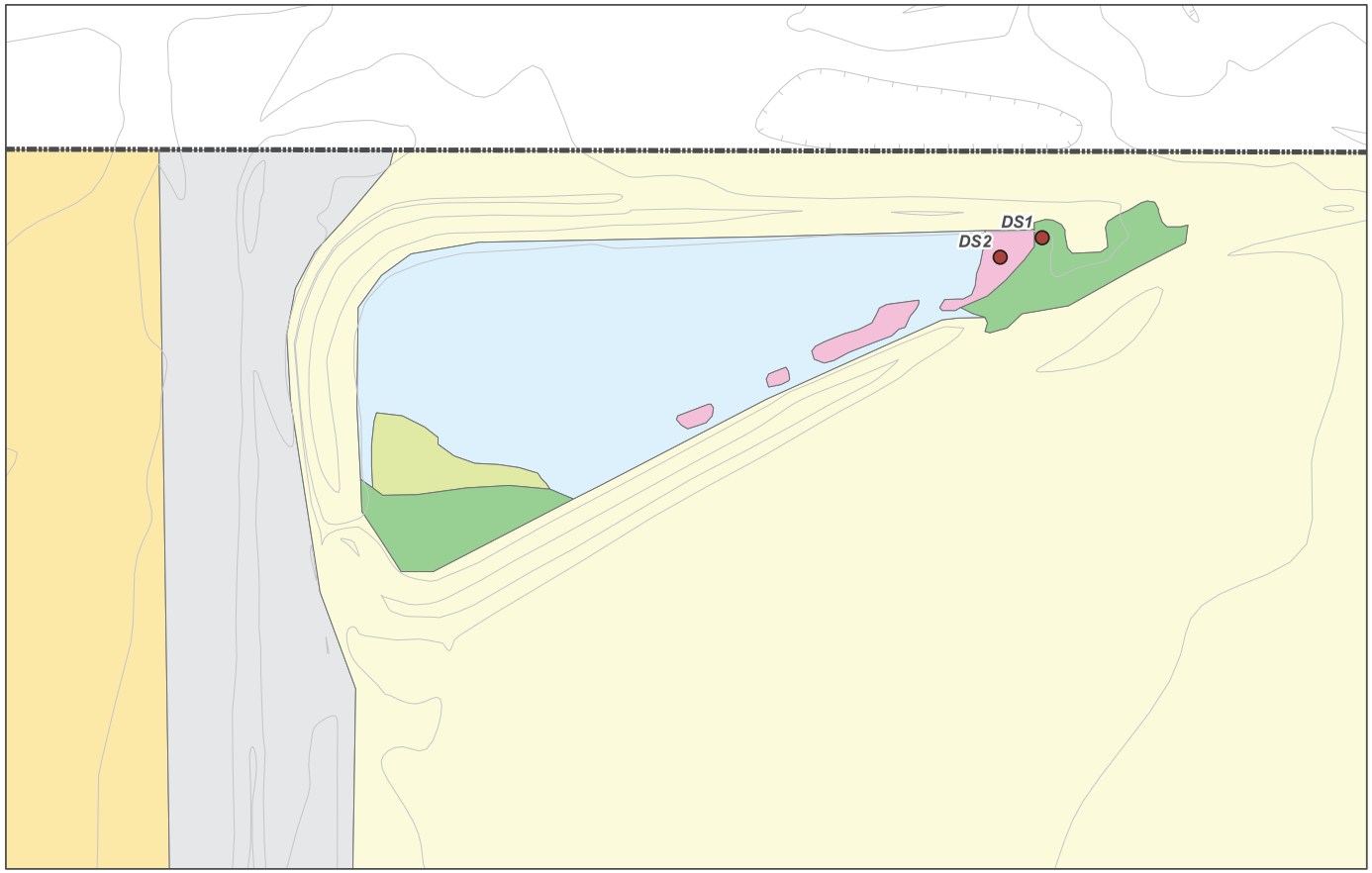
Reptiles and Amphibians

No sensitive reptiles or amphibians were observed on site, and no state- or federally-listed reptiles or amphibians are expected to occur. Table 5 in the Biological Resources Technical Report (included as *Appendix C*) includes all sensitive reptiles and amphibians that have the potential to occur within the project study area. Sensitive reptile and amphibian species classified as California Special Concern (CSC) Species and having at least a moderate potential to occur on site include the western newt and the western spadefoot toad.

Birds

Focused surveys for the western burrowing owl were conducted per MSHCP requirements for the project site, which is located within the Burrowing Owl Survey Area. One pair of burrowing owls and several burrows were observed during the surveys (*Figure 5.4-2*, see also Appendix E, Burrowing Owl Focused Survey Report, to the Biological Resources Technical Report, included as *Appendix C* to this EIR, for more information). The pair is assumed to be nesting on site. Two individuals of Swainson's hawk (*Buteo swainsoni*), a state-listed threatened species, were observed perched on trees within the site (*Figure 5.4-2*). Ferruginous hawk, northern harrier, and horned lark were observed foraging within the study area; the loggerhead shrike, a federal species of concern and CSC species, was observed nesting and foraging on site (*Figure 5.4-2*). White-tailed kite and turkey vulture were observed foraging on site (*Figure 5.4-2*). White-faced ibis was observed flying over the site during one survey visit. All of these species are covered species in the MSHCP.

In addition to these sensitive species observed, the great blue heron, prairie falcon, peregrine falcon, merlin and mountain plover could all utilize habitat on site during winter months. All of these species are covered species in the MSHCP. Western bluebird (sometimes considered sensitive by local environmental groups) also has a potential to forage on site during the winter months. Western bluebird is not a MSHCP covered species.



Legend

- Project Site

Villages of San Jacinto Vegetation Communities

- Agriculture
- Cismontane Alkaki Marsh
- Disturbed Habitat/Developed
- Freshwater Marsh
- Herbaceous Wetlands
- Open Water
- Ruderal
- Southern Willow Woodland
- Disturbed Herbaceous Wetlands
- Disturbed Herbaceous Wetlands (CDFG only)
- Data Station Location

N

Feet
0 25 50

TOPO SOURCE: RBF Consulting, September 2004

Villages of San Jacinto EIR

Northerly Detailed Area - Biological Resources Map

FIGURE 5.4-3

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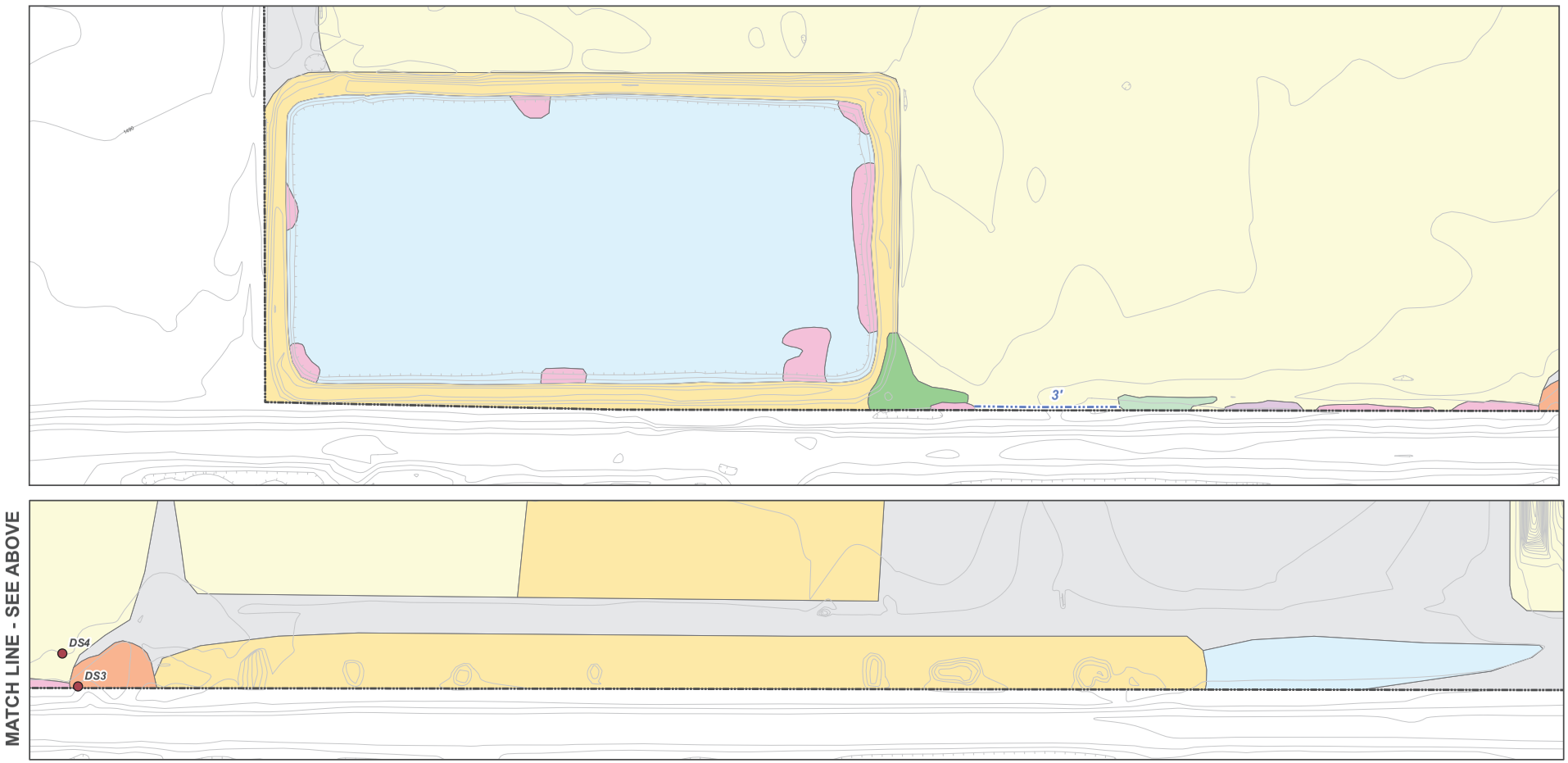

TOPO SOURCE: RBF Consulting, September 2004

Villages of San Jacinto EIR

Southerly Detailed Area - Biological Resources Map

FIGURE 5.4-4

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Mammals

Three sensitive mammal species or their sign were observed on site: black-tailed jackrabbit, bobcat and coyote, all are covered species in the MSHCP. Three additional species were assumed to utilize habitat on site, although were not observed: long-tailed weasel, gray fox and brush rabbit. Brush rabbit is a covered species in the MSHCP while long-tailed weasel and gray fox are not.

Invertebrates

No sensitive invertebrate species were observed on site during general wildlife surveys or are expected to occur within the project study area due to lack of suitable habitat (see Table 5 in Biological Resources Report). The vernal pool branchiopod survey that was conducted during the 2004-2005 wet season was negative for sensitive branchiopod species (see Appendix D of the Biological Resources Technical Report [included as *Appendix C* to this EIR] for vernal pool branchiopod survey report).

Fish

No sensitive fish species were observed on site during general wildlife surveys or are expected to occur within the project study area due to lack of suitable habitat (see Table 5 in Biological Resources Technical Report, included as *Appendix C* to this EIR).

Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Habitat linkages may function as wildlife corridors for some species and permanent habitat for others. Wildlife corridors and habitat linkages contribute to population viability in several ways: (1) they assure the continual exchange of genes between populations which helps maintain genetic diversity; (2) they provide access to adjacent habitat areas representing additional territory for foraging and mating; (3) they allow for a greater carrying capacity of species populations; and (4) they provide routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires).

As illustrated in *Figure 3-3, Site Location Map*, the project study area is surrounded by agricultural lands to the north, east, and southwest; a water reclamation facility lies to the southeast of the site. Therefore, the project study area is not of high importance as a regional wildlife corridor or habitat linkage, i.e., it does not connect larger habitat areas or provide for regional wildlife movement. Furthermore, the site is not included a MSHCP Linkage or Constrained Linkage which has been identified constructed to maintain regional habitat linkages.

5.4.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Services?
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption or other means?
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?

5.4.4 Biological Resource Impacts

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No sensitive reptiles or amphibians were observed on site, and no state- or federally-listed reptiles or amphibians are expected to occur. Three sensitive mammal species or their sign were observed on site: black-tailed jackrabbit, bobcat and coyote, all are covered species in the MSHCP (see full discussion of consistency with the MSHCP below). No sensitive invertebrate species were observed on site during general wildlife surveys or are expected to occur within the project study area due to lack of suitable habitat. No sensitive fish species were observed on site during general wildlife surveys or are expected to occur within the project study area due to lack of suitable habitat.

Focused surveys for the western burrowing owl were conducted per MSHCP requirements for the project site. One pair of burrowing owls and several burrows were observed during the surveys. In order to avoid potential indirect impacts related to burrowing owls, mitigation is provided (see *Section 5.4.5, Mitigation Measures*, Mitigation Measure 5.4-b).

Two individuals of Swainson's hawk (*Buteo swainsoni*), a state-listed threatened species, were observed perched on trees within the site (*Figure 5.4-2*). Ferruginous hawk, northern harrier, and horned lark were observed foraging within the study area; the loggerhead shrike, a federal species of concern and CSC species, was observed nesting and foraging on site (*Figure 5.4-2*). White-tailed kite and turkey vulture were observed foraging on site (*Figure 5.4-2*). White-faced ibis was observed flying over the site during one survey visit. Because impacts to other sensitive wildlife species are covered under the MSHCP, no additional mitigation is proposed for impacts to these species. The project will therefore, not have substantial adverse impacts on any sensitive specieThe project would impact 100% of all onsite habitats, many of which are suitable habitat for special-status species regulated by local plans/policies (i.e., MSHCP) or the US Fish and Wildlife Service or California Department of Fish and Game. *Table 5.4-3, Impacts to Vegetation Communities and Land Covers*, provides a summary of on-site habitats.

Table 5.4-3
Impacts to Vegetation Communities and Land Covers

Vegetation Community/Land Cover Type	Impact Acreage
Native Plant Communities/Land Cover Types	
Open Water	4.22
Freshwater Marsh	0.23
Southern Willow Woodland	0.07
Herbaceous Wetlands	0.03
Disturbed Herbaceous Wetlands	0.18
Cismontane Alkali Marsh	0.01
Intermittent Unvegetated Stream Channel	0.01
Subtotal	*4.75*
Uplands	
Agriculture	307.08
Ruderal	126.87
Disturbed/Developed	36.42
Subtotal	*470.37*
Total	**475.12**

Impacts to upland habitat types are not considered significant from a biological resources perspective. Impacts to wetland habitats are considered significant (see below for a discussion of these impacts in the context of Section 404 of the Clean Water Act and the MSHCP).

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Please see discussion below regarding the project's relationship with the MSHCP. Please see discussion above regarding the project's potential impacts to wetland or riparian habitats which may be protected under local or regional plans, policies regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption or other means?

Direct impacts associated with the development of the proposed project were calculated and are shown in *Table 5.4-4, Impacts to Jurisdictional Waters (Including Wetlands) Present on the Villages of San Jacinto Project Site).* As is shown in the table, all biological resources within the project boundaries were considered 100% lost. This includes 4.22 acres of open water, 0.23 acre of freshwater marsh, 0.07 acre of southern willow woodland, 0.03 acre of herbaceous wetlands (including 0.18 acre of disturbed herbaceous wetlands) and 0.01 acre of intermittent unvegetated stream channel (see *Table 5.4-4*).

Table 5.4-4
Impacts to Jurisdictional Waters (Including Wetlands)
Present on the Villages of San Jacinto Project Site

Plant Community	Impact Area (Acres)	MSHCP Riverine/Riparian?	RWQCB and/ or CDFG-Jurisdictional
Freshwater Marsh	0.23	No	Both RWQCB and CDFG
Southern Willow Woodland	0.07	No	Both RWQCB and CDFG
Herbaceous Wetlands	0.03	No	Both RWQCB and CDFG
Disturbed Herbaceous Wetlands	0.02	No	Both RWQCB and CDFG
Disturbed Herbaceous Wetlands	0.16	No	CDFG only
Intermittent Unvegetated Ephemeral Stream Channel	0.01	No	Both RWQCB and CDFG
Open Water	4.22	No	Both RWQCB and CDFG

Impacts to these habitats are considered significant, therefore mitigation is provided (see *Section 5.4.5, Mitigation Measures*, Mitigation Measure 5.4.-a).

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

As discussed above, under Existing Conditions, the project study area is surrounded by agricultural lands to the north, east, and southwest; a water reclamation facility lies to the southeast of the site. Therefore, the project study area is not of high importance as a regional wildlife corridor or habitat linkage, i.e., it does not connect larger habitat areas or provide for regional wildlife movement. Furthermore, the site is not included a MSHCP Linkage or Constrained Linkage which has been identified constructed to maintain regional habitat linkages. Therefore, the project will not have a significant impact on established migratory wildlife corridors.

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project site is located within the MSHCP Planning Area. Consistency with this plan is discussed below. There are no other local policies ordinances protecting biological resources that would affect the proposed project.

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?

As indicated in *Section 5.4.2, Existing Conditions*, the project has been determined not to be subject to reserve assembly criteria under the MSHCP due to the determination that cell designations located on the project site are the result of a mapping/registration error. Therefore, from a reserve assembly perspective (or absence of criteria area), the project is consistent with the MSHCP. That said, the project was also subject to additional MSHCP requirements, namely narrow endemic plant surveys, burrowing owl surveys, fairy shrimp surveys and riparian/riverine resources guidelines.

On-site water resources were also analyzed for consistency with riparian/riverine resources. While the project supports numerous wetland and water habitat, the man-made nature of these resources (largely for use in agricultural operations) eliminate them from being characterized as riparian/riverine per the MSHCP (see below for further discussion of MSHCP consistency). Therefore, the proposed project would be consistent with the MSHCP in terms of preservation of riparian/riverine resources. Suitable habitat on the project site was surveyed for sensitive fairy shrimp species. While common fairy shrimp species were observed in on-site habitat, sensitive fairy shrimp species were not observed. Therefore, the project would be consistent with MSHCP fairy shrimp survey and conservation directives. Suitable habitat was surveyed for all NEPSA 3 plant species. These species were not observed on site, therefore the project would not conflict

with MSHCP narrow endemic survey and conservation requirements. Two sensitive plant species, Coulter's goldfields (seven individuals) and smooth tarplant (approximately 170 individuals), were observed within the proposed impact area. Coulter's goldfields and smooth tarplant are covered species under the MSHCP but are not considered narrow endemic species by the MSHCP plan. These plants would be directly impacted by the proposed project. Impacts to these species would not be considered significant; the loss of 170 individuals of smooth tarplant and seven individuals of Coulter's goldfields are relatively small impacts to these species, which are fairly well distributed throughout the MSHCP plan area. In addition, these species are not MSHCP narrow endemic plants, and impacts to these species on the Villages of San Jacinto Project Site do not require any project-specific conservation measures such as salvaging for transplantation on another site. Because these species are covered under the plan, avoidance or impact minimization measures such as transplantation or seed salvaging is not necessary.

One pair of burrowing owls was observed on site. The project's impacts to these species are covered in accordance with the Species Conservation Objectives for the burrowing owl listed in the MSHCP. The project site does not support long-term conservation value for burrowing owl because of limited occupation of the species on the site. That said, in order to comply with the specific Burrowing Owl Survey Area provisions of the MSHCP, passive relocation to avoid direct impacts to known individuals will be required. In order to comply with MSHCP Burrowing Owl requirements, mitigation is provided. (see *Section 5.4.5, Mitigation Measures,* Mitigation Measure 5.4-b).

Adjacent MSHCP Lands

The Villages of San Jacinto Project is directly east of Criteria Cells 2775 and 2878. Although no development or establishment of MSHCP conservation areas has occurred as of yet in these criteria cells, some level of conservation may occur in the easternmost portions of the cells, directly adjacent to the Villages of San Jacinto Project site. Depending on proximity of these MSHCP conservation lands to the Villages of San Jacinto Project site, some level of edge effects on the conservation area may occur. Section 6.1.4 of the MSHCP, Guidelines Pertaining to the Urban/Wildlands Interface, addresses the indirect effects associated with locating development in proximity to the MSHCP conservation area and discusses measures to minimize these indirect effects. Several types of potential indirect effects on adjacent MSHCP conservation areas are discussed: drainage, toxics, lighting, noise, and exotic species.

Drainage

MSHCP requires that proposed developments in proximity to the MSHCP conservation area shall incorporate measures required through the NPDES requirements, to ensure that the quantity and quality of runoff discharged to the MSHCP conservation area is not altered in an adverse way. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP conservation area. Stormwater systems shall

be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP conservation area.

The Villages of San Jacinto Project contains an extensive system of drainage basins, greenbelts, and detention basins/lakes engineered to provide for treatment of surface runoff prior to leaving the site. In addition, a SWPPP addressing construction-related and post-construction related erosion and runoff issues will be prepared and implemented (see *Section 5.8, Water Quality and Hydrology*). Therefore, indirect impacts on potential adjacent MSHCP conservation area lands due to drainage of harmful elements are not anticipated.

Toxics

Land uses proposed in proximity to the MSHCP conservation area that use chemical bioproducts such as manure that are potentially toxic or may adversely affect wildlife species, habitat, or water quality are required to incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP conservation area. Although chemical bioproducts such as manure are not anticipated to be used on the Villages of San Jacinto Project site, project design measures and implementation of the SWPPP as discussed above would also prevent discharge of potential toxics into any adjacent MSHCP conservation areas. Therefore, indirect impacts on potential adjacent MSHCP conservation area lands due to toxic materials on the Villages of San Jacinto Project site are not anticipated.

Lighting

Due to the land uses proposed by the project, an increase in night lighting is anticipated. In order to avoid potential indirect impacts related to night lighting, mitigation is provided (see *Section 5.4.5, Mitigation Measures*, Mitigation Measure 5.4-c).

Noise

The MSHCP requires that "proposed noise-generating land uses affecting the MSHCP conservation area shall incorporate setbacks, berms or walls to minimize the effects of noise on MSHCP Conservation Area resources." For planning purposes, wildlife within the MSHCP Conservation Area should not be subject to noise that would exceed residential noise standards. Since the proposed land uses on a portion of the project site would be located adjacent to offsite MSHCP criteria cells include residential, school, park, and commercial/mixed use, noise is not expected to exceed residential noise standards (see *Section 5.11, Noise*). Therefore, impacts on potential adjacent MSHCP conservation lands due to increased noise are not anticipated.

Invasives

Due to the project's location adjacent to land that could potentially be conserved through the MSHCP Plan, potential indirect impacts related to invasive species may occur. In order to avoid potential impacts, mitigation is provided (see *Section 5.4.5, Mitigation Measures*, Mitigation Measure 5.4-d).

Indirect impacts to adjacent vegetation communities primarily would result from adverse "edge effects" as cited above. For the proposed project, the potential indirect impacts resulting from construction activities include dust, noise, and general human presence that may temporarily (or in the case of general human presence, permanently) disrupt species and habitat vitality and lead to construction-related soil erosion and runoff. However, all project grading will be subject to the typical restrictions (e.g., Best Management Practices) and requirements that address erosion and runoff, including the federal Clean Water Act, NPDES, and preparation of a SWPPP. In addition, as the site is surrounded by agriculture and an EMWD water reclamation facility, impacts to sensitive vegetation types adjacent to the project site are highly unlikely. See *Section 5.8, Water Quality and Hydrology*.

Non-MSHCP Covered Species

The June 17, 2003, Final MSHCP EIR/EIS analyzed other, non-covered species considered to be sensitive in the western Riverside County area. This EIR determined that other species which were not covered under the plan, would not be significantly affected by adoption of the plan. Therefore, any non-covered species in the MSHCP would not be considered significant.

5.4.5 Mitigation Measures

Project Specific Mitigation Measures

5.4-a Mitigation for impacts to jurisdictional wetlands and non-wetlands waters as required by RWQCB and CDFG, will consist of: (1) off-site creation, (2) a combination of off-site creation and enhancement of wetlands of equal or higher habitat quality, or (3) purchase of wetlands mitigation credits in an approved mitigation bank. Because wetlands/waters on the Villages of San Jacinto project site are isolated, of low overall quality (contain large quantities of non-native species), and are surrounded by agricultural lands, they do not provide high quality habitat for riparian-dependant wildlife species, therefore mitigation onsite would not result in equal or greater wetland habitat value. Mitigation for on-site wetlands/waters impacts would be a biologically equivalent or superior alternative to avoidance of these impacts. The above not withstanding, wetlands areas created, enhanced, or preserved through the project's wetlands mitigation plan would be connected to other wetlands/riparian/riverine areas and would provide overall biological value to the peregrine falcon and other sensitive wildlife and plant species. Wetland

mitigation ratios are based on past experience developing appropriate mitigation for impacts to similar wetland and/or Waters of the US.

Herbaceous Wetlands, Open Water, Freshwater Marsh and Intermittent Stream Channel

Mitigation for impacts to 4.22 acres of open water, 0.23 acre of freshwater marsh, 0.21 acre of herbaceous wetlands, and 0.01 acre of intermittent unvegetated stream channel would be accomplished through the creation or purchase of wetlands mitigation credits from an approved mitigation bank at a 1:1 ratio (i.e., 4.67 acres total) (*see Table 5.4-5, Mitigation Requirements for Impacts to Sensitive Vegetation Communities on the Villages of San Jacinto Project Study Area*).

Cismontane Alkali Marsh

Mitigation for impacts to 0.01 acre of cismontane alkali marsh would be accomplished through the creation, or a combination of creation and enhancement, of wetlands of equal or higher habitat quality at a 3:1 ratio (i.e., 0.03 acre). Mitigation can also be accomplished through the purchase of wetlands mitigation credits in an approved mitigation bank.

Southern Willow Woodland

Mitigation for impacts to 0.07 acre of southern willow woodland would be required at a ratio of 4:1 (i.e., 0.28 acre) (see *Section 5.4 in the EIR)*. Mitigation can be accomplished through the creation, or a combination of creation and enhancement of wetlands of equal or higher habitat quality. Mitigation can also be accomplished through the purchase of wetland mitigation credits in an approved mitigation bank.

Table 5.4-5
Mitigation Requirements for Impacts to Sensitive Vegetation Communities on the Villages of San Jacinto Project Study Area

Plant Community/Land Cover Type	Impact Acreage	Mitigation Ratio	Required Mitigation Acreage
Open Water	4.22	1:1	4.22
Freshwater Marsh	0.23	1:1	0.23
Herbaceous Wetlands	0.03	1:1	0.03
Disturbed Herbaceous Wetlands	0.18	1:1	0.18
Intermittent Unvegetated Stream Channel	0.01	1:1	0.01
Cismontane Alkali Marsh	0.01	3:1	0.03
Southern Willow Woodland	0.07	4:1	0.28
Total	**4.75**		**4.98**

5.4-b Per MSHCP, because of the site does not support long term conservation value for burrowing owls, mitigation for impacts to this pair of owls can include passive or active relocation of owls following accepted protocols per the burrowing owl Species Account in Volume II-B of the MSHCP. In addition, MSHCP requires that:

> Pre-construction presence/absence surveys for burrowing owl within the survey area where suitable habitat is present will be conducted for all Covered Activities through the life of the permit. Surveys will be conducted within 30 days prior to disturbance. Take of active nests will be avoided. Passive relocation (use of one way doors and collapse of burrows) will occur when owls are present outside the nesting season.

Because impacts to other sensitive wildlife species are covered under the MSHCP, no additional mitigation is proposed for impacts to these species. However, if construction activity is to take place during the breeding season (i.e., January through October), a one-time biological survey for nesting bird species would be conducted within the proposed impact area no earlier than 72 hours prior to construction. This survey is necessary to assure avoidance of impacts to nesting native birds (per the federal Migratory Bird Treaty Act). If nesting birds are detected within vegetation which is to be impacted, the nest location(s) will be protected. A buffer of 25 to 300 feet (specific width to be determined by the project biologist according to species of bird) around the nest will be avoided until fledging.

5.4-c MSHCP requires that night lighting shall be directed away from the MSHCP conservation area. Shielding will be incorporated by the project to ensure that ambient lighting in the MSHCP conservation area is not increased; therefore impacts on potential adjacent MSHCP conservation area lands due to increased lighting would be avoided.

5.4-d Table 6.2 of the MSHCP lists landscape plant species that shall be avoided for all portions of developments that are located adjacent to (within 1,000 feet) the MSHCP conservation areas. These plant species will be avoided on the areas of the Villages of San Jacinto project site adjacent to Criteria Cells 2775 and 2878 to the west of the project site. This would be achieved by including language in the residential sale documents to ensure that future property owners understand the types of plants that are restricted. Sample language for inclusion in sale documents would be submitted to the Planning Department for approval prior to approval of a certificate of occupancy. Therefore no indirect effects due to invasive species are anticipated.

5.4.6 Residual Impacts/Level of Significance after Mitigation

The proposed project is consistent with the Western Riverside County MSHCP which, aside from Clean Water Act requirements, fully mitigates for impacts to biological resources within western Riverside County. Implementation of suggested mitigation measures will ensure that project impacts are mitigated to a level below significance.

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5.5 CULTURAL RESOURCES

5.5.1 Introduction/Methodology

The following discussion focuses on the project's relationship to existing cultural resources, potential impacts to these resources and mitigation measures required to reduce these impacts to a level below significance. A residual impact statement has been included in order to characterize the level of significance of impacts after mitigation measures have been applied.

Preparation of this section involved summarizing information contained in the December 2004 Cultural Resources Study for the project site, prepared by ASM Affiliates. This section summarizes existing condition information, and uses the City of San Jacinto CEQA Significance Thresholds, specifically the cultural resource thresholds, to determine if cultural resource impacts were considered significant under CEQA. Mitigation measures were developed by cultural resource consultants, ASM Affiliates.

For reference purposes, the March 2005 Cultural Resources Study for the project is included as *Appendix D* to this EIR. Methods used in the preparation of this December 2004 report are contained therein.

5.5.2 Existing Conditions

Cultural History

The project area is located in a region intermediate between the desert regions to the east and the coastal region to the west. As such, it is likely to have been affected by population movements from both the coastal and desert regions. There is a significant body of research that was developed during the Eastside Reservoir Project (now referred to as Diamond Valley Lake) planning and environmental study which has helped to provide a cultural resource chronology baseline for the western slopes of the Santa Rosa and San Jacinto Mountains. These sources can be applied for the purposes of a general cultural history, especially for the Late Prehistoric period, assuming that Native American mobility and resource use practices extended across the environmental zones from the deserts to the mountains, as evident from ethnohistoric sources. These sources can not provide clarification on patterns of social organization, settlement, territoriality and seasonality as they relate to the deep past. It is likely that these patterns changed over time with changing environmental conditions, resident tribal affiliation and demographics.

The prehistoric chronology is divided into three periods, each characterized by differing patterns of socio-political organization, technology, resource focus and land use. They include the Paleoindian, Archaic and Late Prehistoric periods.

Paleoindian Period

The Paleoindian period is represented by several archaeological complexes, including what are referred to as the related Fluted-Point and Western Pluvial Lakes traditions in the Mojave Desert, and the Paleo-Coastal tradition on the Pacific coastal plane. Among the best known archaeological complexes of tool types and settlement distributions in the desert is the Lake Mojave complex. On the coastal plane and Imperial Valley is the San Dieguito complex.

Small, highly mobile bands of hunters and gatherers depended on various game animals and an extensive rather than intensive pattern of plant exploitation. Sites tend to occur along former pluvial lakes and desert pavements, or along major stream channels. Milling tools are absent in the desert and rare on the coast, suggesting minimal use of hard seeds. The stone tool kit included foliate points or knives, long-stemmed points, lanceolate bifaces, discoidals, burins, crescents, flake and core scrapers, choppers, hammerstones, cores, drills, gravers and casual flake tools.

Archiac Period (8000–1500 B.P.)

Over the long duration of the Archaic period, there was a gradual shift from small, highly mobile hunters and gatherers practicing a forager pattern to larger groups with a diversity of settlement types involving residential bases, temporary camps, strategically located cache sites and specialized resource collecting localities. This pattern reflects increasing intensification and a shift from foragers to collectors who practiced logistical patterns of mobility to accommodate seasonally available resources. Coincident with these changes were the diversification of food resources and new specialized technologies with which to exploit them. Projectile points reflect the shift to the use of atlatl and dart. Milling tools become ubiquitous and reflect increased exploitation of seeds and nuts. Larger residential base sites tend to occur at reliable water sources such as springs or tanks, with temporary camps near seasonal stream channels, extinct rivers, playas, high terraces above sinks and rockshelters.

Some later Archaic sites are known, however, from the Colorado Desert that indicate occupations along the boundary between the low desert and Peninsular Ranges and at more favored habitats at springs and tanks. The most substantial Colorado Desert site is Indian Hill Rockshelter in Anza-Borrego Desert State Park where 1.5 m of Archaic period deposits were excavated below a Late Prehistoric component. Most significant were 11 rock-lined cache pits and numerous hearths indicative of either a residential base or a temporary camp in which food and tool storage was integral to the hunting and gathering settlement-subsistence strategy. Also recovered were numerous Elk-eared dart points, flaked and milling stone tools and three inhumations, one of which was radiocarbon dated to 4070 "100 B.P." Two similar rock-lined pits were excavated at a small rockshelter in Tahquitz Canyon near Palm Springs. The small quantity

of artifacts at that site suggested strategically stored food and seed processing equipment of small mobile groups.

Late Historic Period (1500–100 B.P.)

The major archaeologically visible technological and cultural innovations of this period are the introduction of pottery making by the paddle-and-anvil technique, bow-and-arrow technology around 1200 B.P., a shift from inhumation to cremation burial and the introduction of floodplain agriculture on the Colorado River about the same time, although exact dating of early domesticates is lacking. This was also the period when obsidian trade relations shifted from the Coso sources in the Mohave Desert to the Obsidian Butte source in the Salton Trough, when Lake Cahuilla did not submerge it. Ceramics and cultigens were introduced from either Mexico or through the Hohokam culture of the Gila River.

The ancestral Cahuilla were certainly exposed to domesticates at an early time, although opinions differ on when they adopted horticulture as a substantial part of their economy. It may have been a secondary pursuit for the production of specialty foods and fibers or gourds in the prehistoric period, although that has not been established archaeologically, as yet. Agricultural intensification and ditch irrigation techniques may not have occurred until after exposure to the mission system in historic times.

Bow-and-arrow technology, seed-beaters and other sophisticated hunting and gathering technology may also be related to the spread of Numic and Takic peoples from the southern Great Basin. Late Holocene flooding of Lake Cahuilla may have accelerated contacts between people of the ancestral Yumans of the Colorado River and the ancestors of the Cahuilla in the Coachella Valley and Peninsular Ranges. Such contacts through ceremonial and economic exchange may have resulted in a cultural dynamic that formed the Patayan Pattern and the resulting cultures of the ethnohistoric period. Long-range travel to special resource collecting zones and ceremonial locales, trading expeditions, and possibly some warfare are reflected by the numerous trail systems throughout the Colorado Desert. Pot drops, trailside shrines and other evidence of transitory activities are associated with these trails. Many of the pictographic, petroglyphs, and bedrock grinding surfaces in the Colorado Desert have also been associated with the Patayan pattern, although direct dating and cultural affiliation of such features is often difficult.

Ethnohistoric Period

Cahuilla and related Takic ("Shoshonean") speakers of the Uto-Aztecan linguistic stock such as the Luiseño, Serrano, and Gabrieleño, migrated from the southern Great Basin into California to displace the groups who had been occupying those territories. Those displaced groups are presumed to be the ancestors of the modern Hokan speakers who now occupy the areas to the

south (Kumeyaay) and the north (the Chumash). The specific time, duration, and process of this migration remains unclear. Some estimates based on glottochronology and distribution of archaeological assemblages put the transition somewhere between 1000 to 2000 B.P., mostly likely around 1500 B.P. but possibly as early as 2500 B.P.

The first documented description of Cahuilla Indians is provided by the chroniclers of the Anza Expeditions, whose mission was to bring colonists from Sonora to coastal California Their first trip brought them through Cahuilla territory in March 1774, the second in December 1775. Their first substantive encounter was at San Gregorio in the Borrego Valley, where they found Cahuilla ("Jecuiche") in apparent co-residence with Kumeyaay ("Cajuenches"). They continued to encounter Cahuilla through lower Collins Valley, Coyote Canyon, Cahuilla Valley, Tripp Flats, on the western side of the San Jacinto Mountains. Their observations were few but included references to the early spring agave harvests, seed gathering with beater and basket, rabbit sticks, agave fiber capes, and bows and arrows. Although possibly Serrano, a rockshelter composed of boulders and covered with brush is also described. The Spaniards describe the Cahuilla as weary of their presence, suggesting little or no previous contact, and apparently undergoing food stress, especially during the winter of 1775–1776 visit. This might be expected if stored foods in fall had been depleted and prior to the agave harvest.

The distance of Cahuilla territory from the California missions, first founded in 1769, meant they were not recruited in as great numbers, nor assimilated as rapidly as the coastal tribes. The first to enter Mission San Gabriel, possibly as early as 1783, were western Cahuilla of the kupakik lineage at Warner's Hot Springs. Next were Cahuilla wives of Serrano in the Cajon Pass area in the 1796. Members of western Cahuilla villages first appear in baptism records of 1797. In addition, runaway neophytes, especially Serrano, sought refuge among the desert tribes, exposing more isolated Cahuilla to mission ideology and material culture, not to mention diseases. It is not until after 1810, however, that Cahuilla individuals begin to appear in more substantial numbers in the registers of Mission San Gabriel, San Juan Capistrano, and San Luis Rey.

The impact of the Spanish mission system and colonization was generally much less immediate and profound to the isolated desert and mountain groups than coastal groups. More direct influence was not felt until after the establishment of the San Bernardino estancia in 1819 and, thereafter, a cattle ranch at San Gorgonio. When the Romero Expedition passed though the area in 1823–1824, it was clear that non-missionized Cahuilla were used to seeing vaqueros, employed by the rancho, driving cattle through the area. Certainly by 1823–1824, they were not only familiar with Hispanic ways but were comfortable in dealing with them, as evidenced by their reaction to the members of the Romero Expedition. The expedition also reported that the Cahuilla at Toro were engaged in agricultural pursuits (growing corn and melons) and were already familiar with the use of horses and cattle. While the Cahuilla may have already had some

experience in cultigens from their contact with the Colorado River tribes, agriculture probably became a more important supplement to their hunting and gathering economy after their exposure to ditch irrigation methods at the missions. Irrigation ditches were certainly being constructed by the Cahuilla in the Palm Springs area by the 1840s, and possibly several decades earlier.

Cahuilla political leadership with regard to external relations became more centralized in the Spanish and Mexican periods as high ranking or charismatic clan leaders were recognized by Europeans as representing entire tribal areas (Strong 1929:149). Emerging as central figures were Juan Antonio among the Mountain Cahuilla and Chief Cabazon in the desert. As early as 1844, Juan Antonio led several mountain clans to the San Gorgonio pass area to provide security for San Bernardino Rancho. His group played a significant role during the Mexican-American War, siding with the Mexicans against the Luiseño who supported the American invasion.

The 1848 Treaty of Hidalgo with Mexico obligated the Americans to preserve the liberty and property of the inhabitants of California, an obligation that obviously failed. The U.S. government in 1850 appointed three commissioners to conduct negotiations with tribal leaders across California to settle all land rights issues. One of the 18 treaties to be drafted covered the Cahuilla, Serrano, and Luiseño and was signed in Temecula on January 5, 1852. The tribal leaders were promised supplies, food, and technical training in return for accepting specified reservation lands. But as was so often repeated throughout the west, local Euro-Americans lobbied against the treaty and Congress never ratified it. The effect was to further alienate the traditional territorial base of the Cahuilla as whites flooded into the area to claim the best farming and grazing lands. Outside the reservations, Cahuilla men and women sought wage work on ranches in the San Jacinto and Santa Rosa mountains, and on farms, orchards, and urban households in the Riverside and San Bernardino valleys. This greatly accelerated the process of acculturation and Cahuilla participation in the regional socio-economic milieu.

European diseases were probably beginning to take their toll on the Cahuilla in the early 1800s but became particularly severe in the 1860s. The most dramatic was the great smallpox epidemic of 1863 that killed Juan Antonio as well as many bearers of tribal wisdom and culture. Survivors of previously autonomous clans assembled into the remaining villages or founded new settlements in an accelerated process of population aggregation and cultural reorganization. This process continued through the following decades. Isolated canyons now became places of refuge from disease and from contacts with Euro-Americans in general. Many previously occupied areas were abandoned in the 1860s and 1870s as residential bases but were still used for hunting and gathering into the twentieth century.

The Cahuilla land base was substantially reduced in the 1860s and 1870s as the federal government ceded every other section within ten miles of the new transcontinental railroad to the

railroad companies. Sections 16 and 36 of every township were also removed from federal control as a school tax base. Any de facto control of larger territorial bases was completely eliminated in 1876 when President Grant by Executive Order set aside small reservations for all groups classified as "Mission Indians." This included the sections or parcels in which they had aggregated in the previous decades and in which they had made improvements for farming, etc. The following year, another Executive Order by President Hayes set aside every even numbered section and certain other unsurveyed portions of townships for Indian reservations. The result was a checkerboard of Indian-controlled land, encompassing 48 sections, spread across the eastern edge of the Santa Rosa and San Jacinto mountains and the Coachella Valley. With various additions and withdrawals over time, this has remained the permanent home of the Cahuilla to the present.

As traditional lifeways became more difficult to pursue, the Cahuilla adapted to their new geographical and political environment by taking jobs in American ranches, towns, and cities. The 1860s through 1880s was a time of increased acculturation as new technologies, material goods, and practices were incorporated into the traditional lifeways of the reservation. Traditional ceremonial practices and beliefs continue along side Catholic and Protestant beliefs for many Cahuilla. Ceremonial houses still existed through the 1950s, 1960s, and early 1970s and many cultural traditions remain part of westernized lifestyles. The Cahuilla retain an acute interest in their cultural heritage and the cultural resources of their traditional territories.

Record Search Results

One historic resource was identified within the project area. The site is a bungalow style home located in the south-central portion of the project area adjacent to other existing buildings. The house was first recorded in 1982 by Laura Swift of the Riverside County Historical Commission.

In addition to onsite resources, five previously identified resources were identified within one mile of the site. Two of the resources are historic structures associated with farming in the area. One resource is the former location of historic structures and a Mission-era adobe rancho built around 1820. Another resource consists of the Colorado Aqueduct. The Aqueduct was built from 1933 to 1928 to transport water from the Colorado River to the Los Angeles Basin. One resource is the location of a historic event, the landing site of a record-setting trans-polar flight. This occurred on July 14, 1937, when a crew of three Russians landed their ANT-25 plane in agricultural fields after low fuel and fog forced them to abandon an attempted landing at San Diego. The 6,295-mile flight set a distance record and was only the second to cross the North Pole. The flight began in Moscow and lasted 62 hours, 2 minutes.

Site Survey Results

The site survey resulted the discovery of two isolated prehistoric artifacts. One previously recorded historic structure also exists within the project area. These resources include:

Historic Structure

The historic structure is a single-family home first recorded in 1981 by Laura Swift of the Riverside County Historical Commission. Swift estimated that it was built around 1926. However, a structure appears at the location on 1901 30-minute quadrangle maps. It is possible that the current home replaced an earlier structure. Evidence of such a replacement was not noted during the field survey.

The house is a front-gabled craftsman-style bungalow with a partial width front porch. The porch is also front gabled and both porch and house gable have triangular slatted vents under the gables. The front porch is enclosed by a low wall and rounded pilasters support the porch roof. The roof has widely overhanging eaves with exposed beams and triangular knee braces. The windows are all wood-framed double hung sashes with wooding casing.

The house has been abandoned since first recorded and is no longer maintained. It lies directly on an active fault (Casa Loma Fault) and the northeast corner has subsided 2-4 inches producing cracks on interior walls. All kitchen and bathroom cabinets, facilities and appliances were replaced, probably in the 1970s. Minor remodeling to interior spaces and partitions has also occurred. The north half of the attic was converted into a small bedroom loft with modern faux wood paneling. A small storage cellar is also located under the north half of the structure and is accessible by a stairwell in the kitchen. The unusual arrangement of windows on the north face of the house suggests other alterations may have occurred. Based on photos of the house taken during the original site survey (November 2004), the structure has further deteriorated with most of the windows being broken out and being marked with extensive graffiti.

One outbuilding which probably served as a tractor shed or garage was noted in the original field survey, but is no longer present at the site.

ISO-1 (Isolated Bifacial Mano)

An isolated bifacial mano (hand-held milling stone) was found near the crest of a subtle escarpment formed by an active fault that crosses the San Jacinto Valley. The floodplain of the San Jacinto River lies north of the escarpment. Otherwise, the area would have been a featureless alluvial plain in prehistory. The mano measures 10×8.2×5.7 cm and is made of coarse-grained granite. Both ends have been battered either to shape the mano into a desirable form or by being used as a pestle.

ISO-2 (Isolated Bifacial Mano)

An isolated bifacial mano (hand-held milling stone) was discovered 36 m south of ISO-1. The mano measures 8.5 cm in diameter and is 5 cm thick. It is made of hard, semi-crystaline quartz. About 70% of the circumference has been battered, probably to shape the object.

Despite good ground visibility and extensive searching, no additional artifacts were found in the vicinity of the two manos.

5.5.3 Significance Thresholds

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on cultural resources if it would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 10564.5?
3. Disturb any human remains, including those interred outside of formal cemeteries?

NOTE: Due to the length of CEQA Section 15064.5, it is not repeated verbatim. Please refer to www.ceres.ca.gov for a description of CEQA Section 15064.5.

5.5.4 Impacts

The following discussion outlines potential impacts for the proposed project.

Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

While the historic structure has many features of a Craftsman-style bungalow, it has been substantially altered. All cabinets and plumbing fixtures have been destroyed. Interior walls have been altered by graffiti and many parts of the walls and ceiling have been punctured with holes that are beyond repair. The original wooden siding has been replaced by unusual textured pink stucco. In addition, a corner picture window has been inserted at the rear of the house.

The importance of a historic structure is related to survival of characteristics that existed during the period of significance. Historical resources must retain enough of their character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling and association. The bungalow has been altered to the extent

that it has lost integrity of design, materials, workmanship and feeling. In fact, it is now barely identifiable as a Craftsman-style bungalow. It is unlikely that the bungalow retains sufficient integrity to be eligible for listing on the California Register of Historical Resources. Therefore, a less than significant impact to this formerly historic resource would occur.

Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 10564.5?

No significant archaeological resources were identified within the project by either a records search or survey. One previously recorded historic structure and two newly identified isolated prehistoric artifacts were identified by the survey. Five previously recorded sites are located within one mile of the project. Due to the presence of these resources and the fact that the project is located within an alluvial setting, potentially significant archaeological resources could be unearthed during site grading. In order to reduce this potentially significant impact from occurring, mitigation is provided (see *Section 5.5.5, Mitigation Measures, Mitigation Measure 5.5-a*).

Would the project disturb any human remains, including those interred outside of formal cemeteries?

There are no known human remains within the site or vicinity. Additionally, the Native American Heritage Commission (NAHC) conducted a search of their Sacred Lands File, but found that Native American cultural resources were not present within one-half mile of the project area (See Appendix B). However, in the unlikely event human remains are found during construction activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur in the immediate area until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC who will then contact the appropriate tribal representative. Should local Native American groups find that the site supports potential buried ancestral remains, the Soboba Consulting Services Agreement allows for Native American monitoring during construction. Consequently, the project's adherence with the State Health and Safety, Public Resources Codes and Soboba Consulting Services Agreement shall ensure any potential impacts would be less than significant.

5.5.5 Mitigation Measures

5.5-a In order to reduce the potential for disturbance or damage to unknown archaeological resources, monitoring of mass grading activities of the site by a qualified archaeologist is required. Should the monitor observe disturbance of resources that could be important

archaeological artifacts, the monitor shall have the power to stop grading in the immediate area of discovery in order to allow for a resource study and recovery/curation effort (if necessary) to occur.

5.5.6 Residual Impacts/Level of Significance after Mitigation

Due to the lack of significant historic resources present, significant impacts would not occur. In order to reduce potentially significant impacts to unknown archaeological resources, mitigation is provided and would reduce any potentially significant impacts to a level below significance.

5.6 GEOLOGY AND SOILS

5.6.1 Introduction/Methodology

This section consists of a summary of existing geological conditions, anticipated impacts related to these conditions and mitigation measures required to reduce these impacts to a level below significance. A residual impact statement has been included to characterize the level of significance after applied mitigation measures.

A fault investigation for the project was performed by Leighton and Associates and their preliminary findings are presented in their report dated March 31, 2004. In order to evaluate the potential for surface fault rupture in the existing onsite Earthquake Fault Hazard Zone, ten exploratory fault trenches were excavated over a period of seven months. Findings were coordinated and reviewed with the County of Riverside Geologist and previous investigations completed on adjacent sites were also reviewed. In response to questions and comments received from the County Geologist, Leighton also prepared three additional investigations (reports dated August 31, 2005, June 30, 2006, and October 31, 2006). These investigations are included in *Appendix E* of this EIR and summarized in this section. Leighton and Associates conducted a preliminary geotechnical investigation which is summarized in the February 28, 2005, Preliminary Geotechnical Investigation. This second report is included as *Appendix F* to this EIR.

5.6.2 Existing Conditions

Subsurface Soil and Rock Conditions

The earth materials encountered throughout the site consist of undocumented fill, topsoil and alluvium. These units are described in the following sections in order of increasing age.

Undocumented Fill

Undocumented fills are related to grading activities to construct onsite access roads, perimeter unimproved dirt roads, site agricultural leveling and exploratory excavations (fault trenches). Other undocumented fills exist associated with limited water retention berms to collect seasonal runoff and the livestock run-off retention basin. All undocumented fills are considered unsuitable for support of additional fill or structures or other planned improvements in their present condition.

Topsoil

The majority of the site is composed of topsoil that is located on the upper 10 to 24 inches of the ground surface. Uniform in composition and thickness, this material general consists of a light

yellow-brown to yellow brown, silty sand, silty clay to sandy clay with scattered gravel sized clasts.

Alluvium (Qal)

Alluvial soil was encountered in all areas of the site and was deposited as part of a complex fluvial/channel dispositional environment. This alluvium consists of yellow-brown to medium gray, dry to damp, silty, very fine to fine sand, with interbedded lenses of silt. Channel deposits of homogeneous, friable, dry, medium to coarse sand with interbedded lenses and lamination of gray, loose to medium dense, dry to damp, very fine to fine sand were also observed. There are abundant in-filled animal burrows containing finer silt and sands.

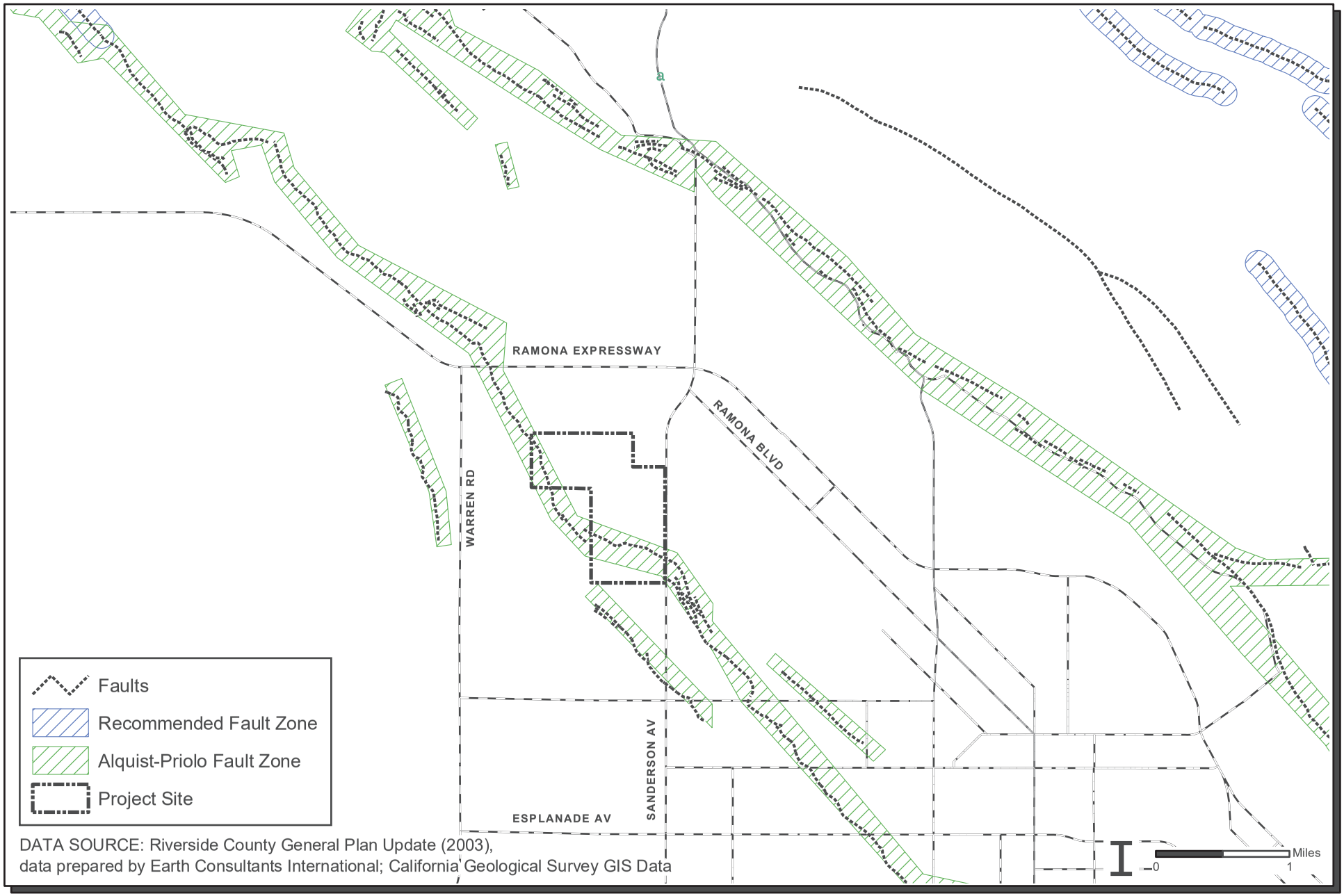
Subsurface Water Conditions

Perched groundwater was encountered at multiple depths below the surface, as shallow as 5 feet and as deep as 22 feet. Regional groundwater is anticipated below 150 feet and likely, as much as 200 feet below grade. However, groundwater can be expected to fluctuate seasonally within the subject site and during periods of heavy regional rainfall, or groundwater withdrawal by the local residences, agricultural developments and water utility companies. During drought conditions, groundwater levels could temporarily deepen significantly.

Faulting and Seismicity

Based on the commonly accepted definition provided by the California Geological Survey, an "active fault" is a fault that has had surface displacement within Holocene time (about the last 11,000 years) and a "potentially active fault" is a fault considered to have had surface displacement during Quaternary time (last 1,600,000 years). These definitions are used in delineating Earthquake Fault Zones as mandated by the Alquist-Priolo Geologic Hazards Zones Act (California Public Resources Code Sections 2621–2630). The intent of this act is to prohibit the location of structures on the traces of active faults, thereby mitigating potential damage due to fault surface rupture.

The project site is located within seismically active southern California. The subject site contains an Earthquake Fault Zone (as created by the Alquist-Priolo Earthquake Fault Zone Act). According to the Leighton & Associates Fault Investigation, the active San Jacinto-Casa Loma fault transverses the northwestern and southern portions of the project site. Fault lineaments are shown by geomorphic evidence, aerial photography, and in the San Jacinto 7.5 minute Quadrangle of the Alquist-Priolo Earthquake Fault Map (see *Figure 5.6-1, Faults and Fault Zones*).



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In addition to the on-site Casa Loma, several other active faults are located in the project area. The San Jacinto Valley Segment of the San Jacinto Fault is located approximately 0.8 mile northwest of the site, the San Jacinto-Anza Fault is located 7.2 miles to the southeast, and San Andres Fault lies 15.7 miles to the northeast. *Figure 5.6-1* summarizes regional faults within the area. The San Jacinto Fault Zone is estimated to accommodate a plate slip of approximately 12–20 millimeters per year. Since the mid-18th century, at least six major earthquakes have occurred along the San Jacinto Fault Zone, ranging from 6.2Mw to 7.2Mw. Of all the fault systems in California, the San Jacinto and San Andreas Fault complexes are among the most active. The U.S.G.S. measures hundreds of minor earthquakes annually within the San Jacinto Valley. Most of these earthquakes are in the bedrock underlying the alluvium unit at depths of 3 to 5 miles.

Subsidence/Ground Rupture

Ground rupture is generally considered most likely to occur along pre-existing active faults. As such, the potential for site ground rupture during a seismic event is considered moderate to high. Based on historic occurrence data, ground rupture is believed to occur at normal recurrence intervals which may not provide adequate time for erosion to conceal fault features. Subsidence/rupturing of a portion of the San Jacinto graben has occurred at an apparent average rate of between 0.125 and 0.5 inch per year for at least the past 15,000 to 40,000 years (see *Figure 5.6-2, Subsidence Hazard Areas*).

Liquefaction

Liquefaction occurs when strong seismic activity creates excess pore pressures in cohensionless soils. Research and historical data indicate that loose granular soils or soils of low plasticity below a near surface groundwater table are most susceptible to liquefaction. Liquefaction is characterized by a loss of shear strength in the affected soil layers, thereby causing the soil to flow as a viscous liquid. This effect may be manifested at the ground surface by settlement and/or sand boils. In order for the potential effects of liquefaction to be manifested at the ground surface, the soils generally have to be granular or of low plasticity, loose to medium dense, saturated relatively near the ground surface and must be subjected to a sufficient magnitude and duration of ground shaking. Increased soil mobility can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring and other damaging formations. As depicted on *Figure 5.6-3, Liquefaction Hazard Areas*, the proposed project is located in an area with moderate potential for liquefaction. Upon further analysis, the Leighton Associates Report identifies the northern one-third to one half of the project site as having a potentially high possibility for liquefaction to occur given current site conditions.

Landslide, Mudflow or Other Erosion Hazards

Landslides are anticipated when severe weather events weaken certain agglomerations of hillside soils. As a result, unstable soil slips downhill. The proposed site is relatively flat with site elevations varying from approximately 1,457 feet above mean sea level along the northwestern boundary to an elevation of approximately 1,493 feet near the southeast corner. No previous landslides were identified during the investigation (see *Figure 5.6-4, Landslide Hazard Areas*).

Similar to landslides, mudflows occur during severe weather events in or adjacent to mountainous terrain. Large boulders and sediment are mobilized as a result of a sudden onslaught of water. This hazard is prone to occur in areas affected by fire that are relatively void of vegetation. The project is located in the San Jacinto River Valley, away from mountainous terrain. This hazard is expected to be minimal at this project site.

Any exposed soil surface may be susceptible to wind or water erosion. There are no naturally occurring drainages on site, therefore the likelihood of water-based erosion is unlikely.

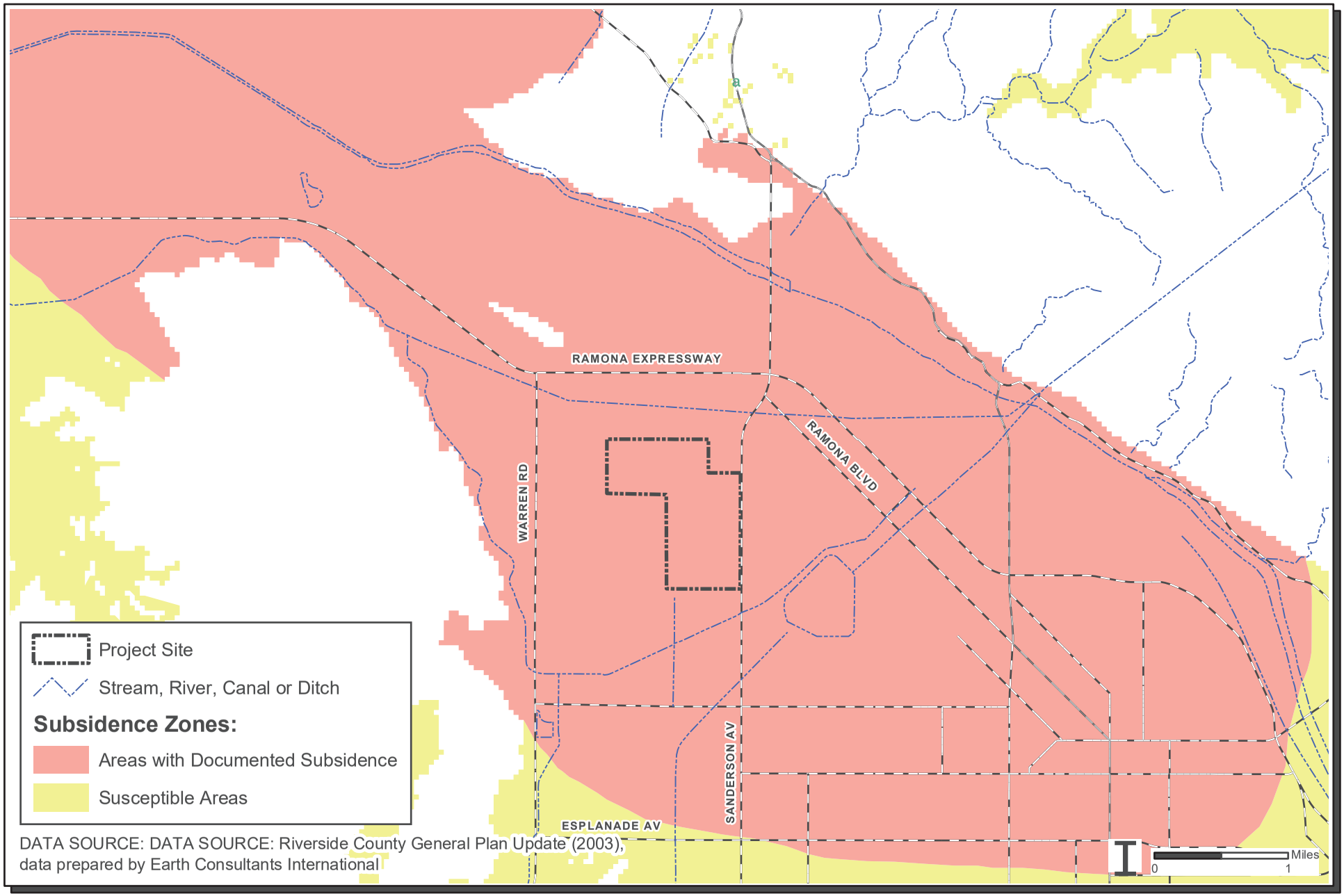
Seiches and Tsunamis

A tsunami is a sea wave generated by submarine earthquakes, landslides or volcanic activity, which displaces a relatively large volume of water in a very short period of time. Seiches are defined as oscillations in a semi-confined body of water due to seismic shaking. The proposed project site is not located near a significant body of water or the Pacific Ocean. Therefore, these hazards are not anticipated at the project site.

5.6.3 Significance Thresholds

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on geology and soils if it:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    a. Rupture of a known earthquake fault, as delineated in the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
    b. Strong seismic ground shaking
    c. Seismic-related ground failure, including liquefaction
    d. Landslides.



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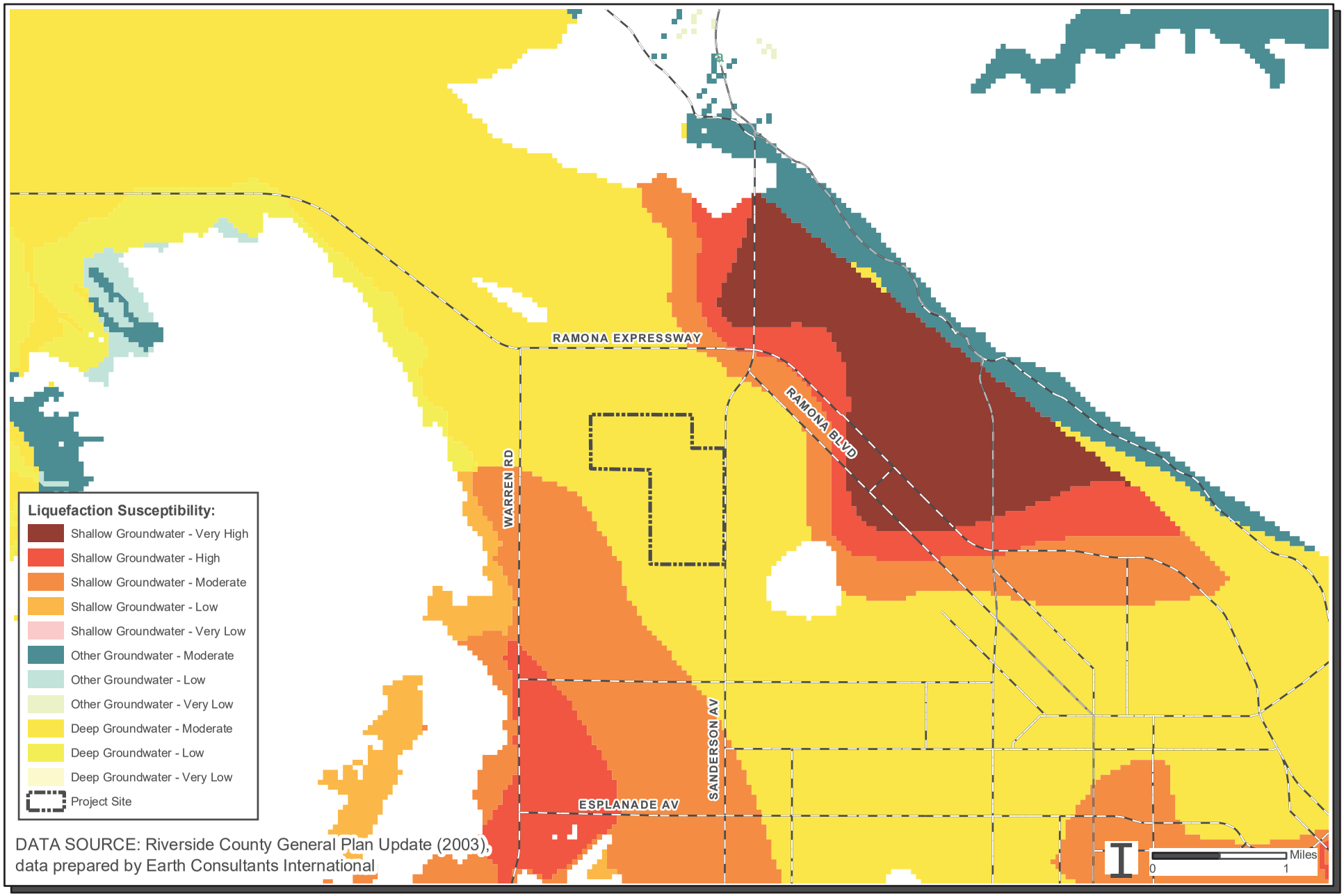

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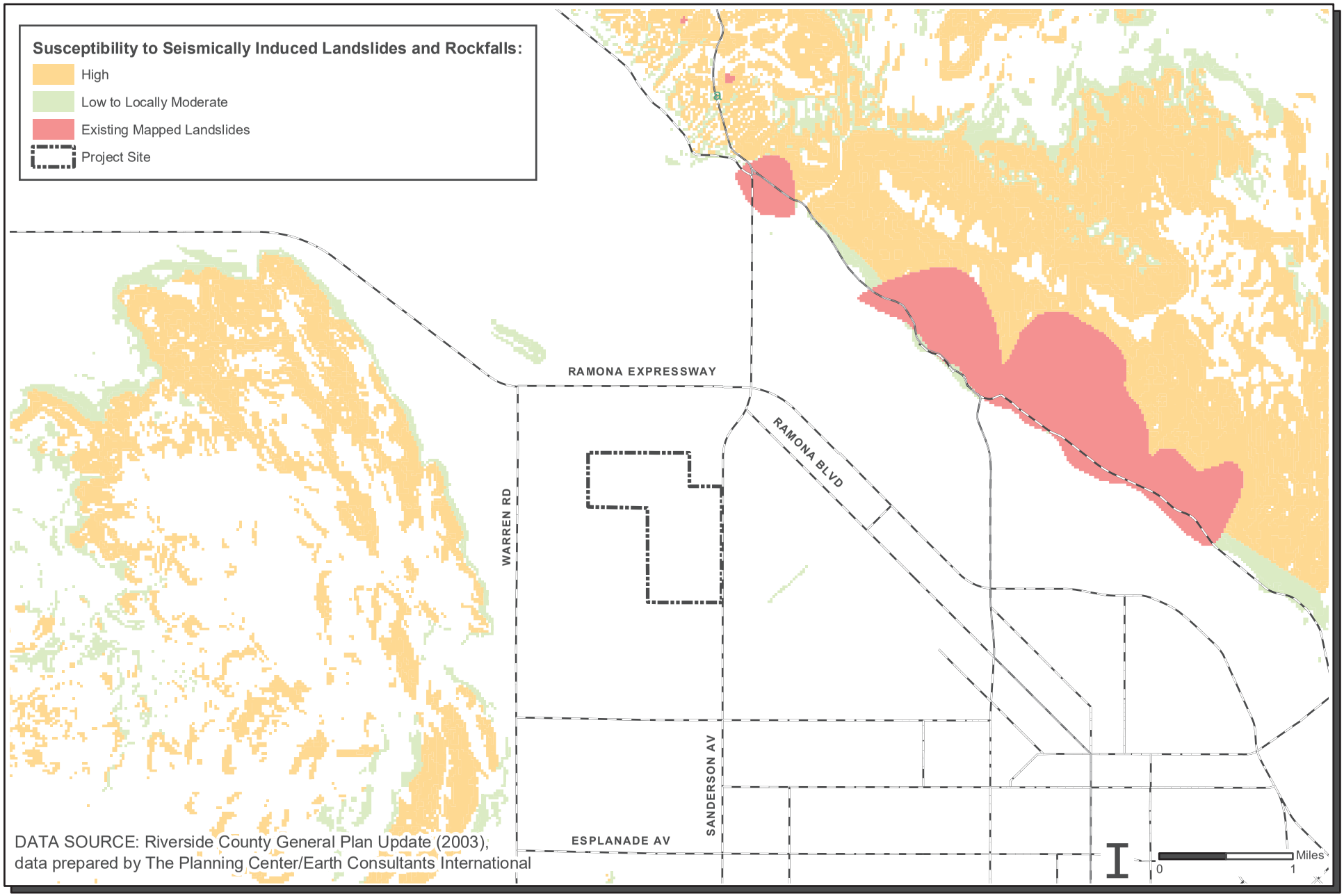

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2. Result in substantial soil erosion or the loss of topsoil.

3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

5.6.4 Impacts

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Potential site ground rupture, as determined by the Leighton and Associates Fault Investigation, is considered moderate to high. Ground rupture due to onsite faults could potentially affect existing and future facilities (such as gas, electrical, water mains, etc.) that traverse fault zones on the site. In order to mitigate for potential impacts associated with seismic ground shaking, mitigation is provided (see *Section 5.6.5, Mitigation Measures*, *Mitigation Measure 5.6-c*).

Strong seismic ground shaking?

The project site is located in seismically active southern California with numerous fault systems in the region. Structures will be designed in accordance with the values and parameters given within the Universal Building Code (UBC) as required by state law. With the incorporation of UBC seismic design parameters in construction of structures on site, the impacts associated with exposure of people to geological hazards is less than significant. These measures are a standard part of the Building Permit process and additional mitigation measures are not required.

Seismic-related ground failure, including liquefaction?

Liquefaction potential analyses and earthquake-induced settlement calculations were performed utilizing the computer program LiquefyPro. Considering the potential ground motions resulting from the design basis ground motion (0.9g) and a maximum moment magnitude event for the

San Jacinto Fault (6.9Mw), the program follows the latest study procedures. Leighton used the boring data, CPT data and groundwater data (perched groundwater table ranging from 5 to 22 feet) as assumptions in the model.

Based on the above-described model, the relatively loose saturated alluvial deposits onsite are considered susceptible to liquefaction hazards. Liquefaction occurs when loose material becomes mobile during a seismic event. In order to compensate for hazards associated with liquefaction, mitigation is provided (see *Section 5.6.5, Mitigation Measures*, Mitigation Measures 5.6-b and 5.6-e). With implementation of these measures, liquefaction potential for the project will be less than significant.

Landslides?

Due to the flat nature of the site and the existing topsoil and Quaternary-aged alluvium, the subject site is not prone to landslide hazards. That said, manufactured slopes that are planned for construction on the site would be susceptible to slope stability hazards. In order to prevent any significant impacts from occurring, mitigation is provided (see *Section 5.6.5, Mitigation Measures*, Mitigation Measure 5.6-f).

Slopes adjacent to severe flow direction changes may be susceptible to increased scour erosion and slope stability. In order to reduce this potential impact to a level below significance, mitigation is provided (see *Section 5.6.5, Mitigation Measures*, Mitigation Measure 5.6-g).

Would the project result in substantial soil erosion or the loss of topsoil?

Short-term erosion effects during the construction phase of the project would be minimized through implementation of the City of San Jacinto construction Best Management Practices (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-d)

Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

The volume change of excavated onsite materials upon recompaction is expected to vary with materials, density, moisture content, location and intended compaction effort. This variance in material could potentially result in shrinkage, which would result in potential subsidence risk. In order to reduce potential impacts to a level below significant, mitigation is provided (see *Section 5.6.5, Mitigation Measures*, Mitigation Measure 5.6-d and 5.6-e).

Many portions of the site are characterized as having unsuitable near surface compressible soils not suitable for structural support. Location of a structure on an unstable geological unit or soil

would be a significant impact; thus, mitigation is provided (see Se*ction 5.6.5 Mitigation Measures,* 5.6-a).

Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soils are those with a significant amount of clay particles that have the ability to shrink or swell depending on water content. The Geotechnical Report indicated that based on limited laboratory testing and visual classification, onsite earth materials generally possess a very low to medium expansion potential; however, high to very high expansive silt and clay materials may be encountered locally during rough grading. Compliance with recommendations for ground preparation as outlined in the February 28, 2005, Leighton and Associates Geotechnical Investigation will reduce risk hazards associated with expansive soils to a less than significant level.

Would the project have soils incapable of adequately supporting the use of septic tanksor alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No septic tanks or alternative wastewater disposal systems are proposed as part of the project. As a result, no impact would result.

5.6.5 Mitigation Measures

5.6-a The on-site soils are suitable for reuse as compacted fill, provided they are relatively free of organic materials, debris and oversize materials. The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill will be placed in uniform lifts not exceeding 8 inches in thickness. Fill soils will be placed and compacted to a minimum 92 percent relative compaction at a minimum of 2 percent above the optimum moisture content.

Fill slopes shall be overbuilt a minimum of 2 feet and trimmed back to the compacted core or rolled with a weighted sheepsfoot compaction roller as the fill slope height increases in maximum 4-foot increments. Placement and compaction of fill shall be performed in accordance with City grading ordinances and minimum compacted standard under the observation and testing of a qualified geotechnical engineer.

All loosely packed exploration trench backfill shall be removed and recompacted in accordance with project geotechnical guidelines. An engineering geologist shall be present to observe all excavations to confirm limits of faulting. If exposures differ from

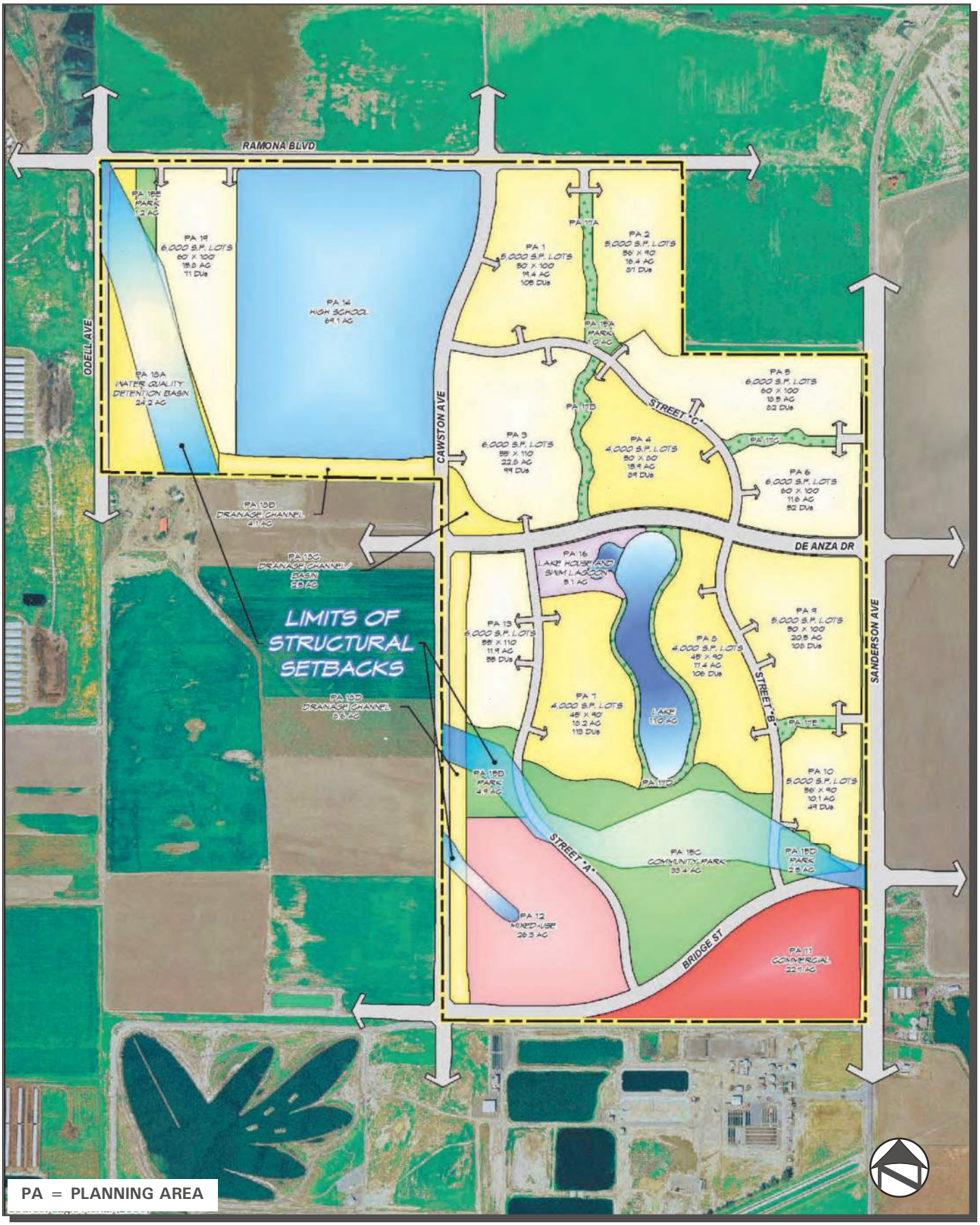
anticipated conditions, further investigations and/or additional structural setbacks can be required.

5.6-b To facilitate the grading operations, on-site irrigation water shall be reduced or ceased for a period of 3 to 6 months prior to the start of grading. Further, the contractor will pothole the upper 12 to 14 feet of soil prior to the start of grading operations to determine if shallow groundwater will affect the planned grading.

In localized areas where shallow groundwater conditions exist such that removals cannot be performed to the required depths or where deeper excavations (such as in the proposed "lake" areas) are proposed at or below the existing perched groundwater, methods of localized dewatering will be required including the use of well points and/or interceptor ditch methods. Alternative ground stabilization methods such as deep dynamic compaction shall be required. Deep dynamic compaction is a means of physically compacting the subsurface soils by repeatedly dropping a heavy weight (typically a large concrete block) to densify the underlying soils to a predetermined density. After proposed grading plans are developed, these areas shall be further reviewed by a qualified geotechnical engineer.

5.6-c A structural setback zone of 50 feet on either side of the encountered fault zone, and as much as 75 feet on the "down-block" side shall be observed for structures intended for human occupancy (2,000 hours/year). This preliminary setback zone will be refined as the grading concept is developed and possible additional site studies are performed. The Fault Location Map (Plate 2) within the Fault Investigation shows required preliminary structural setbacks. However, the final setback limits shall be determined during grading or future studies as the fault trace is exposed, identified and surveyed for lateral and vertical location. The setbacks shall be shown on all project plans.

To reduce the effects and magnitude of the earthquake-induced settlements, remedial grading shall occur. Following remedial grading, differential dynamic settlements are anticipated to be approximately 2 inches in a horizontal distance of 40 feet. Additional analysis will be performed by a qualified geotechnical specialist to further refine earthquake-induced settlement. Based on a review of the rough grading plans by a qualified geotechnical specialist, remedial grading requirements will be revised.



SPECIFIC MAP SOURCE: T&B PLANNING CONSULTANTS, May 2009

Villages of San Jacinto EIR

Land Use Plan with Geotechnical Setback Recommendations

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To reduce the potential adverse secondary seismic effects, mitigation of compressible alluvial soils to support the planned development at areas such as free-face slopes ("green belt" detention basins, channels etc.), the project perimeter (where removals may be limited by property restraints) and planned lake areas will require additional geotechnical stability design by a qualified geotechnical engineer after project plans are developed.

5.6-d While it is difficult to determine the level of subsidence and shrinkage risk, site grading must include a balance area or ability to adjust import quantities to accommodate some variation. Relative compaction rates must be followed as they appear in the February 28, 2005, Leighton and Associates Technical Report. As stated in the February 28, 2005, Leighton Report, due to the agricultural discing of the surface soils, a subsidence value of 0.2 feet must be applied when evaluating earthwork volumes.

5.6-e To reduce the potential for liquefaction and earthquake-induced settlements at the site, the following guidelines will be implemented. For preliminary design purposes, a minimum removal and recompaction of 10 feet (as measured from finish grade) will be used in cut areas on that portion of the site designated as having a high potential for liquefaction (roughly the northern one third to one half of the site).

In cut areas outside the area designated as high potential for liquefaction, a minimum overexcavation of 5 feet below finish grade must be used. For areas designated as “fill” a minimum removal of 5 feet will be used, provided a minimum total thickness of 10 feet of properly compacted fill is maintained below the lowest adjacent finish grade (including lowest adjacent street elevation). The removal depths for the infrastructure roadways shall be a minimum 5 feet below pavement subgrade. These estimates are for preliminary design planning only and will be revised based on our review of rough grading plans. These preliminary estimates will be revised upon review of the proposed grading concept plan. These alluvial soils must be removed down to medium dense to dense, relatively non-porous alluvium material as determined by the geotechnical consultant. Undercuts will be made 1:1 next to existing roadways that will remain after grading. Cut slopes shall be replaced as properly compacted fill.

The excavated materials will be moisture conditioned or dried back, as appropriate, to achieve the required minimum relative compaction. Saturated soils may need to be dried back or mixed with drier on-site materials and shall be thoroughly mixed prior to fill placement. The resultant excavation will be filled and compacted in this lifts to a minimum 92 percent relative compaction at a minimum of 2 percent above the optimum moisture content. A minimum 90 percent relative compaction may be acceptable in the southern portion of the site. This will be determined during review of rough grading plans.

After completion of the required removal of unsuitable soils, the approved surface will be scarified, moisture conditioned as needed and compacted prior to placing fill. If subgrade conditions at the approved bottoms are wet and "pumping" near the required removal depth, the scarification and moisture conditioning will not be necessary. Stabilization measures where shallow groundwater conditions are expected at or near the required removal depth may include the use of a stabilization fabric and/or coarse gravel/graded rock and gravel. Where shallow groundwater conditions are present, alternative ground improvement guidelines shall be followed (see Mitigation Measure 5.5-b). Further evaluation of these specific areas will be necessary after draft grading plans are prepared.

5.6-f All slopes will be provided with appropriate surface drainage features and landscaped with drought-tolerant, slope-stabilizing vegetation as soon as possible after grading to reduce the potential for erosion. Berms will be provided at the top of fill slopes to direct water away from slope faces. Lot drainage shall be directed such that runoff on slope faces is minimized. Oversteepening of slopes must be avoided during fine grading and building construction. Although not anticipated, if seepage is encountered in slopes, special drainage features may be necessary.

5.6-g For slopes that are will be adjacent to ditches or other water conveyance features, proper protection including rip rap or other slope protection devices as designed by the project civil engineer would be required. Slope stability and the potential for scour shall be required in the design drainage alignment.

5.6.6 Residual Impacts/Level of Significance After Mitigation

The mitigation measures, which include further monitoring of onsite geotechnical risk as grading plans are finalized for a qualified geotechnical engineer, would reduce impacts related to geology and soils. All mitigating geotechnical features shall be designed/implemented pursuant to the Uniform Building Code and State of California seismic engineering standards. These mitigation measures will therefore reduce geotechnical hazards to less than significant levels.

5.7 PALEONTOLOGICAL RESOURCES

5.7.1 Introduction/Methodology

This section presents a discussion of paleontological resources that would be affected by the proposed project and alternative. Paleontological resources are the fossil or trace remains of past life forms, including both vertebrate and invertebrate species, as well as plants. Fossil remains such as bones, teeth, shells, leaves, etc. are found in the geologic deposits (formations) within which they were originally buried. The geologic composition of an area; therefore enables scientists to evaluate the potential for resources to occur, based on knowledge of resources that have been uncovered from similar geologic formations elsewhere.

Existing condition information is derived from the February 28, 2005, Leighton and Associates, Inc. Preliminary Geotechnical Investigation for the Villages of San Jacinto project. This report is included as *Appendix F* to this EIR. Methods utilized in the February 28, 2005, Leighton Report are contained therein. Paleontological sensitivity data was obtained from the 2003 Riverside County General Plan Update Multipurpose Open Space Element.

5.7.2 Existing Conditions

Sediments derived from the San Jacinto River have been deposited across the river valley. The sediment thickness is thought to be highly variable with a minimum thickness of 500+ feet in the southwest portion of the valley. Paleoeustuary silts and sands, Quaternary-aged terrace deposits and fanglomerates flank major abandoned drainage channels and the base of mountain slopes. Near the City of San Jacinto, a boring excavated northeast of the Casa-Loma Fault segment did not reach basement rocks to the depth explored of 1,430 feet. In general, seismic and gravity surveys indicate that approximately 6,500 feet to 7,900 feet of alluvial sediment overlie the basement bedrock in the valley.

As indicated on Figure OS-8 of the 2003 Riverside County General Plan Update Multipurpose Open Space Element, the project is located within an area characterized as having a high likelihood of supporting fossils (see *Figure 5.7-1, Paleontological Sensitivity*). The San Jacinto Valley is designated as "High B (Hb)" which means a resource's probability to occur is based on the occurrence of fossils at a specified depth below the surface. This category indicates that fossils are likely to be encountered at or below four feet of depth and may be impacted during excavation by construction activities (County of Riverside, 2003, pg. OS-36 to OS-37, Figure OS-8).

5.7.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on paleontological resources if it:

1. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

5.7.4 Impacts

Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

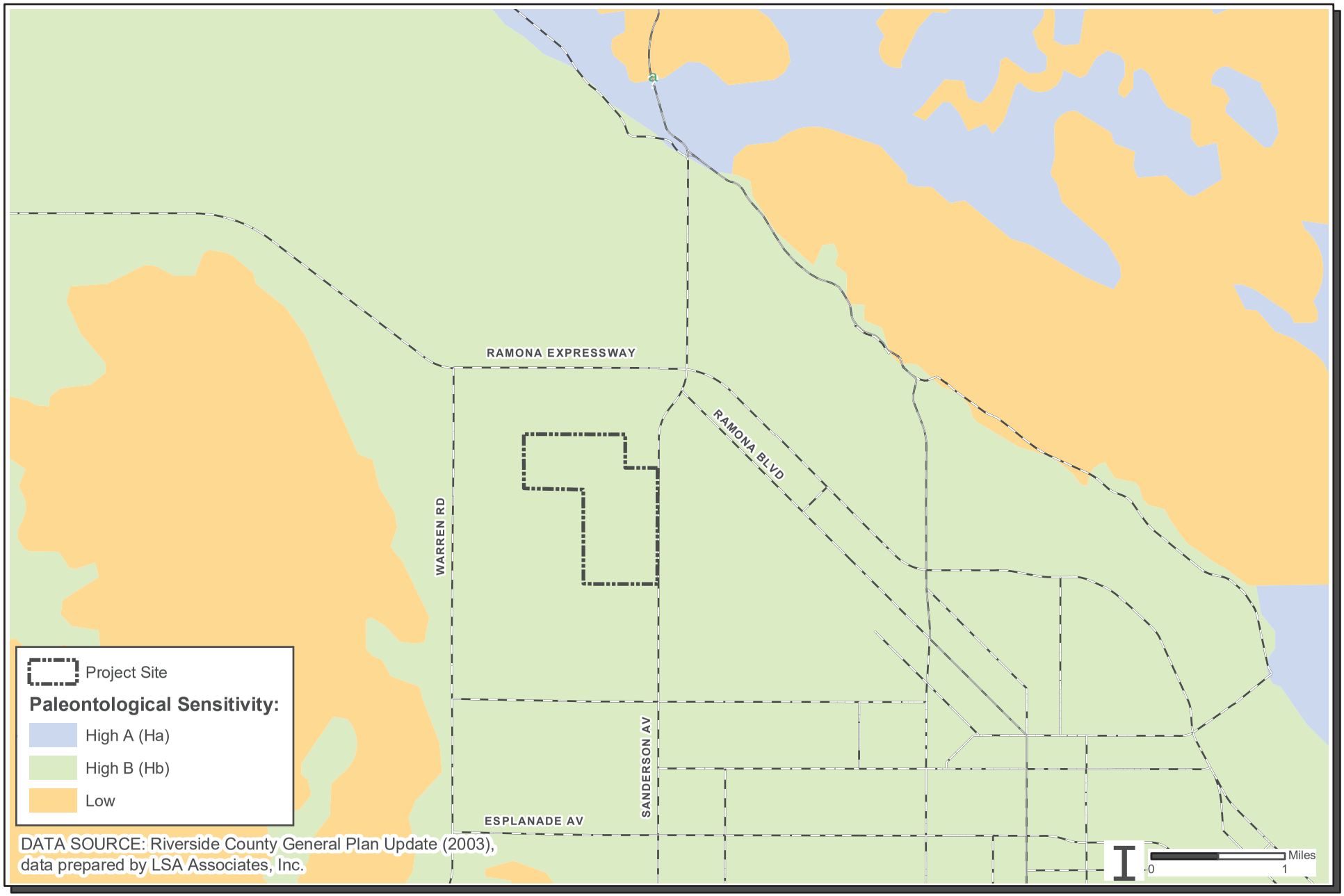
Since the proposed project lies within a geologic formation with high resource bearing potential and the project would necessitate recompaction of potential fossil bearing alluvium, impacts to paleontological resources are considered to be significant. Impacts to paleontological resources could occur during excavation and site development when geologic formations that have resource bearing potential are disturbed. Impacts would occur when fossils are physically destroyed by such activities. In order to reduce potential construction-related impacts to paleontological resources, mitigation is provided (see *Section 5.7.5, Mitigation Measures*, Mitigation Measure 5.7-a).

5.7.5 Mitigation Measures

5.7-a Prior to beginning any excavation work, the developer or its contractor shall demonstrate that a qualified paleontologist has been retained to carry out a paleontological resources mitigation program. A paleontological monitor shall be on site at all times during grading activities that disturb non-undocumented fill soils or formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until such a time that a complete assessment of the resources can be conducted. If resources are found that are determined to be significant, the paleontological monitor shall direct activities to recover the resources. Prepared fossils, along with copies of all pertinent field notes, photos and maps shall be deposited in a scientific institution with paleontological collections, such as the San Bernardino County Museum.

5.7.6 Residual Impacts/Level of Significance after Mitigation

With the implementation of the construction monitoring program (outlined as Mitigation Measure 5.7-a, above), impacts to paleontological resources would not be significant.



Villages of San Jacinto EIR

Paleontological Sensitivity

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5.8 WATER QUALITY AND HYDROLOGY

5.8.1 Introduction/Methodology

This section consists of a summary of existing hydrologic conditions, anticipated impacts related to these conditions, and mitigation measures required to reduce these impacts to a level below significance. A residual impact statement has been included to characterize the level of significance after applied mitigation measures.

This analysis is based on information contained in the February 2009 *Villages of San Jacinto Specific Plan, Drainage Plan* by T&B Planning Consultants; the May 2006 *Preliminary Drainage Study for Tentative Tract Map 34081* by RBF Consulting; the August 2006 *Phase 1 and 2 Preliminary Drainage Study for Tentative Tract Map 34081* by RBF Consulting; the January 15, 2007, *Summary Preliminary Drainage Analysis for TTM 34081 Phases 1, 1A, 1B & 1C* by RBF (included as *Appendix G* to this EIR); and the February 23, 2009, *Preliminary Hydrology and Hydraulics Study for the Villages of San Jacinto* by JLC Engineering & Consulting Inc. Floodplain resource information was obtained through the September 7, 2006, letter from RBF to Riverside County Flood Control and Water Conservation District. Water quality management information was obtained from the February 23, 2009, *Preliminary Hydrology and Hydraulics Study* referenced above and the *Lake Preliminary Design Report* (Pacific Aquascape, Inc. March 2009). Additional hydrologic resource setting and existing conditions information was used from the February 28, 2005, Leighton and Associates Geotechnical Investigation for the proposed project (included in *Appendix F* to this EIR); discussions with Leighton and Associates geotechnical staff; and publications by the Santa Ana Regional Water Quality Control Board (RWQCB) (1995, 2003, 2004). Once existing condition information was summarized, the City of San Jacinto Significance Thresholds, specifically Hydrology and Water Quality Resource Thresholds, were used to determine if hydrologic impacts were considered significant from a CEQA perspective. Mitigation measures were developed in part by recommendations in the February 2009 Villages of San Jacinto Specific Plan, Drainage Plan Report by T&B Planning Consultants and experience with past projects of a similar size and character.

5.8.2 Existing Conditions

The San Jacinto and broader Inland Empire climate is mild. Winters are characterized as mild and sometimes cool, springs can be rainy, and the summer and fall hot and dry. The San Jacinto area climate is characterized by relatively low rainfall, with warm summers and mild winters. Annual precipitation averages about 13 inches, with over 70% of that falling between December and March. Average monthly temperatures range from a high of 98° Fahrenheit in August to a low of 37° Fahrenheit in December (City-Data.com, Accessed April 30, 2009).

The San Jacinto River is the dominant hydrologic feature of the central western Riverside County area. Rainwater and urban runoff drain through a series of reservoirs, canyons, and/or storm drain facilities into this drainage system. This hydrologic feature runs along the northern and eastern edge of the City (see *Figure 5.8-1, Existing Hydrologic Features*).

5.8.2.1 Surface Water

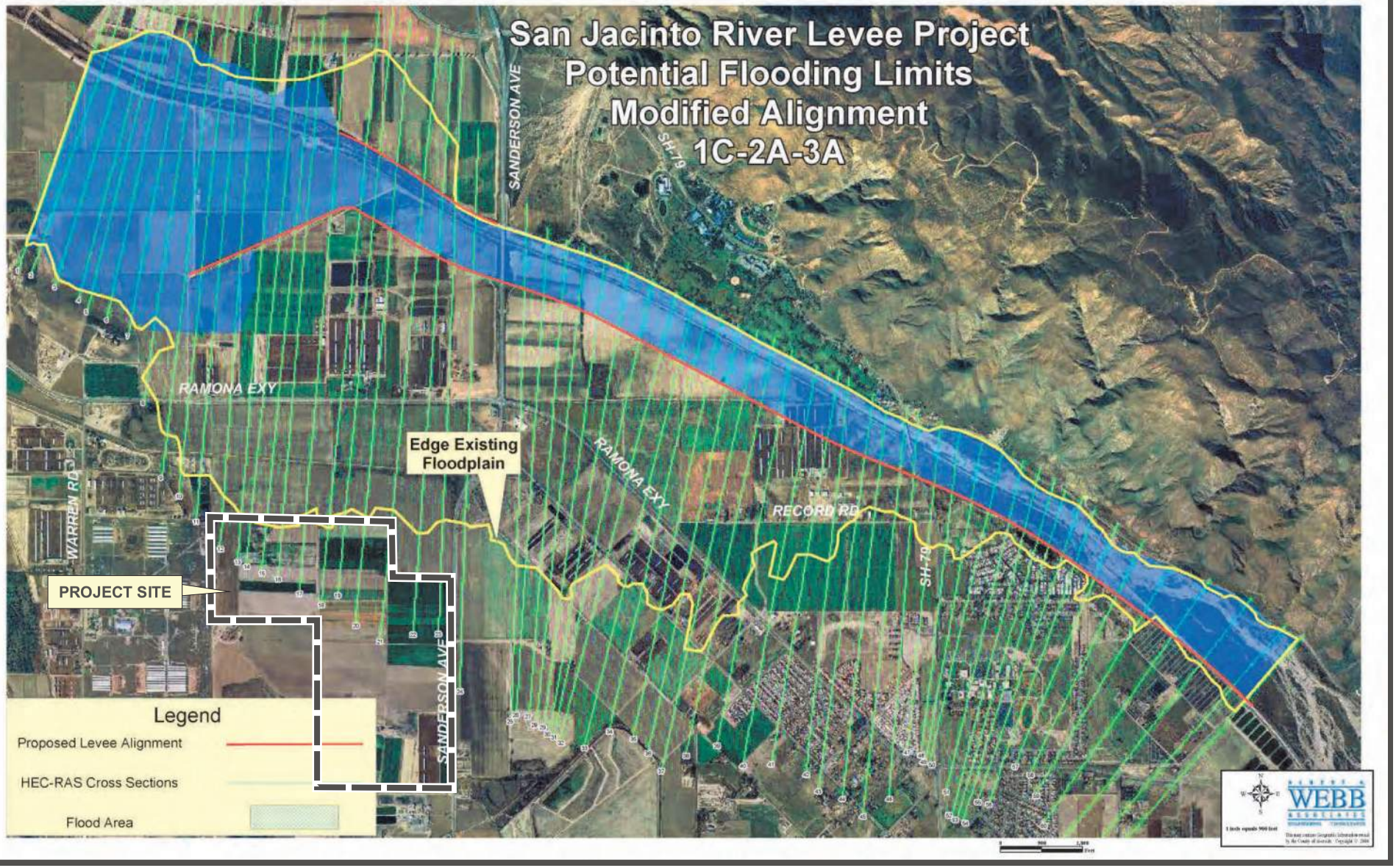
The main surface hydrologic feature of the San Jacinto Valley is the San Jacinto River. This waterway is a natural channel that has been disturbed by historical filling and farming activities. This river flows from east to west and serves as the main drainage point for precipitation runoff from higher elevations to the east and urban runoff throughout the watershed.

Within the river valley, various channels and ephemeral creeks feed the river system. This watercourse is located approximately 1 mile northeast of the project site. General off-site drainage occurs through a northern sheet-flow pattern off the project site toward the San Jacinto River. Surface water runoff often ponds on site and throughout the river plain to form an alkali playa hydrologic feature. Currently, on-site water drains in a sheet flow manner to the north toward the San Jacinto River. On-site irrigation channels also assist in drainage of the site.

5.8.2.2 Groundwater

Groundwater is defined as subsurface water that exists in soils and geologic formations that are fully saturated. The water table is considered to be the top of the saturated zone. Groundwater bearing formations sufficiently permeable to transmit and yield significant quantities of water are called aquifers. The principal groundwater basins in the San Jacinto Region are the Lakeview/Hemet-North, San Jacinto-Upper Pressure, and Hemet-South. The project site straddles the Lakeview/Hemet-North basin to the west and the San Jacinto-Upper Pressure basin to the east. The San Jacinto River had historically kept all the groundwater basins in that part of the region full. Now, there is essentially no surface flow beyond the mouth of the canyon, where it exits the mountains; the riverbed is typically dry (State of California 1995, p. 1-5).

Similar to most Riverside County rivers, the San Jacinto River is supported by a groundwater basin. Groundwater was locally encountered on the site at depths between 5 and 40 feet below existing ground surface elevations. It is suspected that groundwater may be as deep as 200 feet below ground surface on the project site. The groundwater table likely fluctuates seasonally in response to long periods of heavy rainfall or groundwater withdrawal (Leighton 2005, p. 7).



Villages of San Jacinto EIR

Existing Hydrologic Features

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5.8.2.3 Flooding

As depicted on *Figure 5.8-1, Existing Hydrologic Features*, the northwest corner of the project is located within Zone A of the San Jacinto River, as mapped by the Federal Emergency Management Agency (FEMA). Zone A is defined as the area of the 100-year floodplain with base flood elevations and flood hazard factors not determined.

The San Jacinto River Valley has a very unique flood flow regime. Flood flows every 5 or 10 years have contributed to the broad, shallow "Mystic Lake" in the riverbed north of the City. The shallow, periodic flooding of this river has contributed to the wildlife and alkali-playa-dependent plant species that characterize the area.

5.8.2.4 Water Quality

Water quality refers to the effect of natural and human activities on the composition of water. Water quality is expressed in terms of measurable physical and chemical qualities that can be related to planned water use. In general, stormwater can potentially contain a host of pollutants, such as trash and debris, bacteria and viruses, oil and grease, sediments, nutrients, metals, and toxic chemicals. These contaminants can adversely affect receiving and coastal waters, flora and fauna, and public health. Water quality issues are especially prevalent during rainy periods; however, due to the amount of urban runoff that is transferred to the storm drain and natural drainage system, pollution is a problem year-round.

Regulatory Background

Several important federal and state legislative actions have an impact on how water quality is measured, controlled, and addressed during the planning process. Important legislation and regulatory mechanisms are therefore outlined below.

Federal Water Pollution Control Act (Clean Water Act)

The basic federal law regulating surface water quality control is referred to as the Federal Water Pollution Control Act of 1972, commonly referred to as the Clean Water Act. The main objective of the Clean Water Act is to "restore and maintain the chemical, physical and biological integrity of the Nation's waters and to make all waters fishable and swimmable." The Clean Water Act established seven goals and guidelines for water quality, including the elimination of pollutants to navigable waters by 1985, provision of quality water to allow for propagation of fish and other marine life, prohibition of pollutants in toxic amounts, provision of financial assistance to waste treatment management plans, development of technology necessary to carry out goals, and development and implementation of programs for control of non-point source pollution. Clean

Water Act provisions have been written in conjunction with applicable plans and policies of the federal Endangered Species Act and the National Environmental Policy Act.

The Clean Water Act, in part, establishes requirements for state water quality planning, management, and implementation with regard to surface waters. These requirements call for the restoration and maintenance of chemical, physical, and biological integrity of state waters; attainment of a level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water; and consideration of water resources for state water supplies and other beneficial uses. The Clean Water Act requires that the goals and guidelines established by varying state agencies be reviewed on a triennial basis. This process involves public hearings at least once every 3 years for the purpose of review and/or revisions (State of California 1995, p. 1-2).

Other provisions of the Clean Water Act related to basin planning include Section 208, which authorizes the preparation of waste treatment management plans, and Section 319, which mandates specific actions for the control of pollution from non-point sources. 1987 amendments to the Clean Water Act identified the importance of non-point source pollutants and their impact on local water quality. As stated in the Water Quality Control Plan for the Santa Ana River Basin (State of California 1995), non-point source pollutants represent the greatest threat to water quality. Non-point source pollutants are often chemicals from lawns or gardens, automobile residues, urban runoff, or household cleaning agents or compounds. Most non-point source pollutants enter the water supply in large quantities and sudden surges, largely due to storm events. Control of this type of pollution source has proven to be difficult. Because the release of a non-point source pollutant is exempt from National Pollution Discharge Elimination System (NPDES) regulations, the RWQCB has more recently focused on non-point source pollution issues. The RWQCB has encouraged all community members to use best management practices (BMPs) to eliminate or reduce non-point source pollution.

National Pollution Discharge Elimination System (NPDES)

NPDES, established under the Clean Water Act, regulates the discharge of pollutants from point sources into regional water resources. The NPDES permit regulates discharges of wastes for the purpose of limiting the quantity of pollutants and volume of waste discharged to surface waters. NPDES permits contain prerequisite conditions that must be met by dischargers to ensure protection of the receiving water. Any agency or private party proposing to discharge pollutants into surface waters must submit a report of waste discharge at least 180 days in advance of the planned date of release. Concurrence with pollution elimination levels and approval of the report of waste discharge would culminate in the granting of an NPDES permit. Responsibility of enforcement of NPDES guidelines and permits falls within jurisdiction of the RWQCB (Region 8 for the San Jacinto Basin), and is subject to review by the Environmental Protection

Agency (EPA) Regional Administrator (EPA Region IX, San Francisco Office) (State of California 1995, p. 5-2).

The EPA has published NPDES permit application requirements for municipal, industrial, and construction stormwater discharges under the urban runoff management strategy. The application requirements for municipalities were directed at municipalities that own and operate separate storm drain systems servicing populations of 100,000 or more or that contribute significant pollutants to waters of the United States and require such agencies to obtain coverage under municipal stormwater NPDES permits. Municipalities were required to develop and implement an urban runoff management program to address activities to reduce pollutants in urban runoff and stormwater discharges that were contributing a substantial pollutant load to their systems.

In order to control water quality, the State Water Resources Control Board has organized basin plans for all drainage systems within California. Goals and plans set forth in the Water Quality Control Plan for the Santa Ana River Basin (State of California 1995) are carried out through the use of the NPDES permitting and monitoring system.

303(d) Status Listing

Under Section 303(d) of the 1972 Clean Water Act, states, territories, and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads (TMDL), to improve water quality.

California Water Code

The California Water Code is the principal policy that governs the use of water resources within the State of California. This code controls water rights, policies governing the construction and management of dams and reservoirs, flood control, conservation, development and utilization of state water resources, water quality protection, and management and management of water-oriented agencies (State of California 1995, pp. 1-1 to 1-2). The water quality provisions set forth in the California Water Code have been written to supplement certain provisions of the California Health and Safety Code, Public Resources Code, Fish and Game Code, Food and Agriculture Code, Government Code, Harbors and Navigation Code, California Environmental Quality Act, and the California Endangered Species Act.

Porter-Cologne Water Quality Control Act

Division 7 of the California Water Code, commonly referred to as the Porter-Cologne Water Quality Control Act, is the principal mechanism for water quality control within California. This act establishes a regulatory program to protect water quality and beneficial uses of all state waters. The Porter-Cologne Act established the State Water Resources Control Board and RWQCB as principal state agencies responsible for water quality control. Water quality of the Santa Ana River Basin is controlled by Region 8 Regional Water Quality Control Board of the State Water Resources Control Board (State of California 1995, p. 1-1).

Relevant Plans and Policies

Water Quality Control Plan for the Santa Ana River Basin (Region 8)

The federal Clean Water Act, and, specifically the NPDES program as well as the California Water Code (specifically, the Porter-Cologne Water Quality Control Act) require that the Regional Water Quality Control Board adopt a water quality control plan to guide and coordinate the management of water quality in the Region. The Santa Ana River Basin Plan's purpose is to (1) designate beneficial uses of the Region's surface water and groundwater, (2) designate water quality objectives for the reasonable protection of those uses, and (3) establish an implementation plan to achieve the objectives. This basin plan was adopted in 1995 and has been subject to several amendments over the last 10 years. This plan outlines water quality planning guidelines for the Upper and Lower Santa Ana Region watersheds, the San Jacinto River watershed and several other small drainage areas in southwestern San Bernardino County, western Riverside County, and northwestern Orange County (State of California, Santa Ana RWQCB 1995).

The Villages of San Jacinto project is located approximately 1 mile southwest of the San Jacinto River. The Santa Ana River Basin Plan divides the County into "Hydrologic Units" (HU). Each HU has a "Hydrologic Area" (HA). Each HA can be divided into "Hydrologic Sub Areas" (HSAs). The project is located within the San Jacinto River Basin HU and the San Jacinto River HA. The project is located near Reach 4 - Nuevo Road to North–South Mid-Section Line (T4S/R1W-S8). Beneficial uses have been identified for each of the water bodies the project could potentially impact (State of California 1995, p. 3-21).

Inland Surface Waters

San Jacinto River HA: Beneficial uses include Municipal and intermittent beneficial uses include Agricultural, Groundwater, Recreation (1), Recreation (2), Warm Freshwater Habitat and Wildlife Habitat (State of California 1995, p. 3-21).

The Basin Plan identifies Water Quality Objectives for each water body within the Santa Ana River Watershed. The project is located within an inland surface stream area, specifically Reach 4 of the San Jacinto River. Guidelines pertain to algae, un-ionized ammonia, acute (1-hour) ammonia-nitrogen, fecal coliform bacteria, boron, chemical oxygen demand, chloride, residual chlorine, color, total filterable dissolved solids, floatables, fluoride, hardness, inorganic nitrogen, metals, methylene blue-activated substances, nitrate, total inorganic nitrogen, oil and grease, total dissolved oxygen, pH, radioactivity, sodium, suspended and settleable solids, sulfate, sulfides, surfactants, taste and odor, temperature, toxic substances, and turbidity. The Basin Plan mandates that all waters of the region shall be maintained in accordance with each pollutant-specific objective and shall not be exceeded as a result of controllable water quality factors (State of California 1995, p. 4-34)

Groundwater

San Jacinto-Upper Pressure and Hemet-South: Beneficial uses include Municipal, Agricultural, Industrial, and Industrial Process Supply (State of California 1995, p. 3-27 and Figure 3-4).

The Basin Plan identifies Water Quality Objectives for each groundwater body within the Santa Ana River Watershed. The project is located within a groundwater area, specifically the San Jacinto – Upper Pressure basin. The Basin Plan quantifies limits or designates guidelines for discharge into the San Jacinto River. Guidelines pertain to arsenic, fecal coliform bacteria, boron, barium, chloride, color, cyanide, total dissolved solids, fluoride, hardness, metals, methylene blue-activated bustances, nitrate, oil and grease, pH, radioactivity, sodium, sulfate, taste and odor, total inorganic nitrogen, and toxic substances. The Basin Plan mandates that all waters of the region shall be maintained in accordance with each pollutant-specific objective and shall not be exceeded as a result of controllable water quality factors (State of California 1995, pp. 4-11 to 4-13, 4-34).

Lake Elsinore and Canyon Lake Nutrient TMDL Allocation and Implementation Plan

According to the California 2002 303(d) list (approved by the USEPA on July 2003) published by the Santa Ana RWQCB, the San Jacinto River is not listed as an impaired water body. That said, Lake Elsinore, which is located downstream of the project site and is fed by the San Jacinto River, is listed on the 303(d) list as an impaired water body. The pollutants of concern in Lake Elsinore include nutrients, organic enrichment/low dissolved oxygen, sedimentation/siltation, and other pollutants where toxicity is unknown. Watershed-wide waste discharge requirements for discharges of stormwater runoff associated with new developments have been adopted for the San Jacinto River Watershed. These discharge objectives include the following:

NPDES Stormwater Discharge Construction Permit (Water Quality Order 99-08-DWQ)

Section 402 of the Clean Water Act establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. This permit regulates stormwater runoff from construction sites where clearing; grading; or disturbances to the ground, such as stockpiling or excavation that results in soil disturbances of at least 1 acre of total land area, occurs.

5.8.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on water resources and water quality if it:

1. Violates any water quality standards or waste discharge requirements.
2. Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).
3. Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.
4. Creates or contributes runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff.
5. Places housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
6. Place within a 100-year flood hazard area structures which would impede or redirect flows.
7. Exposes people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
8. Otherwise substantially degrades water quality.

5.8.4 Impacts

Would the project violate any water quality standards or waste discharge requirements?

Perched groundwater was encountered at multiple depths below the surface, as shallow as 5 feet and as deep as 22 feet. Regional groundwater is anticipated below 150 feet and is likely to occur

as much as 200 feet below grade. However, groundwater can be expected to fluctuate seasonally within the subject site and during periods of heavy regional rainfall or groundwater withdrawal by the local residences, agricultural developments, and water utility companies. During drought conditions, groundwater levels could temporarily deepen significantly.

The project would not impact regional groundwater (Leighton 2006). All lake and drainage features on site would be constructed so they are above the regional groundwater table so as to prevent intermixing of ground and surface waters. That said, it is possible that, during project construction, perched groundwater may be encountered. In order to avoid potential impacts to regional groundwater resources in the San Jacinto River Valley, mitigation is provided (see *Section 5.8.5, Mitigation Measures,* Mitigation Measure 5.8-b).

Construction Impacts

Development of the proposed project may result in an increase in pollutant load due to sedimentation. Sediments are soils or other surficial materials eroded and then transported or deposited by the action of wind, water, or gravity. Sediment from erosion, primarily during construction, is quite often a major project pollutant of concern. A potentially significant impact could occur during construction related to sedimentation; therefore, mitigation is provided (see *Section 5.8.5, Mitigation Measures,* Mitigation Measures 5.8-d and 5.8-e).

As indicated above, groundwater may be encountered during construction. In order to prevent impacts to groundwater resources, mitigation is provided (see *Section 5.8.5, Mitigation Measures,* Mitigation Measure 5.8-b).

Operational Impacts

Based upon guidelines within the Riverside County Flood Control & Water Conservation District (RCFC&WCD) BMP Handbook and the Santa Ana RWQCB General Permit for Riverside County, the proposed development must treat potential contaminants produced and associated with the proposed land use types within the project site. As a result, a water quality extended detention basin is being proposed to provide water quality treatment for the runoff emanating from the project site. The volume calculations for the water quality basins are based upon the method included in the RCFC&WCD BMP Handbook. A water quality/extended detention basin is a permanent basin sized to detain and slowly release the design volume of stormwater, allowing particles and associated pollutants to settle out. An inlet forebay section and inlet energy dissipater will minimize erosion from entering flows, while erosion protection at the outlet prevents damage from existing flows. The bottom of the basin slopes toward the outlet and a low flow channel conveys incidental flows directly to the outlet end of the basin. The basin should utilize vegetated earth in order to allow some infiltration to occur, although highly pervious soils may require an impermeable liner to prevent groundwater contamination. Proper

turf management is also required to ensure that the vegetation does not contribute to water pollution through pesticides, herbicides, or fertilizers. The City of San Jacinto will maintain all aspects of the basin pertaining to water quality. RCFC&WCD will maintain all aspects of the basin that pertain to detention.

Lake Preliminary Design Report

This report (Pacific Aquascape, Inc. 2009) discusses safety features for the proposed lake shoreline, water depth and temperature, and treatment of runoff and water quality management. The treatment process involves reduced concentration of dissolved pollutants, nutrients, and salts through flushing of the lake water volume by utilizing the lake as the irrigation supply source; reduction of nutrient concentrations from inflows, nitrogen, and phosphorous; prevention of algae blooms by using constructed gravel biofilter beds that utilizes "biological filtration"; and maintaining oxygen levels through aeration promoting oxygen exchange to prevent anaerobic conditions, which allows natural process to occur, such as denitrification for removal of nitrogen. The lake operation and maintenance program also includes routine debris removal, algae control, aquatic weed control, pump maintenance, and biofilter maintenance. These processes ensure continued aesthetic appeal and desirable water quality as well as control of vectors, such as mosquitoes and flies

Agricultural Operations

The current and previous land uses on the project site generate nitrogen and phosphorous, which may have an impact on existing on-site and off-site water quality. Due to the elimination of agriculture, the project site will likely result in a beneficial impact due to a reduction in nitrogen and phosphorous.

Pollutants of Concern

Due to the intensification of land uses on the site, in combination with an increase in impervious surfaces, the project may result in potentially significant impacts to water quality attributable to urban pollutants contained in stormwater runoff. The constituents described below commonly are found on similar developments as a result of urban runoff and could, therefore, affect the proposed project's water quality. The development of a final Water Quality Management Plan (WQMP) as specified in Mitigation Measure 5.8-f, ensures that overall reduction is achieved for all pollutants listed below. An extended detention basin and vegetated swale (vegetated channel) as proposed, has low to high removal effectiveness for all pollutants per the *Riverside County Stormwater Quality BMP Design Handbook* (RCFC&WCD, July 21, 2006). Other project specific measures are proposed which will ensure that the project will not violate any water quality standards or waste discharge requirements.

Nutrients

Nutrients are inorganic substances, such as nitrogen and phosphorus. The primary sources of nutrients in urban runoff are fertilizers and eroded soils. Due principally to the type of land use, the project is anticipated to result in the transport of fertilizers from landscape areas by stormwater or water from irrigated sprinklers and wash down activities, resulting in a potentially significant impact. In order to reduce this potential impact, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Heavy Metals

metals are raw material components in non-metal products, such as fuels, adhesives, paints, and other coatings. Under the proposed project, it is anticipated that heavy metals from vehicles on parking lots and streets may be transported to the storm drain system, resulting in a potentially significant impact (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Organic Compounds

Commercially available or naturally occurring carbon-based organic compounds are found in pesticides, solvents, and hydrocarbons. Landscaping associated with the proposed project may result in release of organic compounds, therefore mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Trash and Debris

The introduction of a suburban population to the area will contribute to an increase in trash and debris pollution, which will result in a potentially significant impact. In order to reduce potentially significant impacts, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Oxygen-Demanding Substances

Biodegradable organic materials on site could react with dissolved oxygen in the water to form other compounds. It is anticipated that an increase in population in the area would result in a likely increase of oxygen-demanding substances in urban runoff, therefore creating a significant impact. In order to reduce this potential impact, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Oil and Grease

Oil and grease are characterized as high-molecular-weight organic compounds. The primary source of oil and grease of concern to the proposed project would be leaky cars. Because of their

respective increase in parking facilities, it is anticipated that the mixed-use, commercial, school, and public park uses would result in potentially significant impacts related to oil and grease. In order to reduce this potential impact, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Bacteria and Viruses

Pathogens such as bacteria and viruses are typically caused by the transport of animal or human fecal wastes from the watershed primarily through improper or non-disposal of pet wastes. Water, containing excessive bacteria and viruses can alter the aquatic habitat and create a harmful environment for humans and aquatic life. Also, the decomposition of excess organic waste causes increased growth of undesirable organisms in the water. In order to compensate for this potentially significant impact, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Pesticides

Herbicides used for controlling nuisance plant growth are a potential source of pollutants. Because the project will introduce new landscaping to the project site, the introduction of herbicides into stormwater runoff is considered a potentially significant impact. In order to reduce this potentially significant impact, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-f).

Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The Water Supply Assessment Report prepared for the project (*Appendix K*) indicates that the total projected water demand for the proposed development would remain within the limits of the projected demand of the Eastern Municipal Water District's Urban Water Management Plan 2000 (refer to *Section 5.12.8* for a detailed discussion of domestic water supply).

The project would result in an increase in impervious surfaces due to the change from an existing agricultural operation (which supports natural percolation) to that of a suburban housing/commercial/retail development (which will support pavement and other impervious surfaces). Although the project would not result in the exact same local groundwater recharge characteristics, the project drainage plan would facilitate complete retention/detention of water onsite to mirror pre-development flows. Therefore, during weather events, water will be directed to the urban drainage system which will collect at the northwest of the site in a detention basin.

This basin will result in the percolation or evaporation of all onsite water which would in effect help mirror existing, pre-development groundwater recharge.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

A Drainage Plan has been incorporated into the Specific Plan for the project and is based on the findings in the February 2009 JLC Engineering Hydrology Study referenced above. Proposed drainage facilities are shown on *Figure 5.8-2, On-Site Drainage Plan*. The project site generally drains in a northwesterly direction toward the San Jacinto River, primarily in a sheet flow pattern. The northerly portion of the project site is within the 100-year floodplain. The Drainage Plan provides 100-year flood protection for the project site for the interim and ultimate conditions as described below.

Interim Condition

The interim condition assumes that the off-site area is undeveloped in the existing condition, and the on-site development of the Villages of San Jacinto and corresponding infrastructure is functional. These interim drainage facilities would be developed concurrently with phase I, and are required to control and convey the interim flow rates originating from the off-site area. Interim condition calculations were used to determine the points where flows enter the site and to size the corresponding facilities. Following is a summary of the interim drainage facilities:

- Culvert V, shown on *Figure 5.8-2*, is a proposed culvert south of the Bridge Street and Cawston Avenue intersection that will collect the runoff that overtops the Casa Loma Canal Siphon. The proposed culvert will discharge the runoff into the Line V Channel. The culvert will provide 100-year flood protection for Bridge Street. The ultimate flow rate will substantially decrease once the San Jacinto Master Drainage Plan (MDP) facilities Line D and Casa Loma Basin are constructed.
- Culvert E shown on *Figure 5.8-2* is a proposed culvert located north of the intersection of Sanderson Avenue and the Casa Loma Canal. Based on the current topography, the runoff emanating from the east side of Sanderson Avenue will overtop Sanderson Avenue and enter the project site. As a result, a culvert and earthen channel system have been proposed at the southeast corner of PA 11. These facilities will convey the 100-year flow rate to the Line E system. The San Jacinto MDP proposes drainage system Line E2 will ultimately collect the flows emanating east of Sanderson Avenue.
- The earthen roadway on the land east of Sanderson Avenue, north and south of the intersection of DeAnza Drive and Sanderson Avenue, is not a permitted structure and diverts substantial runoff to the project site, indicated as Off-site Flow 3 on *Figure 5.8-2*.

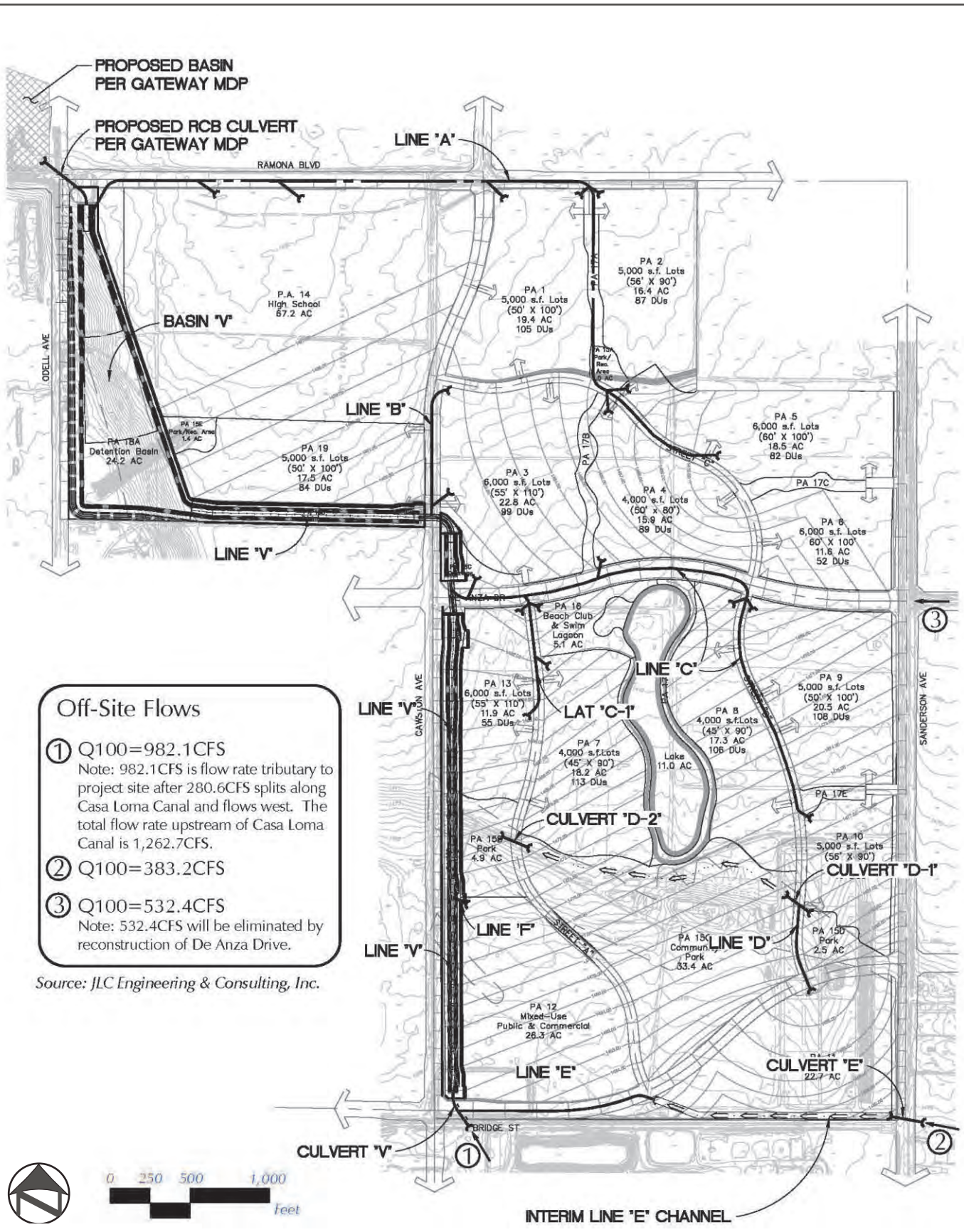
This diversion occurs because the height of the earthen roadway produces a ponding condition south of the earthen roadway, which forces flows to overtop Sanderson Avenue. The roadway will be reconstructed and lowered to an elevation that will eliminate the ponding condition and allow flows to overtop this roadway, thereby eliminating the overtopping condition on Sanderson Avenue.

Ultimate Condition

The ultimate condition assumes that the San Jacinto MDP systems are in place and functional. With these facilities in place, the off-site area that is tributary to the Villages of San Jacinto is reduced to the area between the Casa Loma Canal and Bridge Street.

Figure 5.8-2 provides the locations where the existing off-site runoff enters the project site (1, 2, and 3) and the corresponding 100-year peak flow rate for the interim condition. However, the runoff entering the project site will eventually be eliminated with the implementation of the San Jacinto MDP.

The implementation of the San Jacinto MDP is based on the timing of the development of the surrounding area. As a result, the construction timeline for the proposed San Jacinto MDP drainage facilities is unknown. Consequently, the project incorporates a drainage plan that will not impact upstream and downstream property owners but will provide flood protection for the overall project site. The drainage plan will incorporate a vegetative channel and a detention/water quality basin, which are designated as Line V and Detention Basin V. These two facilities are the major backbone infrastructure that will collect the runoff that emanates from off-site and on-site areas. Line V and Detention Basin V have been designed to convey and control the interim flow rate and ultimate flow rate. As discussed previously, the interim flow rate results in a runoff rate that exceeds the ultimate condition flow rate. The Line V Channel will allow for the connection of several storm drain laterals. The limits of the storm drain laterals are based on the street design policy implemented by the City of San Jacinto and the County of Riverside. These storm drain laterals will provide 100-year flood protection for the on-site planning areas and ensure that downstream properties would not be impacted by increased flows released from the project site.



Source: JLC Engineering & Consulting, Inc.

SOURCE: T&B PLANNING CONSULTANTS, FEBRUARY 2009

Villages of San Jacinto EIR

On-Site Drainage Plan

FIGURE 5.8-2

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Because the San Jacinto MDP facilities would be designed to handle the increase in drainage from the project site once developed, impacts to surface water would not be significant. However, in accordance with San Jacinto requirements, the project shall be required to participate in the San Jacinto River levee financing project (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-a).

Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff?

As discussed above, the project incorporates a drainage plan that will not impact upstream and downstream property owners but will provide flood protection for the overall project site. Implementation of the San Jacinto MDP is based on the timing of the development of the surrounding area and will further improve drainage systems in the project area.

Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The northern portion of the project site is located within Zone A (100-year floodplain as mapped by FEMA) of the San Jacinto River. Development within the floodplain may result in an impedence to flow and an increase in the base flood elevation. Because a portion of the proposed development is proposed to be constructed within the limits of the 100-year floodplain, development of the proposed project will result in potentially significant impacts relating to flood hazards. As discussed above, the project drainage plan will provide 100-year flood protection for the project site and will not adversely affect downstream properties. However, mitigation is required to have the project removed from the appropriate FEMA floodplain map. In order to avoid impacts, mitigation is provided (see *Section 5.8.5, Mitigation Measures*, Mitigation Measure 5.8-c).

It should be noted that the project site elevation will be raised during grading activities to ensure that future structures are outside of the 100-year floodplain.

Would the project place within a 100-year flood hazard area structures which would impede or redirect flows?

As discussed in preceding responses, the project drainage plan will ensure that adequate flood protection is provided and the placement of new structures would not impede or redirect 100-year flows or result in on-site or off-site flooding as a result of project implementation.

Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The project would not expose people or structures to a significant flood risk as discussed in the preceding responses. Adequate flood protection will be provided in the absence of the planned San Jacinto River levee project, which will provide additional protection from flooding in the project area.

Would the project otherwise substantially degrade water quality?

The project would not have a significant impact on water quality as discussed in detail in the first impact response above.

5.8.5 Mitigation Measures

5.8-a The project is located within the San Jacinto – Area Drainage Plan (SJ-ADP), which is a financing mechanism used to offset costs for construction of proposed Master Drainage Plan (MDP) facilities. The project will be charged a per-acre fee in order to pay a fair share of the price of area-wide drainage facilities.

5.8-b If dewatering becomes necessary during construction, all discharges shall be in accordance with Santa Ana Regional Water Quality Control Board requirements which mandate that dewatered groundwater be tanked and hauled to a legal disposal site for treatment. Dewatering shall not occur in on-site drainages or water features. In addition, if dewatering becomes necessary during construction, a National Pollution Discharge Elimination System dewatering permit shall be obtained from the Santa Ana Regional Water Quality Control Board.

5.8-c All buildings shall be located outside of the 100-year floodplain. The applicant shall process a Flood Insurance Rate Map (FIRM) map revision. Further, the applicant shall obtain a Conditional Letter of Map Revision (CLOMR) prior to issuance of building permits. The project applicant, or subsequent property owners, shall obtain flood insurance, to the extent required by law, to protect against any damage that might occur during a flood event. It must be noted that at the time of EIR publication, the applicant and City had initiated the CLOMR process with the Riverside County Flood Control and Water Conservation District.

5.8-d During construction, the project will incorporate all City of San Jacinto construction Best Management Practices (BMPs). These BMPs include the following:

- Erosion control BMPs, including temporary seeding and permanent seeding
- Soil stabilization BMPs
- Sediment control BMPs, including silt fence perimeter controls, surface roughening, tree or natural vegetation preservation and protection, temporary gravel construction entrance/exit, temporary diversions, permanent diversions, outlet stabilization, inlet protection, temporary sediment basins, and gravel bay barriers.
- Wind erosion BMPs
- Minimize contact with stormwater BMPs, including BMPs for construction vehicles and equipment maintenance, fueling, and washing; materials maintenance; and construction material loading, unloading, and access area controls.
- Non-stormwater BMPs.

5.8-e The project applicant will need to develop a Stormwater Pollution Prevention Plan (SWPPP) pursuant to NPDES Stormwater Discharge Associated with Construction Activity Guidelines (Water Quality Order 99-08-DWQ). The SWPPP will identify all BMPs that will prevent construction pollutants from contacting stormwater. Measures shall also be designed so as to prevent all products of erosion from moving off site into receiving waters. Provisions will also be included to ensure that BMPs are monitored and success recorded.

5.8-f Structural BMPs are required for new development to improve water quality of stormwater runoff. In order to meet NPDES regulations, the design volume or design flow to be treated must reduce pollutants to the Maximum Extent Practicable (MEP). This project will incorporate a water quality extended detention basin to provide water quality treatment for the runoff emanating from the project site, a volume-based BMP, and a flow-based BMP. Once the project is complete, maintenance will be the responsibility of the Villages of San Jacinto homeowners association.

In addition to sizing techniques, several quantity-control BMPs shall be implemented to control runoff:

- Rainfall shutoff devices shall be used to prevent irrigation during and after precipitation
- Irrigation systems shall utilize a dripping system to eliminate nuisance runoff
- Backflow preventer/pressure regulators shall be installed.

The project applicant will need to develop a Water Quality Management Plan pursuant to NPDES Permit No. CAS 618033, order No. R8-2002-001. The Water Quality Management Plan will identify all final site BMP requirements.

The following BMPs may be incorporated into final site designs:

- Construct community streets, sidewalks, and parking lot aisles to the minimum widths necessary
- Incorporate landscape treatment for parking lot runoff
- Use unit pavers or other equivalent porous material to construct walkways, alleys, and other low-traffic areas
- Utilize trees in landscaping plans to maximize canopy interception and water conservation
- Plant native trees and maximize canopy interception and water conservation
- Drain rooftops into adjacent landscaping prior to discharging to the storm drain
- Vegetate slopes with native or drought tolerant vegetation
- Install energy dissipaters at the outlets of new storm drains that enter the regional storm drain system that eventually feeds into the San Jacinto River.
- Utilize and install "high to medium efficiency" Post Construction BMP filtration system within the proposed water quality basin that would help reduce as many bacteria and viruses as possible from entering the downstream local stormwater collection system. This system must follow the specifications of the California Stormwater Handbook to ensure that the system provides maximum bacteria/viral capture.

5.8.6 Residual Impacts/Level of Significance after Mitigation

After application of the proposed mitigation measures, any potentially significant impacts relating to hydrology, groundwater, or water quality that are attributable to the development and operation of the proposed project would be reduced to a level below significant. Therefore, no significant unavoidable impacts are expected.

5.9 TRANSPORTATION, CIRCULATION, AND ACCESS

5.9.1 Introduction and Methodology

The following analysis of potential traffic, circulation and access impacts associated with project implementation is based on *the Villages of San Jacinto Traffic Impact Analysis* prepared by Urban Crossroads, April 24, 2009, included in *Appendix H* of this report. This latest report is an update of the May 23, 2005, Traffic Impact Analysis prepared by Urban Crossroads for the April 2006 DEIR. The original report was revised to reflect changes in project land uses, revised phasing plan, and revisions to the Mid-County Parkway southerly alignment within the project study area.

The traffic study analyzes the potential impacts of cumulative conditions representing the phased occupancy timing of the project, including Phase I, year 2015; Phase II, Year 2017; Phase III, Year 2023; and General Plan build-out conditions in Year 2035. The traffic impact analysis documents existing traffic conditions in the vicinity of the project site, Existing Plus Ambient Plus Project conditions for Phase I, Phase II and Phase III conditions; Existing Plus Ambient Plus Cumulative conditions (EAC 2015); Existing Plus Ambient Plus Cumulative plus Phase I conditions (EACP 2015); Existing Plus Ambient Plus Cumulative conditions (EAC 2017); Existing Plus Ambient Plus Cumulative Plus Phase I and Phase II conditions (EACP 2017); Existing Plus Ambient Plus Cumulative conditions (EAC 2023); Existing Plus Ambient Plus Cumulative Plus Phases I through III conditions (EACP 2023); evaluation of General Plan build-out (2035) with project conditions; and identifies on-site and off-site improvements and system management actions to achieve adequate level of service requirements as required by the City of San Jacinto.

The traffic analysis utilizes information obtained from City of San Jacinto staff to define the study area intersections and identify other development and area-wide growth calculations used in traffic counts. Due to the project's size and phased implementation plan, the traffic analysis was reflective of the phasing plan. Because the mitigation measures will be implemented as the project is constructed and traffic improvements become necessary, the phasing plan is reflected in the on-site mitigation measures. The City of San Jacinto and Riverside County General Plan Circulation Elements were used to identify the regional and City street network and roadway cross-sections in the study area. The traffic study has been prepared in conformance with the goals and requirements of the San Jacinto General Plan Circulation Element. Traffic operations and level of service conditions were evaluated pursuant to the 2000 Highway Capacity Manual (HCM).

As indicated in *Section 3.0, Project Description,* the proposed project would result in 1,016 low to medium density single-family dwelling units, a 2,000 student-high school, 247,000 square feet

of neighborhood retail commercial uses, 343,000 square feet of mixed-use development and approximately 43 acres of park land. However, in the event that the high school is not built, an additional 313 single-family housing units would be constructed, which would result in the potential for 1,329 units to be developed on site. While on the surface it may seem that the 1,329 unit count scenario would result in more traffic, traffic analyses are based on peak hour measurements, which for this project, would be more trip-intensive in the school scenario. Therefore, this traffic analysis reflects the 1,016 unit project with high school scenario, in order to provide the public with a "worst case scenario."

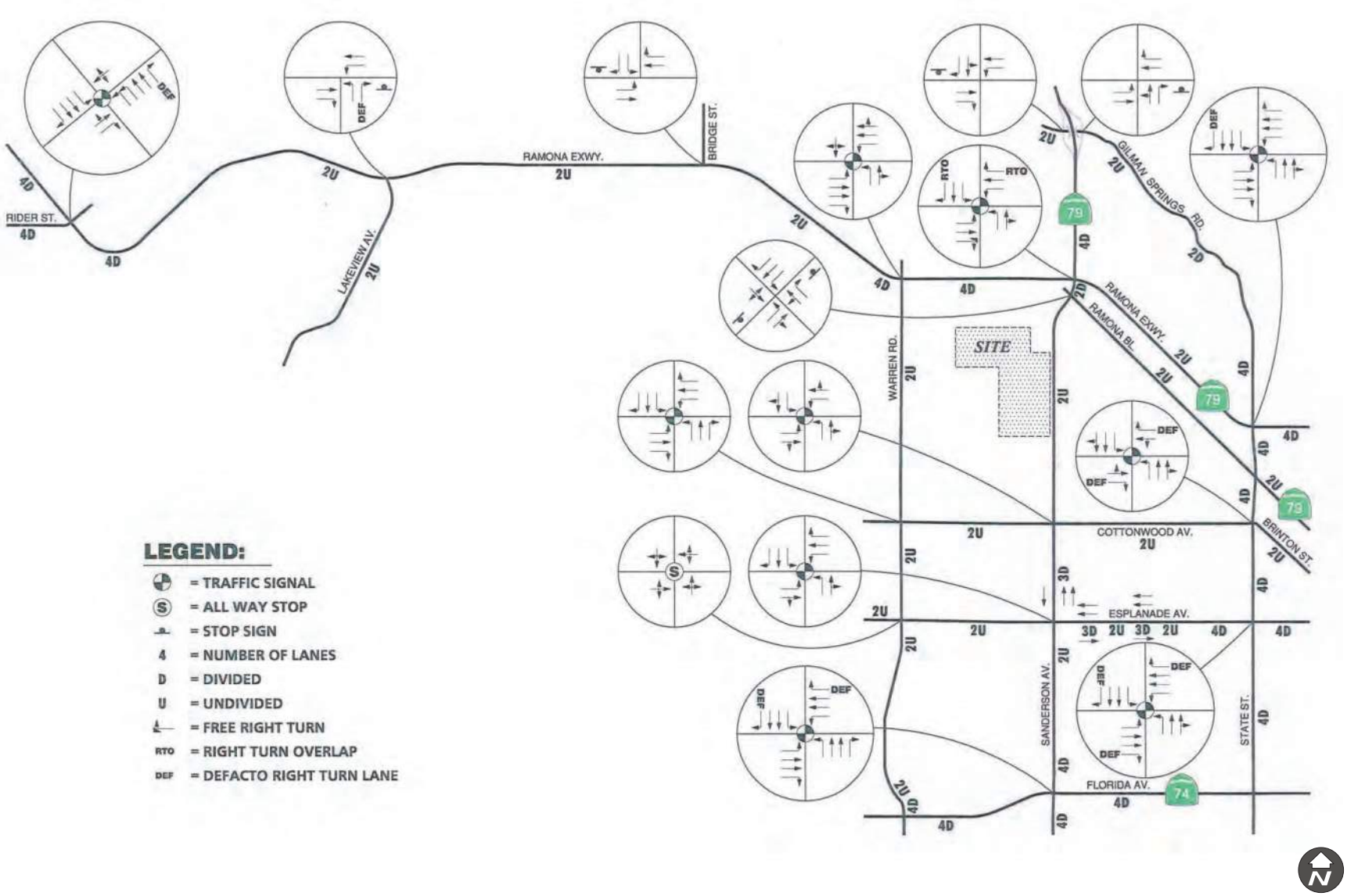
5.9.2 Existing Conditions

The project site is generally located south of Ramona Expressway and directly west of North Sanderson Avenue in the City of San Jacinto. North Sanderson Avenue is identified as an urban arterial roadway in the City of San Jacinto General Plan Circulation Element. *Figure 5.9-1, Existing Lane and Intersection Conditions*, illustrates the primary roadway components of the study area street network and identifies the number of traffic lanes for each roadway and existing intersection traffic controls.

Intersection Conditions

Traffic flow on arterial streets is most constrained at intersections; therefore, the traffic analysis focuses on the operating conditions of critical intersections during peak travel periods. The traffic report utilized information obtained from City of San Jacinto Transportation staff to identify the key intersections within the study area for analysis. The following intersections were analyzed in this study:

- Rider Street (NS) at:
  - Ramona Expressway (EW)
- Lakeview Avenue (NS) at:
  - Ramona Expressway (EW)
- Bridge Street (NS) at:
  - Ramona Expressway (EW)
- Warren Road (NS) at:
  - Ramona Expressway (EW)
  - Cottonwood Avenue (EW)
  - Esplanade Avenue (EW)



SOURCE: URBAN CROSSROADS, MARCH 2009

Villages of San Jacinto EIR

Existing Lane and Intersection Conditions

FIGURE 5.9-1

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- Sanderson Avenue (NS) at:
  - Gilman Springs Road SB Ramps (EW)
  - Gilman Springs Road NB Ramps (EW)
  - Ramona Expressway (EW)
  - Ramona Boulevard North (EW)
  - Cottonwood Avenue (EW)
  - Esplanade Avenue (EW)
  - Florida Avenue (SR-74) (EW)
- State Street (NS) at:
  - Ramona Expressway (EW)
  - Cottonwood Avenue (EW)
  - Esplanade Avenue (EW).

The existing conditions of each intersection listed above are characterized by Average Daily Trip (ADT) volumes and Level of Service (LOS) ratings. *Figure 5.9-2, Existing Traffic Volumes*, illustrates existing ADT volumes on arterial streets in the study area. *Figure 5.9-3, Existing AM Peak Hour Intersection Volumes*, and *Figure 5.9-4, Existing PM Peak Hour Intersection Volumes*, depict the distribution of existing ADT volumes on the study area roadway system. Existing ADT volumes are based on direct machine counts or factored from peak hour counts conducted for Urban Crossroads, Inc. in conjunction with the project traffic study.

In evaluating the existing intersection conditions, a "Level of Service (LOS)" rating, which consists of A through F, is used. LOS A indicates excellent conditions of uninterrupted free-flow traffic operations and LOS F indicates poor conditions of interrupted flow and congested operations (gridlock). Complete definitions of LOS categories are included in the Traffic Impact Analysis, included in *Appendix H* to this EIR. Different factors are considered in determining LOS for each intersection and are dependent on the type of intersection control used (i.e., signal, street stop, etc.). For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service. For stop sign–controlled intersections, the calculation of LOS is dependent on the occurrence of gaps occurring in the traffic flow of the main street. For all way stop controlled intersections, the LOS criteria for this type of intersection analysis are also based on average total delay per vehicle for the overall intersection. The traffic analysis considers LOS D to be the minimum acceptable operating condition for intersections consistent with the adopted standards of the City of San Jacinto.

For the project area, traffic demands are highest at key intersections during the A.M. and P.M. peak hour periods. *Table 5.9-1, Existing Intersection Conditions* summarizes the results of evaluating existing peak hour traffic operations for intersections in the study area, and includes information relative to each intersection's geometrics, traffic control device and existing LOS.

Table 5.9-1
Existing Intersection Conditions

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Rider Street (NS) at:																	
* Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	20.8	20.6	C	C
Lakeview Ave. (NS) at:																	
* Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	38.3	30.3	E	D
Bridge Street (NS) at:																	
* Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	22.2	26.4	C	D
Warren Rd. (NS) at:																	
* Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	18.2	21.4	B	C
* Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	25.1	25.9	C	C
* Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	20.1	24.9	C	C
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
* Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	24.0	67.9	C	F
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
* Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	32.4	32.6	D	D
Sanderson Ave. (NS) at:																	
* Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	56.0	45.3	E	D
* Ramona Blvd. (EW)	CSS	1	1	0	1	1	1	0	1!	0	0.5	0.5	1	25.1	35.8	D	E
* Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	10.6	10.6	B	B
* Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	23.7	30.5	C	C
* Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	32.2	43.8	C	D
State St. (NS) at:																	
* Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	30.5	35.5	C	D
* Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	36.5	34.6	D	C
* Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	30.2	31.6	C	C

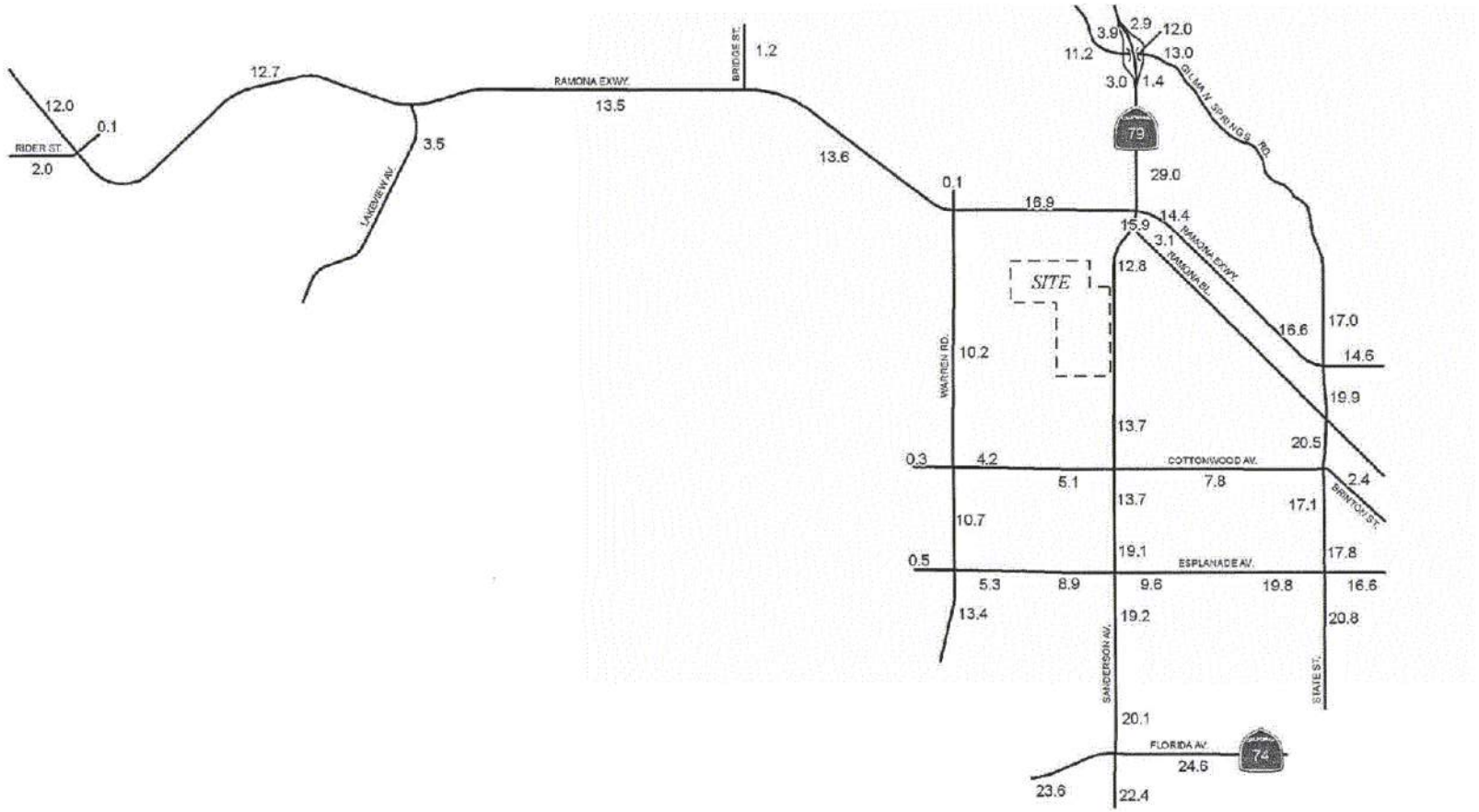
[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

SOURCE: Table 3-1, Intersection Analysis for Existing Conditions, April 24, 2009 Urban Crossroads Traffic Report (see *Appendix H*)



SOURCE: URBAN CROSSROADS, MARCH 2009

Villages of San Jacinto EIR

Existing Traffic Volumes

FIGURE 5.9-2

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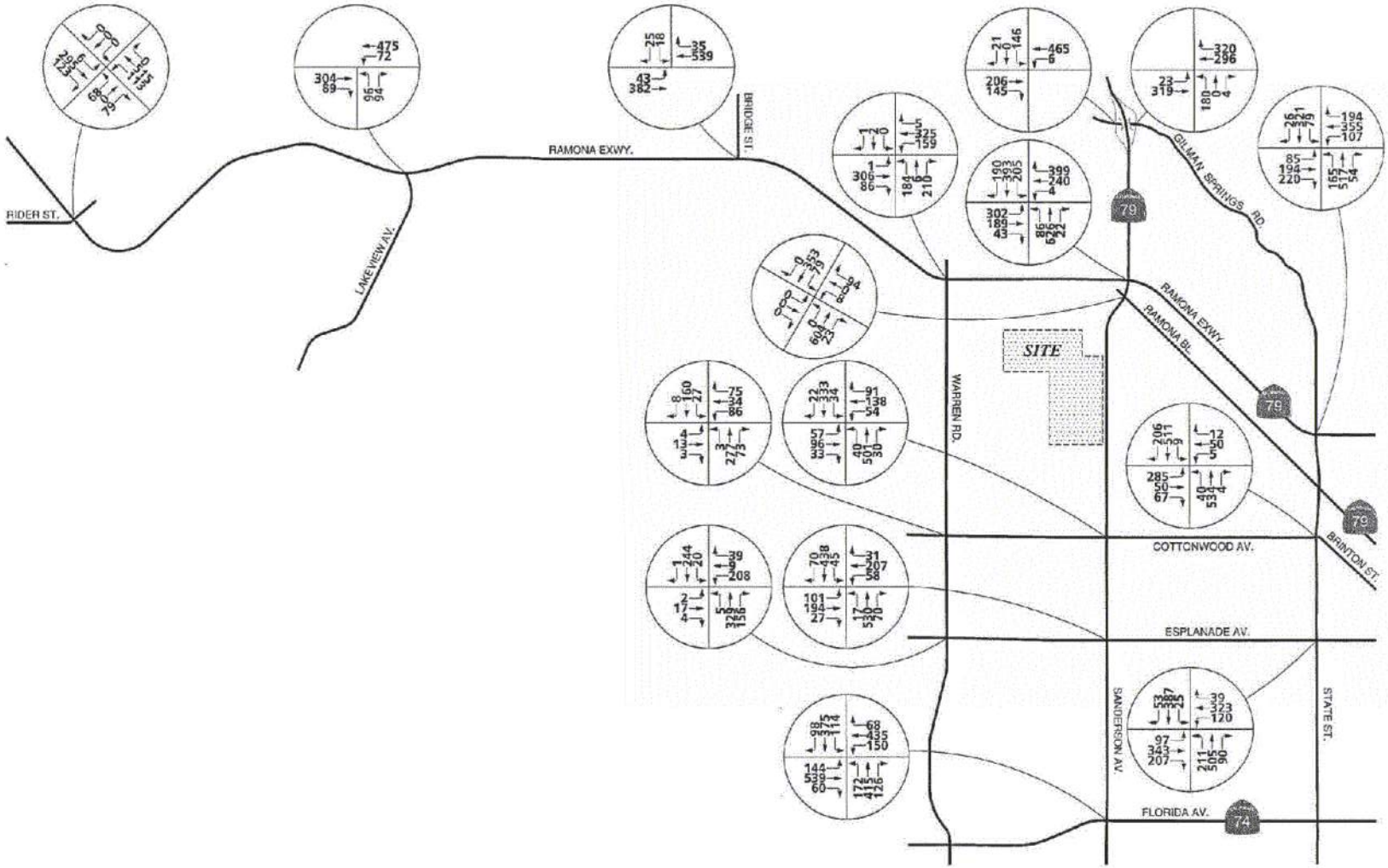

SOURCE: URBAN CROSSROADS, MARCH 2009

Villages of San Jacinto EIR

Existing AM Peak Hour Intersection Volumes

FIGURE 5.9-3

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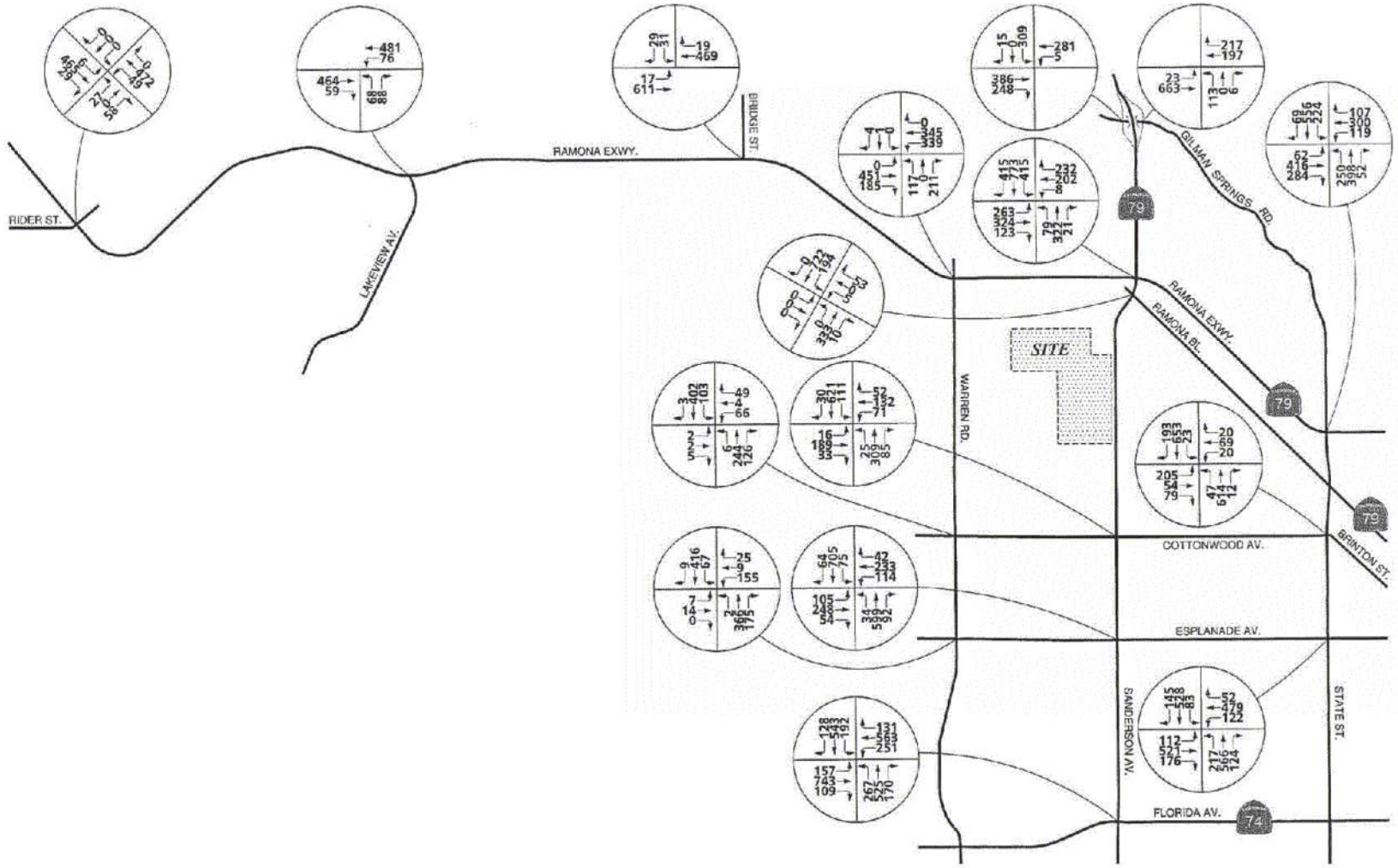

SOURCE: URBAN CROSSROADS, MARCH 2009

Villages of San Jacinto EIR

Existing PM Peak Hour Intersection Volumes

FIGURE 5.9-4

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The data presented in *Table 5.9-1, Existing Intersection Conditions* indicates that the following intersections are currently operating at an unacceptable LOS (LOS E or lower):

- Lakeview Avenue (NS) at:
  - Ramona Expressway (EW)
- Sanderson Avenue (SR-79 SB Ramps) (NS) at:
  - Gilman Springs Road SB (EW)
- Sanderson Avenue (NS) at:
  - Ramona Expressway (EW)
  - Ramona Boulevard (EW).

The above outlined existing traffic conditions warrant traffic signals at the following study area intersections:

- Lakeview Avenue (NS) at:
  - Ramona Expressway (EW)
- Warren Road (NS) at:
  - Esplanade Avenue (EW)
- Sanderson Avenue (SR-79 SB Ramps) (NS) at:
  - Gilman Springs Road (EW)
- Sanderson Avenue (SR-79 NB Ramps) (NS) at:
  - Gilman Springs Road (EW).

Alternative Transportation

Public bus service in the project vicinity is provided by the Riverside Transit Agency. Three bus routes operate within the City of San Jacinto. However, there are currently no transit facilities or designated bikeways operating in the study area.

Regulatory Framework

The Western Riverside Council of Governments (WRCOG) is a council which is comprised of members representing 15 local jurisdictions in western Riverside County, including the City of San Jacinto. The WRCOG functions to facilitate collective assessment of regional issues, such as traffic, by the various representative jurisdictions. In June 2004 WRCOG adopted the

Transportation Uniform Mitigation Fee (TUMF) 10-Year Strategic Plan and Transportation Improvement Program Development Guidelines.

The purpose of the TUMF program is to establish a comprehensive funding source for infrastructure improvements to mitigate cumulative regional transportation impacts of new development on regional arterial highways (Parsons Brinckerhoff Quade & Douglas, Inc., June 2004). The TUMF program has 5 primary goals that are articulated as a basis for developing specific project priorities and selection criteria. These goals are summarized as follows:

- ***Sustain Mobility*** – Mitigate the transportation system impacts of new development
- ***System Continuity*** – Enhance the continuity of the regional arterial highway system
- ***Project Development*** – Encourage systematic project development and provide flexibility to advance TUMF projects promptly through completion
- ***Leverage Funds*** – Secure additional matching funds for TUMF system improvements
- ***Regional Benefit*** – Ensure TUMF program revenues are distributed to maximize mitigation of new development impacts.

The TUMF program is intended to address cumulative traffic impacts of new development to the region and therefore TUMF program funded improvements are focused primarily on regional arterial highways. New development in Western Riverside County places additional demand on the regional transportation system to provide safe and convenient access for new residents and employees. The additional demand on the transportation facilities reduces mobility absent adequately and timely funded infrastructure improvements implemented to meet growing demands. As such, WRCOG has developed and implemented the TUMF program which requires new development to contribute revenues to partially fund improvements that will mitigate the transportation impacts of new developments. TUMF investments are then focused on those regional facilities most impacted by new development. The TUMF program assigns impact fees on a per dwelling unit basis for residential development and a per square foot basis for non-residential uses (i.e., commercial, industrial, office).

The City of San Jacinto also implements a Development Impact Fee (DIF) which consists of a "Streets and Roads" component and a "Traffic Signals" Component. The DIF program assigns impact fees on a "per acre" basis for non-residential development and a per unit basis for residential development. Fee calculations for both the TUMF and DIF programs are shown in *Section 5.9.5*.

5.9.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on transportation, circulation and access if it:

1. Would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
2. Would exceed, either individually or cumulatively, a level of service standard established by the County Congestion Management Agency for designated roads or highways
3. Would result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks
4. Would substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
5. Would result in inadequate emergency access
6. Would result in inadequate parking capacity
7. Would conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

5.9.4 Impacts

Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Would the project exceed, either individually or cumulatively, a level of service standard established by the County Congestion Management Agency for designated roads or highways?

Project Traffic

In order to characterize potential traffic impacts associated with the project, a characterization of the project's contribution to local traffic levels must occur. Site traffic is characterized by trip generation, trip distribution, modal split, and trip assignment.

As indicated in *Section 5.9.1*, the proposed project's "worst case" traffic impact scenario would be a land use scenario that includes construction of the planned high school, in effect a 1,016-unit development. Trip generation rates are based upon the proposed land use plan and data collected by the Institute of Traffic Engineers (ITE), *Trip Generation Manual, 7th Edition*. Trip generation rates for each proposed land use are shown in *Table 5.9-2, Project Trip*

Generation Rates, while daily and peak hour traffic generated by the proposed project is shown in *Table 5.9-3, Trip Generation Summary*.

Table 5.9-2
Project Trip Generation Rates

LAND USE	ITE CODE	QUANTITY	UNITS[2]	PEAK HOUR TRIP RATES						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Single-Family Detached	210	Varies	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.57
Park	SANDAG[3]	Varies	AC	3.25	3.25	6.50	2.25	2.25	4.50	50.00
High School	530	2,000	STU	0.28	0.13	0.41	0.07	0.07	0.14	1.71
Commercial/Retail	820	247.20	TSF	0.66	0.42	1.08	2.21	2.39	4.6	49.47
PLANNING AREA 12										
Commercial/Retail (10% of PA12)	820	34.37	TSF	1.46	0.94	2.4	4.32	4.68	9.00	98.69
Government Office Complex (30% of PA12)	733	103.11	TSF	1.97	0.24	2.21	0.88	1.97	2.85	27.92
Professional Office (60% of PA12)	710	206.21	TSF	1.43	0.19	1.62	0.26	1.25	1.51	11.29

[1] Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 7th Edition, 2003.

[2] DU = Dwelling Units
STU = Students
TSF = Thousand Square Feet
AC = Acres

[3] SANDAG = Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region. April 2002.

Table 5.9-3
Trip Generation Summary

LAND USE	QUANTITY	UNITS[1]	PEAK HOUR AM IN	AM OUT	AM TOTAL	PM IN	PM OUT	PM TOTAL	DAILY
YEAR 2015 - PHASE 1									
Single-Family Detached	431	DU	82	241	323	276	159	435	4,125
Park	45.9	AC	149	149	298	103	103	206	2,295
PHASE 1 Subtotal			231	390	621	379	262	641	6,420
- internal capture[2]			*-19*	*-19*	*-38*	*-18*	*-18*	*-36*	*-496*
PHASE 1 TOTAL			**212**	**371**	**583**	**361**	**244**	**605**	**5,924**
YEAR 2017 - PHASE 2									
Single-Family Detached	322	DU	61	180	241	206	119	325	3082
PHASE 2 Only Subtotal			61	180	241	206	119	325	3,082
PHASE 1 + 2 Subtotal (no internal capture)			292	570	862	585	381	966	9,502
- internal capture[2]			*-34*	*-34*	*-68*	*-31*	*-31*	*-62*	*-552*
PHASE 1 + 2 TOTAL			**258**	**536**	**794**	**554**	**350**	**904**	**8,950**
YEAR 2023 - PHASE 3 (AM & Daily = 263 DUs + HS; PM = 263 DUs + 322 DUs)									
Single-Family Detached	263	DU	50	147	197	168	97	266	2,517
High School	2,000	STU	560	260	820	USE SFDU (313DUs)			3,420
Single-Family Detached	313	DU	USE HIGH SCHOOL			200	116	316	USE HS
PHASE 3 Only Subtotal			610	407	1,017	368	213	582	5,937
PHASE 1 + 2 + 3 Subtotal (no internal capture)			902	977	1,879	953	594	1,548	15,439
- internal capture[2]			*-111*	*-111*	*-222*	*-36*	*-36*	*-72*	*-896*
PHASE 1 + 2 + 3 TOTAL			**791**	**866**	**1,657**	**917**	**558**	**1,476**	**14,543**
YEAR 2033 (GP Buildout) - PHASE 4									
Commercial/Retail (PA11)	247.20	TSF	163	104	267	546	591	1,137	12,229
Commercial/Retail (10% of PA12)	34.37	TSF	50	32	82	148	161	309	3,392
Government Office Complex (30% of PA12)	103.11	TSF	203	25	228	91	203	294	2,879
Professional Office (60% of PA12)	206.21	TSF	295	39	334	54	258	311	2,328
PHASE 4 Subtotal			711	200	911	839	1,213	2,051	20,828
PHASE 1 + 2 + 3 + 4 Subtotal (no internal capture)			1,613	1,177	2,790	1,792	1,807	3,599	36,267
- internal capture[2]			*-113*	*-113*	*-226*	*-316*	*-316*	*-632*	*-5,916*
- Phase 4 pass-by (shopping center only) (25%)[3]			*-30*	*-30*	*-59*	*-143*	*-143*	*-285*	*-3,185*
NET EXTERNAL TRIPS TOTAL			**1,470**	**1,034**	**2,505**	**1,333**	**1,348**	**2,682**	**27,166**

[1] DU = Dwelling Units
STU = Students
AC = Acres
TSF = Thousand Square Feet

[2] Internal Capture is the reduction of the overall traffic due to the compatability of land uses (proposed residential, high school, park, office, and shopping center) within the project site.

[3] "Pass-By" reduction rates have been used to account for traffic that will access the site as an intermediate stop on the way to a primary destination.

Due to the size and diversity of land uses of the proposed project a certain portion of the anticipated ADT will simply circulate internally rather than exit the development to travel to other destinations. This factor, deemed "internal capture," would include vehicle trips from the residential areas to school, residential areas to shopping center and residential areas to the mixed-use area. The number of internal capture trips was calculated for each building phase of the project. As shown in *Table 5.9-3*, the project is estimated to generate a total of 27,166 net external ADT for all four phases after accounting for internal trips and "pass-by" trips (i.e., traffic that will access the site on the way to another primary destination).

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of employment, commercial and recreational opportunities and the proximity to the regional freeway system. Trip distribution for this project is based upon near-term conditions which include those roadway facilities which are either in place or are expected to be in place over the next several years. Roadway construction and improvements that are assumed to be in place in conjunction with each phase of the project are detailed in Section 4.2 of the Traffic Impact Analysis in *Appendix H.*

Due to the lack of anticipated public transit facilities within this portion of the City of San Jacinto, the traffic-reducing impact of public transportation facilities has not been considered for this project. Should transit facilities become a part of this area, they would in effect reduce traffic levels and reduce anticipated impacts described herein.

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, proposed arterial highway system and local street systems. Project generated traffic is then combined with background traffic and projected future traffic to estimate impacts on the study area roadways as described below.

Cumulative Traffic

In order to fully address traffic impacts, an impact analysis assuming the ultimate build out of other planned projects (cumulative projects), must be performed. These projects were based on information provided by the City of San Jacinto and County of Riverside and include projects that are under construction or are under review in the project area.

Several cumulative projects were identified for this analysis and have been divided into 28 traffic analysis zones (TAZ). *Table 5.9-4, 2023 Cumulative Project Trip Generation*, provides a summary of the total anticipated units (if residential) or square footage (if commercial) and daily AM and PM peak hour trips assumed in each TAZ based on known project information. Daily and peak hour trips that would be generated by the additional development proposals in the study area were calculated and the projected generated traffic was distributed and assigned to the study area street system.

Table 5.9-4
2023 Cumulative Project Trip Generation

PROJECT					PEAK HOUR						
					AM			PM			
TAZ	NAME	LAND USE	QUANTITY	UNITS[1]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
1	SP 1-01										
	- TR 30033	SFDR	146	DU	28	82	110	93	54	147	1,397
	- TR 30034	SFDR	50	DU	10	28	38	32	19	51	479
	- TR 30035	SFDR	74	DU	14	41	55	47	27	74	708
	- TR 30036	SFDR	104	DU	20	58	78	67	38	105	995
	- TR 30084	SFDR	111	DU	21	62	83	71	41	112	1,062
	- PM 30090	SFDR	5	DU	1	3	4	3	2	5	48
Subtotal					94	274	368	313	181	494	4,689
2	TR 31037	SFDR	131	DU	25	73	98	84	48	132	1,254
	TR 31282	SFDR	274	DU	52	153	205	175	101	276	2,622
	TR 31154	SFDR	135	DU	26	76	102	86	50	136	1,292
	TR 31900	SFDR	112	DU	21	63	84	72	41	113	1,072
	TR 33072	SFDR	140	DU	27	78	105	90	52	142	1,340
	TR 33138	SFDR	28	DU	5	16	21	18	10	28	268
	VTR 31384	SFDR	48	DU	9	27	36	31	18	49	459
	TR 33249	SFDR	25	DU	5	14	19	16	9	25	239
	TR 34364	SFDR	8	DU	2	4	6	5	3	8	77
Subtotal					172	504	676	577	332	909	8,623
3	TR 30814	SFDR	155	DU	29	87	116	99	57	156	1,483
	TR 30481	SFDR	126	DU	24	71	95	81	47	128	1,206
	TR 31555	SFDR	115	DU	22	64	86	74	43	117	1,101
	TR 30813 (25% completed)	SFDR	186	DU	35	104	139	119	69	188	1,780
	TR 30335	SFDR	69	DU	13	39	52	44	26	70	660
	TR 30944	SFDR	103	DU	20	58	78	66	38	104	986
Subtotals					143	423	566	483	280	763	7,216
4	VTR 31097	SFDR	214	DU	41	120	161	137	79	216	2,048
	TR 31293	SFDR	100	DU	19	56	75	64	37	101	957
	TR 29364 (41% completed)	SFDR	39	DU	7	22	29	25	14	39	373
	TR 31246	SFDR	128	DU	24	72	96	82	47	129	1,225
	TR 33106	SFDR	15	DU	3	8	11	10	6	16	144
Subtotals					94	278	372	318	183	501	4,747
5	TR 30878	SFDR	170	DU	32	95	127	109	63	172	1,627
Subtotal					32	95	127	109	63	172	1,627
6	TR 32250	SFDR	53	DU	10	30	40	34	20	54	507
	TR 30559 (85% completed)	SFDR	20	DU	4	11	15	13	7	20	191
	TR 31929	SFDR	78	DU	15	44	59	50	29	79	746
Subtotal					29	85	114	97	56	153	1,444
7	Holgate / Hopkins (VPM 31281)	Commercial	500.0	TSF	250	160	410	870	940	1,810	19,330
		- pass by (commercial) (25%) [4]			*-63*	*-40*	*-103*	*-218*	*-235*	*-453*	*-4,833*
		Industrial	62.5	TSF	75	14	89	19	62	81	798
		TOTAL (Holgate / Hopkins)			**262**	**134**	**396**	**671**	**767**	**1,438**	**15,295**
	Scott Martin (PM 31522)	Commercial	200.0	TSF	144	92	236	474	514	988	10,656
		- pass by (commercial) (25%) [4]			-36	-23	-59	-119	-129	-248	-2,664
		Industrial	*250.0*	*TSF*	*300*	*58*	*358*	*75*	*248*	*323*	*3,190*
		TOTAL (Scott Martin)			**408**	**127**	**535**	**430**	**633**	**1,063**	**11,182**
	Bahan Hopkins / Real Estate Group	SFDR	500	DU	95	280	375	320	185	505	4,785
		Commercial	1,100.00	TSF	407	253	660	1463	1584	3,047	32,274
		- internal capture [3]			*-38*	*-38*	*-76*	*-197*	*-197*	*-394*	*-1,699*
		- pass by (commercial) (25%) [4]			*-102*	*-63*	*-165*	*-366*	*-396*	*-762*	*-8,069*
		TOTAL (Bahan Hopkins)			**362**	**432**	**794**	**1220**	**1176**	**2,396**	**27,291**
	SJ 106, LLC	SFDR	321	DU	61	180	241	205	119	324	3,072
		Commercial	250.0	TSF	165	105	270	550	595	1,145	12,320
		- internal capture [3]			*-15*	*-15*	*-30*	*-114*	*-114*	*-228*	*-1,061*
		- pass by (commercial) (25%) [4]			*-41*	*-26*	*-67*	*-138*	*-149*	*-287*	*-3,080*
		TOTAL (SJ 106, LLC)			**170**	**244**	**414**	**503**	**451**	**954**	**11,251**
	Target Center (100%)	Commercial	771.00	TSF	324	208	532	1157	1257	2414	25,620
		- pass by (commercial) (25%) [4]			*-81*	*-52*	*-133*	*-289*	*-314*	*-603*	*-6,405*
		TOTAL (Target Center)			**243**	**156**	**399**	**868**	**943**	**1811**	**19,215**
	McCleish Group (Record Family)	Commercial	200.00	TSF	144	92	236	474	514	988	10,656
		- pass by (commercial) (25%) [4]			*-36*	*-23*	*-59*	*-119*	*-129*	*-248*	*-2,664*
		TOTAL (McCleish Group)			**108**	**69**	**177**	**355**	**385**	**740**	**7,992**
TOTAL (TAZ 7)					1,553	1,162	2,715	3,047	4,355	8,402	92,226
8	TR 30803	SFDR	203	DU	39	114	153	130	75	205	1,943
	TR 22665	SFDR	147	DU	28	82	110	94	54	148	1,407
TOTAL (TAZ 8)					67	196	263	224	129	353	3,350

Table 5.9-4 (Continued)

PROJECT					PEAK HOUR						
					AM			PM			
TAZ	NAME	LAND USE	QUANTITY	UNITS[1]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
9	TR 29917	SFDR	134	DU	25	75	100	86	50	136	1,282
	TR 30639	SFDR	92	DU	17	52	69	59	34	93	880
	TR 31794	SFDR	62	DU	12	35	47	40	23	63	593
	TR 32518	SFDR	34	DU	6	19	25	22	13	35	325
TOTAL (TAZ 9)					60	181	241	207	120	327	3,080
10	TR 29992	SFDR	30	DU	6	17	23	19	11	30	287
	TR 30884	SFDR	14	DU	3	8	11	9	5	14	134
	TR 33509	SFDR	37	DU	7	20	27	23	13	36	345
TOTAL (TAZ 10)					16	45	61	51	29	80	766
11	VTR 30484	SFDR	117	DU	22	66	88	75	43	118	1,120
	TR 31566	SFDR	61	DU	12	34	46	39	23	62	584
TOTAL (TAZ 11)					34	100	134	114	66	180	1,704
12	TR 32053	SFDR	178	DU	34	100	134	114	66	180	1,703
	TR 31036 (19% completed)	SFDR	108	DU	21	60	81	69	40	109	1,034
TOTAL (TAZ 12)					55	160	215	183	106	289	2,737
13	TR 30644 (55% completed)	SFDR	66	DU	13	37	50	42	24	66	632
	TR 31035	SFDR	77	DU	15	43	58	49	28	77	737
	TR 32376	SFDR	337	DU	64	189	253	216	125	341	3,225
TOTAL (TAZ 13)					92	269	361	307	177	484	4,594
14	Shea Homes (TR 31886)	SFDR	321	DU	61	180	241	205	119	324	3,072
	TR 32843	SFDR	143	DU	27	80	107	92	53	145	1,369
	PM 30532	SFDR	2	DU	0	1	1	1	1	2	19
	TR 32555	SFDR	12	DU	2	7	9	8	4	12	115
TOTAL (TAZ 14)					90	268	358	306	177	483	4,575
15	SP 1-03 (TR 30598)	SFDR	580	DU	110	325	435	371	215	586	5,551
	TR 32080	SFDR	53	DU	10	30	40	34	20	54	507
	TR 29341	SFDR	251	DU	48	141	189	161	93	254	2,402
TOTAL (TAZ 15)					168	496	664	566	328	894	8,460
16	TR 30597	SFDR	116	DU	22	65	87	74	43	117	1,110
	TR 33420	SFDR	161	DU	31	90	121	103	60	163	1,541
TOTAL (TAZ 16)					53	155	208	177	103	280	2,651
17	TR 30379	SFDR	126	DU	24	71	95	81	47	128	1,208
	TR 30923	SFDR	192	DU	36	108	144	123	71	194	1,837
		SFDR	147	DU	28	82	110	94	54	148	1,407
	Kasbergen Hafliger Property	Commercial	30.0	TSF	47	30	77	136	147	283	3,105
		- internal capture [3]			*-8*	*-8*	*-16*	*-30*	*-30*	*-60*	*-652*
		TOTAL (KASBERGEN)			67	104	171	200	171	371	3,860
TOTAL (TAZ 17)					127	283	410	404	289	693	6,903
SP 1-02 (TR 32955)		SFDR	613	DU	116	343	459	392	227	619	5,866
		- Assume 100% of Full Buildout (613 DUs)			*116*	*-343*	*-459*	*-392*	*-227*	*-619*	*-5,866*
TR 30828		SFDR	293	DU	56	164	220	188	108	296	2,804
TR 31544		SFDR	134	DU	25	75	100	86	50	136	1,282
Vanderham - TTM 32155		SFDR	253	DU	48	142	190	162	94	256	2,421
Ashbrook PUD (TR 33408)		SFDR	210	DU	40	118	158	134	78	212	2,010
7th Street and Cawston Residential		SFDR	128	DU	24	72	96	82	47	129	1,225
The Promenade		Apartments	600	DU	60	246	306	240	132	372	4,032
		-internal capture (Residential) [3]			*-11*	*-16*	*-27*	*-23*	*-15*	*-38*	*-380*
		Office	39	TSF	78	11	90	21	102	123	646
		-internal capture (Office) [3]			*-4*	*-4*	*-8*	*-5*	*-5*	*-10*	*-125*
		Retail	40	TSF	55	35	90	164	178	342	3,744
		-internal capture (Retail) [3]			*-18*	*-13*	*-31*	*-18*	*-26*	*-44*	*-493*
		-"Pass-By" Trips Retail (-15%) [4]			*-*	*-*	*0*	*-22*	*-23*	*-45*	*-488*
		Storage (Mini Warehouse)	2.71	AC	4	4	8	5	5	10	105
		TOTAL (The Promenade)			164	263	427	362	348	710	7,041
TR 30943		SFDR	210	DU	40	118	158	134	78	212	2,010
San Jacinto Ranch (Phase I,II,III,IV)		PHASE 1 - 2009									
		SFDR	27	DU	5	15	20	17	10	27	258
		Townhouse / Condo	471	DU	33	174	207	165	80	245	2,760
		Commercial	281.569	TSF	170	110	280	568	615	1,183	12,687
		Office	46.163	TSF	69	12	101	22	108	131	736
		SUBTOTAL (PHASE 1)			297	311	608	772	813	1,585	16,441
		-"Pass-By" Trips (25% - Commercial Only) [4]			*-43*	*-28*	*-71*	*-142*	*-154*	*-296*	*-3,172*
		-Internal Trips (Residential) [3]			*-8*	*-9*	*-17*	*-58*	*-48*	*-106*	*-1,076*
		-Internal Trips (Commercial) [3]			*-11*	*-11*	*-22*	*-59*	*-63*	*-122*	*-1,205*
		-Internal Trips (Office) [3]			*-3*	*-2*	*-5*	*-7*	*-13*	*-20*	*-143*
		TOTAL REDUCTION (Phase 1 only)			*-65*	*-50*	*-115*	*-266*	*-278*	*-544*	*-5,596*

Table 5.9-4 (Continued)

PROJECT					PEAK HOUR						
					AM			PM			
TAZ	NAME	LAND USE	QUANTITY	UNITS[1]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
		TOTAL (SJR PHASES 1)			**232**	**261**	**493**	**506**	**535**	**1,041**	**10,845**
		PHASE 2 - 2012									
		SFDR	125	DU	24	70	94	80	46	126	1,196
		Townhouse / Condo	700	DU	49	259	308	245	119	364	4,102
		Commercial	388.774	TSF	214	136	350	735	797	1,532	16,414
		Office	66.607	TSF	122	16	138	27	129	156	998
		SUBTOTAL (PHASE 2)			409	481	890	1,087	1,091	2,178	22,710
		-"Pass-By" Trips (25% - Commercial Only)[4]			*-96*	*-62*	*-158*	*-326*	*-353*	*-679*	*-7,275*
		-Internal Trips (Residential)[3]			*-17*	*-19*	*-36*	*-162*	*-117*	*-279*	*-2,699*
		-Internal Trips (Commercial)[3]			*-25*	*-24*	*-49*	*-143*	*-172*	*-315*	*-3,003*
		-Internal Trips (Office)[3]			*-7*	*-6*	*-13*	*-15*	*-31*	*-46*	*-338*
		TOTAL REDUCTION (Phases 1 and 2)			*-145*	*-111*	*-256*	*-646*	*-673*	*-1,319*	*-13,315*
		TOTAL (SJR PHASES 1 and 2)			**561**	**681**	**1,242**	**1,213**	**1,231**	**2,444**	**25,836**
		PHASE 3 - 2015									
		SFDR	226	DU	43	128	171	146	84	230	2,182
		Condo	1008	DU	71	373	444	353	171	524	5,907
		Commercial	173.837	TSF	134	85	219	433	469	902	9,728
		Office	30.677	TSF	64	9	73	19	94	113	537
San Jacinto Ranch (Phase I,II,III,IV)		SUBTOTAL (PHASE 3)			312	595	907	951	818	1,769	18,354
		-"Pass-By" Trips (25% - Commercial Only)[4]			*-130*	*-83*	*-213*	*-434*	*-470*	*-904*	*-9,707*
		-Internal Trips (Residential)[3]			*-23*	*-26*	*-49*	*-233*	*-156*	*-389*	*-3,906*
		-Internal Trips (Commercial)[3]			*-33*	*-33*	*-66*	*-232*	*-247*	*-479*	*-4,303*
		-Internal Trips (Office)[3]			*-10*	*-7*	*-17*	*-21*	*-83*	*-104*	*-443*
		-TOTAL REDUCTION (Phases 1, 2 and 3)			*-196*	*-149*	*-345*	*-920*	*-956*	*-1876*	*-18359*
		TOTAL (SJR RANCH PHASES 1, 2 and 3)			**822**	**1,238**	**2,060**	**1,890**	**1,766**	**3,656**	**39,146**
		PHASE 4 - 2018									
		SFDR	612	DU	116	343	459	392	226	618	5,857
		Condo	347	DU	24	128	152	121	59	180	2,033
		Commercial	192.72	TSF	141	91	232	463	501	964	10,403
		Office	34.009	TSF	70	10	80	20	97	117	582
		Elementary School	600	STU	138	114	252	18	36	54	774
		SUBTOTAL (PHASE 4)			489	686	1,175	1,014	919	1,933	19,649
		-"Pass-By" Trips (25% - Commercial Only)[4]			*-165*	*-106*	*-271*	*-550*	*-596*	*-1,146*	*-12,308*
		-Internal Trips (Residential)[3]			*-53*	*-61*	*-114*	*-300*	*-201*	*-501*	*-4,952*
		-Internal Trips (Commercial)[3]			*-42*	*-43*	*-85*	*-296*	*-313*	*-609*	*-5,451*
		-Internal Trips (Office)[3]			*-13*	*-9*	*-22*	*-27*	*-107*	*-134*	*-557*
		-Internal Trips (Elementary School)[3]			*-28*	*-23*	*-51*	*-3*	*-5*	*-8*	*-78*
		TOTAL REDUCTION (Phases 1,2,3 and 4)			*-301*	*-242*	*-543*	*-1,176*	*-1,222*	*-2,398*	*-23,346*
		NET TOTAL (SJR PHASES 1, 2, 3 and 4)			**1,205**	**1,831**	**3,037**	**2,648**	**2,419**	**5,067**	**53,608**
18	TR 34665	SFDR	20	DU	4	11	15	13	7	20	191
TR 35447		SFDR	10	DU	2	6	8	6	4	10	96
TR 34814		SFDR	63	DU	12	35	47	40	23	63	603
19	CUP 03-03	Commercial	230	TSF	156	101	257	520	564	1084	11,670
		- pass by (commercial) (25%)[4]			-39	-25	-64	-130	-141	-271	-2,918
		TOTAL (CUP 03-03)			117	76	193	390	423	813	8,752
	CUP 10-04	Commercial	21.24	TSF	38	24	62	108	117	225	2,481
		- pass by (commercial) (25%)[4]			-10	-6	-16	-27	-29	-56	-620
		TOTAL (CUP 10-04)			28	18	46	81	88	169	1,861
		TOTAL (TAZ 19)			**145**	**94**	**239**	**471**	**511**	**982**	**10,613**
PM 33196		Commercial	118.2	TSF	105	67	172	336	364	700	7,571
		- pass by (commercial) (25%)[4]			*-26*	*-17*	*-43*	*-84*	*-91*	*-175*	*-1,893*
		TOTAL (PM 33196)			**79**	**50**	**129**	**252**	**273**	**525**	**5,678**
20	CUP 17-04	Fast Food Restaurant	3.56	TSF	96	93	189	64	59	123	1,766
	CUP 18-04	Mini-Storage	34.4	TSF	3	2	5	4	4	8	86
	SR 13-04	Commercial	4.2	TSF	14	9	23	37	40	77	865
	SR 14-04	Commercial	16.2	TSF	32	20	52	90	98	188	2,080
	SR 03-05	Commercial	3.4	TSF	13	8	21	32	35	67	754
		- internal capture (20%)[3]			*-32*	*-26*	*-58*	*-45*	*-47*	*-92*	*-1,110*
		Subtotal			126	106	232	182	189	371	4,441
		- pass by (commercial) (25%)[4]			*-32*	*-27*	*-59*	*-46*	*-47*	*-93*	*-1,110*
		TOTAL (TAZ 18)			**94**	**79**	**173**	**136**	**142**	**278**	**3,331**
21	SR 06-06	Commercial	5	TSF	16	10	26	42	45	87	969
		- pass by (commercial) (25%)[4]			*-4*	*-3*	*-7*	*-11*	*-11*	*-22*	*-242*
		TOTAL (SR 06-06)			**12**	**7**	**19**	**31**	**34**	**65**	**727**
	SR 13-06	Commercial	11.5	TSF	26	17	43	72	78	150	1,665
		- pass by (commercial) (25%)[4]			-7	-4	-11	-18	-20	-38	-416
		TOTAL (SR 13-06)			**19**	**13**	**32**	**54**	**58**	**112**	**1,249**
22	SR 10-06	Commercial	8.2	TSF	21	14	35	58	62	120	1,336
		- pass by (commercial) (25%)[4]			*-5*	*-4*	*-9*	*-15*	*-16*	*-31*	*-334*
		TOTAL (SR 10-06)			**16**	**10**	**26**	**43**	**46**	**89**	**1002**
	SR 04-07	Commercial	21.5	TSF	38	24	62	109	118	227	2,500
		- pass by (commercial) (25%)[4]			*-10*	*-6*	*-16*	*-27*	*-30*	*-57*	*-625*
		TOTAL (SR 04-07)			**28**	**18**	**46**	**82**	**88**	**170**	**1,876**

Table 5.9-4 (Continued)

PROJECT					PEAK HOUR						
					AM			PM			
TAZ	NAME	LAND USE	QUANTITY	UNITS[1]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
SR 16-06		Medical Office	12.2	TSF	24	6	30	12	33	45	441
SR 19-06		Medical Office	74	TSF	145	38	183	74	201	275	2,674
SR 20-06		General Office	63.8	TSF	115	16	131	26	124	150	944
23	SR 12-06	Commercial	105.3	TSF	99	63	162	311	337	648	7,022
		- pass by (commercial) (25%) [4]			*-25*	*-16*	*-41*	*-78*	*-84*	*-162*	*-1,756*
		TOTAL (SR 12-06)			74	47	121	233	253	486	5,266
SR 19-06 Phase 3		Industrial Office	45	TSF	31	7	38	8	31	39	313
SR 03-07		Commercial	13.3	TSF	28	18	46	79	86	165	1,830
		- pass by (commercial) (25%) [4]			*-7*	*-5*	*-12*	*-20*	*-22*	*-42*	*-458*
		TOTAL (SR 03-07)			21	13	34	59	64	123	1,372
CUP 08-07		Commercial	171.3	TSF	132	84	216	428	464	892	9,636
		- pass by (commercial) (25%) [4]			*-33*	*-21*	*-54*	*-107*	*-116*	*-223*	*-2,409*
		TOTAL (SR 08-07)			99	63	162	321	348	669	7,227
CUP 1-08		Commercial	141	TSF	117	75	192	376	409	785	8,491
		- pass by (commercial) (25%) [4]			*-29*	*-19*	*-48*	*-94*	*-102*	*-196*	*-2,123*
		TOTAL (SR 1-08)			88	56	144	282	307	589	6,368
CUP 2-08		Commercial	133.7	TSF	114	72	186	364	394	758	8,202
		- pass by (commercial) (25%) [4]			*-29*	*-18*	*-47*	*-91*	*-99*	*-190*	*-2,051*
		TOTAL (SR 2-08)			85	54	139	273	295	568	6,151
24	TR 30915	SFDR	322	DU	61	180	241	206	119	325	3,082
	TR 32165	SFDR	85	DU	16	48	64	54	31	85	813
	TR 32764	SFDR	12	DU	2	7	9	8	4	12	115
TOTAL (TAZ 24)					79	235	344	268	154	422	4,010
25	TR 33177	SFDR	12	DU	2	7	9	8	4	12	115
	TR 33178	SFDR	11	DU	2	6	8	7	4	11	105
TOTAL (TAZ 25)					4	13	17	15	8	23	220
26	TR 33180	SFDR	8	DU	2	4	6	5	3	8	77
TOTAL (TAZ 26)					2	4	6	5	3	8	77
27	TR29315	SFDR	327	DU	62	183	245	209	121	330	3,129
TOTAL (TAZ 27)					62	183	245	209	121	330	3,129
28	TR 31583	SFDR	171	DU	32	96	128	109	63	172	1,636
TOTAL (TAZ 28)					32	96	128	109	63	172	1,636
TOTAL CUMULATIVE TRIP GENERATION FOR 2023 (ALL)					5,870	9,254	15,124	15,693	13,614	29,307	303,052

[1] DU = Dwelling Units
TSF = Thousand Square Feet
STU = Students
AC = Acres

[2] SFDR = Single-Family Detached Residential

[3] Internal Capture is the reduction of the overall traffic due to the compatability of land uses (proposed residential), elementary within a cumulative project site.

[4] "Pass-By" reduction rates have been used to account for traffic that will access the site as an intermediate stop on the way to a primary destination.

In addition to project-generated traffic and anticipated traffic generation from additional approved or pending development in the study area, area wide growth (ambient growth) has been considered in the traffic analysis. Based on information obtained by City staff, future traffic volumes have been calculated by using an anticipated 3% annual growth rate for the years 2008–2015 and a 1% growth rate for the years 2015–2023, which has been added to project-related and other development-related daily and peak hour traffic volumes (see Exhibit 4-K through 4-T in *Appendix H* for graphical depictions of each cumulative project's location and anticipated trip distribution).

Intersection Impacts for Existing Plus Ambient Plus Project Conditions

In order to identify direct project impacts, interim year analyses were performed for three Existing Plus Ambient Plus Project (EAP) scenarios. These scenarios don't include the cumulative projects that were identified above, but do include ambient traffic growth rates for each study year which corresponds to the project phasing. The following three sets of traffic volume conditions have been forecasted:

- 2015 EAP with Project Phase I
- 2017 EAP with Project Phases I + II
- 2023 EAP with Project Phases I + II + III.

The intersection levels of service for each of the scenarios are shown in *Table 5.9-5* through *Table 5.9-7*. Those intersections shown as "Does Not Exist" would not have been built at the timing for the scenario being analyzed. The intersection turning movement volumes for each scenario are shown on Exhibits 5-A through 5-F in *Appendix H*.

Table 5.9-5
Intersection Analysis for 2015 Existing + Ambient Growth + Project (EAP) Phase I Conditions

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	21.8	20.9	C	C
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	--[4]	95.5	F	F
-With Improvements	**TS**	1	0	1	0	0	0	0	1	1	1	1	0	13.9	13.2	B	B
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	38.8	56.7	E	F
-With Improvements	**TS**	0	0	0	1	0	1	1	1	0	0	1	1	11.0	11.4	B	B
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	19.9	24.9	B	C
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	27.8	28.0	C	C
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	39.2	33.6	D	C
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
• Street "C"/Driveway 4 (EW)	--	DOES NOT EXIST												--	--	--	--
• De Anza Dr. (EW)	--	DOES NOT EXIST												--	--	--	--
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 10 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	CSS	0	0	**1**	0	0	0	0	**1**	0	**1**	**1**	0	9.3	9.3	A	A
Street "A" (NS) at:																	
• Driveway 8 (EW)	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	CSS	0	0	0	0	1!	0	0	0	0	0	1	0	9.5	9.3	A	A
Driveway 12 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	CSS	0	0	1	0	0	0	0	1	0	1	1	0	9.0	8.7	A	A
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	CSS	0	0	0	0	1!	0	0	1	0	0	1	0	10.4	10.1	B	B
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	54.9	--[4]	F	F
-With Improvements	**TS**	0	0	0	0.5	0.5	1	0	1	1	1	1	0	15.8	23.8	B	C

Table 5.9-5 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	96.5	F	F
-With Improvements	**TS**	0.5	0.5	1	0	0	0	1	1	0	0	1	1	17.5	15.9	B	B
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	--[4]	--[4]	F	F
-With Improvements	TS	1	**2**	0	1	**2**	1>	**2**	1	1>>	1	1	1>	38.5	40.8	D	D
• Ramona Blvd. (EW) (Realigned)	**CSS**	0	**1**	0	**1**	**1**	0	0	0	0	**1**	0	**1**	73.4	--[4]	F	F
-With Improvements	**TS**	0	1	0	1	1	0	0	0	0	1	0	1	18.0	36.3	B	D
• Driveway 14 (EW)	--	DOES NOT EXIST												--	--	--	--
• De Anza Dr. (EW)	**TS**	**1**	**1**	0	0	**1**	0	**1**	**1**	0	**1**	**1**	0	39.5	51.7	D	D
• Driveway 15 (EW)	**CSS**	0	**1**	0	0	**1**	0	0	0	**1**	0	0	0	12.2	18.2	B	B
• Bridge St. (EW)	**TS**	**1**	**1**	0	0	**1**	0	0	**1!**	0	0	0	0	15.6	21.2	B	C
• Driveway 16 (EW)	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	12.7	13.9	B	B
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	35.1	45.0	D	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	38.0	--[4]	D	F
-With Improvements	TS	**2**	2	1	1	2	1	1	**2**	1	1	**2**	1	32.9	51.3	C	D
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.2	33.2	C	C
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	33.2	32.6	C	C
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.1	29.1	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

* Those intersections shown as "Does Not Exist" would not have been built at the timing for the scenario being analyzed.

As shown in *Table 5.9-5*, the following intersections are projected to operate at unacceptable LOS (i.e., LOS E or worse) during peak hours without improvements for the 2015 EAP, Phase I scenario:

- Bridge Street (NS) at:
  - Ramona Expressway (EW)
- Warren Road (NS) at:
  - Esplanade Avenue (EW)
- Sanderson Avenue (SR-79 NB Ramps) (NS) at:
  - Gilman Springs Road (EW)
- Sanderson Avenue (NS) at:
  - Ramona Boulevard (EW) Realigned
  - Florida Avenue (SR-74) (EW).

With improvements, all of the study area intersections are projected to operate at acceptable LOS during the peak hours.

Table 5.9-6
Intersection Analysis for Existing +
Ambient Growth + Project Phases I and II (2017) Conditions

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	22.1	21.1	C	C
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	**TS**	1	0	1	0	0	0	0	1	1	1	1	0	16.3	15.0	B	B
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	44.9	72.7	E	F
-With Improvements	**TS**	0	0	0	1	0	1	1	1	0	0	1	1	11.5	13.9	B	B
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	20.5	25.6	C	C
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	27.9	28.1	C	C
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	**TS**	1	1	0	1	1	0	1	1	0	1	1	0	42.1	35.6	D	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
• Street "C"/Driveway 4 (EW)	--	DOES NOT EXIST												--	--	--	--
• De Anza Dr. (EW)	--	DOES NOT EXIST												--	--	--	--
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 10 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	1!	0	0	1!	0	1	1	0	1	1	0	9.7	10.4	A	B
Street "A" (NS) at:																	
• Driveway 8 (EW)	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	1!	0	0	0	0	0	1	0	9.4	9.3	A	A
Driveway 12 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	1!	0	0	1!	0	1	1	0	1	1	0	12.2	14.3	B	B
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	1!	0	0	1	0	0	1	0	10.3	10.0	B	A
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	66.4	--[4]	F	F
-With Improvements	**TS**	0	0	0	0.5	0.5	1	0	1	1	1	1	0	16.4	24.7	B	C

Table 5.9-6 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements	**TS**	0.5	0.5	1	0	0	0	1	1	0	0	1	1	18.8	19.4	B	B
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	--[4]	--[4]	F	F
-With Improvements	TS	1	**2**	0	1	**2**	1>	**2**	1	1>>	1	1	1>	41.9	43.7	D	D
• Ramona Blvd. (EW) (Realigned)	**CSS**	0	**1**	0	**1**	**1**	0	0	0	0	**1**	0	**1**	--[4]	--[4]	F	F
-With Improvements	**TS**	0	1	0	1	1	0	0	0	0	1	0	1	21.3	51.9	C	D
• Driveway 14 (EW)	**CSS**	0	**1**	0	0	**1**	0	0	0	**1**	0	0	0	12.6	23.6	B	C
• De Anza Dr. (EW)	**TS**	**1**	**1**	0	**1**	**2**	0	**1**	**1**	0	**1**	**1**	0	37.0	25.5	D	C
• Driveway 15 (EW)	**CSS**	0	**1**	0	0	**1**	0	0	0	**1**	0	0	0	12.9	19.4	B	C
• Bridge St. (EW)	**TS**	**1**	**1**	0	0	**1**	0	0	**1!**	0	0	0	0	14.8	20.5	B	C
• Driveway 16 (EW)	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	13.0	14.8	B	B
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	37.8	52.0	D	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	38.8	--[4]	D	F
-With Improvements	TS	**2**	2	1	1	2	1	1	2	1	1	**2**	1	34.3	54.7	C	D
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.3	33.4	C	C
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	33.5	32.8	C	C
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.5	30.0	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

As shown in *Table 5.9-6*, the same intersections as in the EAP 2015 scenario are projected to operate at unacceptable LOS (i.e., LOS E or worse) during peak hours without improvements for the 2017 EAP, Phases I and II scenario. However, with improvements, all of the study area intersections are projected to operate at acceptable LOS during the peak hours.

Table 5.9-7
Intersection Analysis for Existing + Ambient Growth + Project Phases I, II and II (2023) Conditions

		INTERSECTION APPROACH LANES[1]															
	TRAFFIC	NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
INTERSECTION	CONTROL[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	22.7	21.6	C	C
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	**TS**	1	0	1	0	0	0	0	1	1	1	1	0	19.7	17.4	B	B
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	67.4	--[4]	F	F
-With Improvements	**TS**	0	0	0	1	0	1	1	1	0	0	1	1	10.6	27.9	B	C
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	22.1	29.4	C	C
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	30.1	30.0	C	C
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	54.5	41.7	D	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	0	0	**1**	0	0	0	0	0	0	0	**1**	9.3	9.4	A	A
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	8.7	8.9	A	A
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	8.7	8.9	A	A
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	12.4	9.4	B	A
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	**1**	**1**	0	**1**	**1**	0	**1**	**2**	0	**1**	**1**	0	22.6	11.1	C	B
• Street "C"/Driveway 4 (EW)	**CSS**	***1***	**1**	0	**1**	**1**	0	0	***1!***	0	0	**1!**	0	10.8	10.4	B	B
• De Anza Dr. (EW)	**CSS**	0	0	0	**1**	0	0	0	0	0	0	0	**1**	12.0	9.6	B	A
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 10 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	CSS	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	9.8	10.8	A	B
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	16.7	11.4	C	B
Street "A" (NS) at:																	
• Driveway 8 (EW)	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	**1!**	0	0	0	0	0	**1**	0	9.4	9.3	A	A
Driveway 12 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	32.5	17.5	D	C
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	**1!**	0	0	**1**	0	0	**1**	0	10.2	9.9	B	A
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	**TS**	0	0	0	0.5	0.5	1	0	1	1	1	1	0	17.7	27.9	B	C

Table 5.9-7 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements	**TS**	0.5	0.5	1	0	0	0	1	1	0	0	1	1	20.5	22.1	C	C
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	--[4]	--[4]	F	F
-With Improvements	TS	1	**2**	0	1	**2**	1>	**2**	1	1>>	1	1	1>	50.0	49.2	D	D
• Ramona Blvd. (EW) (Realigned)	**CSS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	--[4]	--[4]	F	F
-With Improvements	**TS**	1	**2**	0	1	**2**	0	1	1	0	1	1	0	28.3	30.4	C	C
• Driveway 14 (EW)	**CSS**	0	**1**	0	0	**1**	0	0	0	**1**	0	0	0	12.9	27.6	B	D
• De Anza Dr. (EW)	**TS**	**1**	1	0	**1**	**2**	0	**1**	**1**	0	**1**	**1**	0	43.4	35.6	D	D
• Driveway 15 (EW)	**CSS**	0	**1**	0	0	**1**	0	0	0	**1**	0	0	0	15.6	22.8	C	C
• Bridge St. (EW)	**TS**	**1**	**2**	0	0	**1**	0	0	**1!**	0	0	0	0	15.8	29.2	C	C
• Driveway 16 (EW)	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	23.3	F	C
-With Improvements	TS	1	**2**	0	1	**2**	0	1	1	0	1	1	0	54.6	38.7	D	D
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	--[4]	--[4]	F	F
-With Improvements	TS	**1**	**2**	0	1	**2**	0	1	1	0	1	1	1	31.3	39.9	C	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	41.4	--[4]	F	F
-With Improvements	TS	**2**	2	1	1	2	1	1	2	1	**2**	2	1	35.7	51.8	D	D
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	29.1	34.6	C	C
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	35.0	34.7	C	C
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	29.4	31.2	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop
Italicized = Lane to be constructed only with the +313 DU Project Alternative

As shown in *Table 5.9-7*, the following intersections are projected to operate at unacceptable LOS (i.e., LOS E or worse) during peak hours without improvements for the 2023 EAP, Phases I, II and III scenario in addition to those that are deficient under 2017 EAP conditions:

- Sanderson Avenue (NS) at:
  - Cottonwood Avenue (EW)
  - Esplanade Avenue (EW).

Table 5.9-8 summarizes the improvements needed for each of the EAP scenarios in order to achieve acceptable LOS.

Table 5.9-8
Existing + Ambient + Project (EAP) Intersection Conditions with Improvements

		INTERSECTION APPROACH LANES[1]															
	TRAFFIC	NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
INTERSECTION	CONTROL[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)																	
-Existing	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	20.8	20.6	C	C
-EAP Phase 1	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	21.8	20.9	C	C
-EAP Phase 2	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	22.1	21.1	C	C
-EAP Phase 3	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	22.7	21.6	C	C
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)																	
-Existing	CSS	1	0	1	0	0	0	0	1	1	1	1	0	38.3	30.3	E	D
-EAP Phase 1	**TS**	1	0	1	0	0	0	0	1	1	1	1	0	13.9	13.2	B	B
-EAP Phase 2	**TS**	1	0	1	0	0	0	0	1	1	1	1	0	16.3	15.0	B	B
-EAP Phase 3	**TS**	1	0	1	0	0	0	0	1	1	1	1	0	19.7	17.4	B	B
Bridge Street (NS) at:																	
• Ramona Expressway (EW)																	
-Existing	CSS	0	0	0	1	0	1	1	1	0	0	1	1	22.2	26.4	C	D
-EAP Phase 1	**TS**	0	0	0	1	0	1	1	1	0	0	1	1	11.0	11.4	B	B
-EAP Phase 2	**TS**	0	0	0	1	0	1	1	1	0	0	1	1	11.5	13.9	B	B
-EAP Phase 3	**TS**	0	0	0	1	0	1	1	1	0	0	1	1	10.6	27.9	B	C
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)																	
-Existing	TS	1	1	0	0	1!	0	1	2	1	1	2	0	18.2	21.4	B	C
-EAP Phase 1	TS	1	1	0	0	1!	0	1	2	1	1	2	0	19.9	24.9	B	C
-EAP Phase 2	TS	1	1	0	0	1!	0	1	2	1	1	2	0	20.5	25.6	C	C
-EAP Phase 3	TS	1	1	0	0	1!	0	1	2	1	1	2	0	22.1	29.4	C	C
• Cottonwood Ave. (EW)																	
-Existing	TS	1	1	1	1	1	1	1	1	1	1	1	1	25.1	25.9	C	C
-EAP Phase 1	TS	1	1	1	1	1	1	1	1	1	1	1	1	27.8	28.0	C	C
-EAP Phase 2	TS	1	1	1	1	1	1	1	1	1	1	1	1	27.9	28.1	C	C
-EAP Phase 3	TS	1	1	1	1	1	1	1	1	1	1	1	1	30.1	30.0	C	C
• Esplanade Ave. (EW)																	
-Existing	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	20.1	24.9	C	C
-EAP Phase 1	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	39.2	33.6	D	C
-EAP Phase 2	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	42.1	35.6	D	D
-EAP Phase 3	**TS**	**1**	1	0	**1**	1	0	**1**	1	0	**1**	1	0	54.5	41.7	D	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)																	
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 3	**CSS**	0	0	0	**1**	0	0	0	0	0	0	0	**1**	9.3	9.4	A	A
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)																	
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 3	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	8.7	8.9	A	A

Table 5.9-8 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Driveway 2 (NS) at:																		
• Ramona Blvd. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	CSS	0	1!	0	0	0	0	0	1	0	1	1	0	8.7	8.9	A	A	
Driveway 3 (NS) at:																		
• Ramona Blvd. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	CSS	0	1!	0	0	0	0	0	1	0	1	1	0	12.4	9.4	B	A	
Cawston Ave. (NS) at:																		
• Ramona Blvd. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	CSS	1	1	0	1	1	0	1	2	0	1	1	0	22.6	11.1	C	B	
• Street "C"/Driveway 4 (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	CSS	1	1	0	1	1	0	0	1!	0	0	1!	0	10.8	10.4	B	B	
• De Anza Dr. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	CSS	0	0	0	1	0	0	0	0	0	0	0	1	12.0	9.6	B	A	
• Bridge St. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	--	DOES NOT EXIST												--	--	--	--	
Driveway 10 (NS) at:																		
• Bridge St. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	--	DOES NOT EXIST												--	--	--	--	
Driveway 5 (NS) at:																		
• Ramona Blvd. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--	
-EAP Phase 3	CSS	0	1!	0	0	0	0	0	1	0	1	1	0	9.8	10.8	A	B	

Table 5.9-8 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Street "A"/Driveway 6 (NS) at:																		
• De Anza Dr. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	CSS	0	0	1	0	0	0	0	1	0	1	1	0	9.3	9.3	A	A
-EAP Phase 2	CSS	0	1!	0	0	1!	0	1	1	0	1	1	0	9.7	10.4	A	B
-EAP Phase 3	CSS	0	1!	0	0	1!	0	1	1	0	1	1	0	16.7	11.4	C	B
Street "A" (NS) at:																		
• Driveway 8 (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 3	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 3	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																		
• Bridge St. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	CSS	0	0	0	0	1!	0	0	0	0	0	1	0	9.5	9.3	A	A
-EAP Phase 2	CSS	0	0	0	0	1!	0	0	0	0	0	1	0	9.4	9.3	A	A
-EAP Phase 3	CSS	0	0	0	0	1!	0	0	0	0	0	1	0	9.4	9.3	A	A
Driveway 12 (NS) at:																		
• Bridge St. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 3	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																		
• De Anza Dr. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	CSS	0	0	1	0	0	0	0	1	0	1	1	0	9.0	8.7	A	A
-EAP Phase 2	CSS	0	1!	0	0	1!	0	1	1	0	1	1	0	12.2	14.3	B	B
-EAP Phase 3	CSS	0	1!	0	0	1!	0	1	1	0	1	1	0	32.5	17.5	D	C
Street "B"/Driveway 13 (NS) at:																		
• Bridge St. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	CSS	0	0	0	0	1!	0	0	1	0	0	1	0	10.4	10.1	B	B
-EAP Phase 2	CSS	0	0	0	0	1!	0	0	1	0	0	1	0	10.3	10.0	B	A
-EAP Phase 3	CSS	0	0	0	0	1!	0	0	1	0	0	1	0	10.2	9.9	B	A
Sanderson Ave. / SR-79 SB Ramps (NS) at:																		
• Gilman Springs Rd (EW)																		
-Existing	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	24.0	67.9	C	F
-EAP Phase 1	TS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	15.8	23.8	B	C
-EAP Phase 2	TS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	16.4	24.7	B	C
-EAP Phase 3	TS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	17.7	27.9	B	C

Table 5.9-8 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																		
• Gilman Springs Rd (EW)																		
-Existing	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	32.4	32.6	D	D
-EAP Phase 1	TS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	17.5	15.9	B	B
-EAP Phase 2	TS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	18.8	19.4	B	B
-EAP Phase 3	TS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	20.5	22.1	C	C
Sanderson Ave. (NS) at:																		
• Ramona Expressway (EW)																		
-Existing	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	56.0	45.3	E	D
-EAP Phase 1	TS	1	2	0	1	2	1>	2	1	1>>	1	1	1>	38.5	40.8	D	D
-EAP Phase 2	TS	1	2	0	1	2	1>	2	1	1>>	1	1	1>	41.9	43.7	D	D
-EAP Phase 3	TS	1	2	0	1	2	1>	2	1	1>>	1	1	1>	50.0	49.2	D	D
• Ramona Blvd. (EW) (Realigned for Future Conditions)																		
-Existing	CSS	1	1	0	1	1	1	0	1!	0	0.5	0.5	1	25.1	35.8	D	E
-EAP Phase 1	TS	0	1	0	1	1	0	0	0	0	1	0	1	18.0	36.3	B	D
-EAP Phase 2	TS	0	1	0	1	1	0	0	0	0	1	0	1	21.3	51.9	C	D
-EAP Phase 3	TS	1	2	0	1	2	0	1	1	0	1	1	0	28.3	30.4	C	C
• Driveway 14 (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	CSS	0	1	0	0	1	0	0	0	1	0	0	0	12.6	23.6	B	C
-EAP Phase 3	CSS	0	1	0	0	1	0	0	0	1	0	0	0	12.9	27.6	B	D
• De Anza Dr. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	TS	1	1	0	0	1	0	1	1	0	1	1	0	39.5	51.7	D	D
-EAP Phase 2	TS	1	1	0	1	2	0	1	1	0	1	1	0	37.0	25.5	D	C
-EAP Phase 3	TS	1	1	0	1	2	0	1	1	0	1	1	0	43.4	35.6	D	D
• Driveway 15 (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	CSS	0	1	0	0	1	0	0	0	1	0	0	0	12.2	18.2	B	B
-EAP Phase 2	CSS	0	1	0	0	1	0	0	0	1	0	0	0	12.9	19.4	B	C
-EAP Phase 3	CSS	0	1	0	0	1	0	0	0	1	0	0	0	15.6	22.8	C	C
• Bridge St. (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	TS	1	1	0	0	1	0	0	1!	0	0	0	0	15.6	21.2	B	C
-EAP Phase 2	TS	1	1	0	0	1	0	0	1!	0	0	0	0	14.8	20.5	B	C
-EAP Phase 3	TS	1	2	0	0	1	0	0	1!	0	0	0	0	15.8	29.2	C	C
• Driveway 16 (EW)																		
-Existing	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 1	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 2	--	DOES NOT EXIST												--	--	--	--
-EAP Phase 3	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)																		
-Existing	TS	1	1	0	1	1	0	1	1	0	1	1	0	10.6	10.6	B	B
-EAP Phase 1	TS	1	1	0	1	1	0	1	1	0	1	1	0	12.7	13.9	B	B
-EAP Phase 2	TS	1	1	0	1	1	0	1	1	0	1	1	0	13.0	14.8	B	B
-EAP Phase 3	TS	1	2	0	1	2	0	1	1	0	1	1	0	54.6	38.7	D	D

Table 5.9-8 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
• Esplanade Ave. (EW)																	
-Existing	TS	1	1	0	1	1	1	1	1	0	1	1	1	23.7	30.5	C	C
-EAP Phase 1	TS	1	1	0	1	1	1	1	1	0	1	1	1	35.1	45.0	D	D
-EAP Phase 2	TS	1	1	0	1	1	1	1	1	0	1	1	1	37.8	52.0	D	D
-EAP Phase 3	TS	1	**2**	0	1	**2**	0	1	1	0	1	1	1	31.3	39.9	C	D
• Florida Ave. (EW)																	
-Existing	TS	1	2	1	1	2	1	1	2	1	1	2	1	32.2	43.8	C	D
-EAP Phase 1	TS	**2**	2	1	1	2	1	1	2	1	1	2	1	32.9	51.3	C	D
-EAP Phase 2	TS	**2**	2	1	1	2	1	1	2	1	1	2	1	34.3	54.7	C	D
-EAP Phase 3	TS	**2**	2	1	1	2	1	1	2	1	**2**	2	1	35.7	51.8	D	D
State St. (NS) at:																	
• Ramona Expressway (EW)																	
-Existing	TS	1	2	0	1	2	1	1	2	1	1	2	1	30.5	35.5	C	D
-EAP Phase 1	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.2	33.2	C	C
-EAP Phase 2	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.3	33.4	C	C
-EAP Phase 3	TS	1	2	0	1	2	1	1	2	1	1	2	1	29.1	34.6	C	C
• Cottonwood Ave. (EW)																	
-Existing	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	36.5	34.6	D	C
-EAP Phase 1	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	33.2	32.6	C	C
-EAP Phase 2	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	33.5	32.8	C	C
-EAP Phase 3	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	35.0	34.7	C	C
• Esplanade Ave. (EW)																	
-Existing	TS	1	2	0	1	2	1	1	2	1	1	2	1	30.2	31.6	C	C
-EAP Phase 1	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.1	29.1	C	C
-EAP Phase 2	TS	1	2	0	1	2	1	1	2	1	1	2	1	28.5	30.0	C	C
-EAP Phase 3	TS	1	2	0	1	2	1	1	2	1	1	2	1	29.4	31.2	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop
Italicized = Lane to be constructed only with the +313 DU Project Alternative

Intersection Analysis for Cumulative Conditions with Project

In order to identify the improvements required to achieve acceptable levels of service for each Interim Year with cumulative development (as described in *Table 5.9-4*) with project conditions, the following EACP (existing + ambient + cumulative + project) traffic forecast scenarios have been provided:

- 2015 EACP with Project Phase I
- 2023EACP with Project Phases I + II
- 2023 EACP with Project Phases I + II + III.

For EACP 2015 traffic conditions, all of the study area intersections are projected to operate at unacceptable LOS E or F during the peak hours without improvements. As shown in *Table 5.9-9*, some of the improvements required to achieve acceptable LOS exceed the General Plan typical roadway cross sections and are therefore not feasible due to the uncertainty of obtaining adequate right-of-way for such measures. These instances include the triple left turn lanes required at Warren Road at Ramona Expressway, the extensive improvements required along Sanderson Avenue (which don't provide acceptable LOS for the PM peak hour), and the three through lanes along Esplanade Avenue. The improvements which go beyond General Plan standards are due to the lack of alternative routes which would be provided upon completion of the Mid-County Parkway and SR-79 improvements which are not included in the EACP 2015 analysis. In order to minimize required improvements, a further analysis was done which includes completion of the Mid-County Parkway and SR-79 improvements for those intersections affected by these projects. The analysis also included required improvements for General Plan build-out conditions. As shown on *Table 5.9-10*, the improvements in excess of the ultimate planned roadway cross-sections at the study intersections would not be required to achieve acceptable LOS for the EACP 2015 scenario (with completion of the Mid-County Parkway and SR-79 improvements). Further, insuring that adequate right-of-way exists would entail an amendment to the Circulation Element. Because such an amendment can't be accommodated for only a portion of the City, it would result in a Circulation Element amendment that is City-wide which is not appropriate. However, it should be noted that completion of these regional improvements can't be guaranteed by the City. As such, the project would contribute to a significant unmitigable impact for EACP 2015 traffic conditions if these improvements are not in place.

Table 5.9-9
2015 Existing + Ambient + Project + Project (EACP) Phase I Intersection Conditions with and without Improvements

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	0.5	0.5	1	0	1!	0	1	**3**	0	2	**3**	0	16.2	27.1	B	C
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	**2**	0	**1**	0	0	0	0	**4**	1	1	**3**	0	21.5	30.7	C	C
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	0	0	0	1	0	1	1	**3**	0	0	**3**	1	17.5	35.2	B	D
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	1	**1>>**	**1**	1	0	1	**4**	**1>>**	**3**	**3**	0	31.9	53.5	C	D
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	63.7	--[4]	E	F
-With Improvements	TS	1	**2**	1	**2**	**2**	1	1	1	1	1	1	1	38.1	52.1	D	D
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	**TS**	**1**	**3**	0	**1**	**2**	0	**1**	1	0	**2**	**1**	0	35.6	46.7	D	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
• Street "C"/Driveway 4 (EW)	--	DOES NOT EXIST												--	--	--	--
• De Anza Dr. (EW)	--	DOES NOT EXIST												--	--	--	--
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 10 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	9.3	9.3	A	A
Street "A" (NS) at:																	
• Driveway 8 (EW)	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	CSS	0	0	0	0	1!	0	0	0	0	0	1	0	9.5	9.3	A	A
Driveway 12 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	9.0	8.7	A	A
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	**1!**	0	0	**1**	0	0	**1**	0	10.4	10.1	B	B
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	**TS**	0	0	0	0.5	0.5	1	0	1	**1>>**	1	**2**	0	14.7	29.8	B	C

Table 5.9-9 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements	**TS**	**1.5**	0.5	1	0	0	0	1	1	0	0	1	1	23.2	39.0	C	D
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	--[4]	--[4]	F	F
-With Improvements[4]	TS	**3**	**5**	**1>>**	**3**	**5**	**1>>**	**3**	**5**	**1>>**	**3**	**5**	**1>>**	29.7	--[4]	C	F
• Ramona Blvd. (EW) (Realigned)	**CSS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	1	**4**	0	**2**	**4**	0	1	1	**1**	1	1	**1**	21.0	31.3	C	C
• Driveway 14 (EW)	--	DOES NOT EXIST												--	--	--	--
• De Anza Dr. (EW)	**TS**	**1**	**3**	0	**1**	**3**	0	**1**	**1**	**1**	**1**	**1**	**1**	21.2	48.7	C	D
• Driveway 15 (EW)	**CSS**	0	**1**	0	0	**3**	0	0	0	**1**	0	0	0	12.5	23.4	B	C
• Bridge St. (EW)	**TS**	**1**	**2**	0	0	**3**	0	0	1	0	0	0	0	46.5	30.5	D	C
• Driveway 16 (EW)	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	**4**	**1>**	**2**	**4**	0	1	**3**	**1**	**2**	**2**	**1>**	29.4	52.7	C	D
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	1	**4**	0	**2**	**3**	1	**2**	**3**	1	**2**	**3**	**1>>**	28.0	46.5	C	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	**4**	0	**2**	**3**	1	**2**	**4**	0	**2**	**3**	**1>>**	34.0	53.7	C	D
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	59.3	--[4]	E	F
-With Improvements	TS	**2**	2	0	1	2	1	1	**3**	**1>>**	**2**	**3**	1	31.3	50.3	C	D
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	96.1	--[4]	F	F
-With Improvements	TS	**2**	2	0	1	2	**1>**	**2**	**1**	0	**1**	**1**	0	33.4	51.1	C	D
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	43.3	--[4]	D	F
-With Improvements	TS	**2**	2	**1**	**2**	2	1	1	2	1	1	2	1	29.4	49.9	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] Geometrics shown illustrate the need for the MCP and SR-79 improvements and are not intended for construction.

Table 5.9-10
EACP 2015 with Mid-County Parkway and SR-79 Improvements

		INTERSECTION APPROACH LANES[1]															
	TRAFFIC	NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND			DELAY[2] (SECS.)		LEVEL OF SERVICE	
INTERSECTION	CONTROL[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Warren Rd. (NS) at:																	
* MCP Freeway WB Ramps (EW)	TS	0	2	1>>	0	2	1>>	0	0	0	1	0	1>>	11.7	10.0	B	B
* MCP Freeway EB Ramps (EW)	TS	0	2	1	1	2	0	2	0	1>>	0	0	0	12.5	18.3	B	B
Sanderson Ave. (NS) at:																	
* Ramona Expressway (EW)	TS	2	3	1>	2	3	1	1	3	1>	2	3	1	20.8	28.6	C	C
* Street C (EW)	TS	2	3	1>	2	3	1>	2	4	1>>	2	4	1>>	20.8	26.0	C	C
* Ramona Blvd. (EW) (Realigned)	TS	2	3	0	2	3	1	1	1	1	1	1	1>	14.3	15.8	B	B
* Cottonwood Ave. (EW)	TS	2	4	1	2	4	1	2	2	1	2	2	1>	29.1	46.4	C	D
* Esplanade Ave. (EW)	TS	1	4	1	2	3	1	2	3	1	2	2	1>>	26.5	32.4	C	C
* Florida Ave. (EW)	TS	2	3	1	2	3	1>	2	3	1>	2	3	1>>	26.6	36.8	C	D
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
* Street C (EW)	TS	0	0	0	1.5	0.5	1>>	0	3	1	2	3	0	11.3	17.3	B	B
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
* Street C (EW)	TS	0.5	0.5	1	0	0	0	0	3	1>>	0	3	1	4.6	11.4	A	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; 1 = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

As shown on *Table 5.9-11*, for 2017 EACP conditions all of the study intersections are projected to operate at unacceptable LOS E or F during the peak hours without improvements. As in the 2015 EACP scenario, some required improvements would exceed the General Plan typical roadway cross sections and are therefore not feasible due to the uncertainty of obtaining adequate right-of-way for such measures. As shown on *Table 5.9-12*, the improvements in excess of the ultimate planned roadway cross-sections at the study intersections would not be required to achieve acceptable LOS for the EACP 2015 scenario with completion of the Mid-County Parkway and SR-79 improvements. However, it should be noted that completion of these regional improvements can't be guaranteed by the City. As such, the project would contribute to a significant unmitigable impact for EACP 2017 traffic conditions if these improvements are not in place.

Table 5.9-11
2017 Existing + Ambient + Project + Project (EACP) Phases I + II
Intersection Conditions with and without Improvements

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	0.5	0.5	1	0	1!	0	1	**3**	0	2	**3**	0	16.8	30.0	B	C
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	**2**	0	1	0	0	0	0	**4**	1	1	**3**	0	29.9	34.5	C	C
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	0	0	0	**2**	0	1	1	**3**	0	0	**3**	1	18.0	46.9	B	D
-With 4 EB Through Lanes[4]	**TS**	0	0	0	1	0	1	1	**4**	0	0	3	1	17.8	28.4	B	C
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	1	**1>>**	**1**	1	0	1	**5**	**1>>**	**3**	**3**	0	32.6	39.1	C	D
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	65.9	--[4]	E	F
-With Improvements	TS	1	**2**	1	**2**	**2**	1	1	1	1	1	1	1	38.8	52.9	D	D
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	**TS**	**1**	**3**	0	**1**	**2**	0	**1**	1	0	**2**	**1**	0	37.0	51.4	D	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
• Street "C"/Driveway 4 (EW)	--	DOES NOT EXIST												--	--	--	--
• De Anza Dr. (EW)	--	DOES NOT EXIST												--	--	--	--
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 10 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	9.7	10.4	A	B
Street "A" (NS) at:																	
• Driveway 8 (EW)	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	1!	0	0	0	0	0	1	0	9.4	9.3	A	A
Driveway 12 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	12.2	14.3	B	B
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	**1!**	0	0	**1**	0	0	**1**	0	10.3	10.0	B	A
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	**TS**	0	0	0	0.5	0.5	1	0	1	**1>>**	1	**2**	0	20.5	30.1	C	C

Table 5.9-11 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements	**TS**	**1.5**	0.5	1	0	0	0	1	1	0	0	1	1	27.5	40.5	C	D
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	--[4]	--[4]	F	F
-With Improvements[4]	TS	**3**	**5**	**1>>**	**3**	**5**	**1>>**	**3**	**5**	**1>>**	**3**	**5**	**1>>**	30.4	--[4]	C	F
• Ramona Blvd. (EW) (Realigned)	**CSS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	1	**4**	0	**2**	**4**	0	1	1	**1**	1	1	**1**	21.3	32.6	C	C
• Driveway 14 (EW)	**CSS**	0	**1**	0	0	**3**	0	0	0	**1**	0	0	0	12.4	28.5	B	D
• De Anza Dr. (EW)	**TS**	**1**	**3**	0	**1**	**3**	0	**1**	**1**	**1**	**1**	**1**	**1**	23.1	54.7	C	D
• Driveway 15 (EW)	**CSS**	0	**1**	0	0	**3**	0	0	0	**1**	0	0	0	12.8	24.1	B	C
• Bridge St. (EW)	**TS**	**1**	**2**	0	0	**3**	0	0	**1**	0	0	0	0	50.1	32.5	D	C
• Driveway 16 (EW)	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	**4**	**1>**	**2**	**4**	0	1	**3**	**1**	**2**	**2**	**1>**	39.5	54.0	D	D
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	1	**4**	0	**2**	**3**	1	**2**	**3**	1	**2**	**3**	**1>>**	33.7	48.8	C	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	**4**	0	**2**	**3**	1	**2**	**4**	0	**2**	**3**	**1>>**	36.8	54.6	D	D
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	60.0	--[4]	E	F
-With Improvements	TS	**2**	2	0	1	2	1	1	**3**	**1>>**	**2**	**3**	1	39.1	49.5	D	D
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	98.4	--[4]	F	F
-With Improvements	TS	**2**	2	0	1	2	**1>**	**2**	**1**	0	**1**	**1**	0	32.9	51.7	C	D
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	43.9	--[4]	D	F
-With Improvements	TS	**2**	2	**1**	**2**	2	1	1	2	1	1	2	1	36.8	51.1	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] Geometrics shown illustrate the need for the MCP and SR-79 improvements and are not intended for construction.

Table 5.9-12
EACP 2017 with Mid-County Parkway and SR-79 Improvements

		INTERSECTION APPROACH LANES[1]												DELAY[2] (SECS.)		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
INTERSECTION	TRAFFIC CONTROL[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Warren Rd. (NS) at:																	
* MCP Freeway WB Ramps (EW)	TS	0	2	1>	0	2	1>	0	0	0	1	0	1>	11.7	10.2	B	B
* MCP Freeway EB Ramps (EW)	TS	0	2	1	1	2	0	2	0	1>	0	0	0	12.5	18.4	B	B
Sanderson Ave. (NS) at:																	
* Ramona Expressway (EW)	TS	2	3	1>	2	3	1	1	3	1>	2	3	1	20.9	29.7	C	C
* Street C (EW)	TS	2	3	1>	2	3	1>	2	4	1>	2	4	1>	20.8	26.8	C	C
* Ramona Blvd. (EW) (Realigned)	TS	2	3	0	2	3	1	1	1	1	1	1	1>	14.6	16.0	B	B
* Cottonwood Ave. (EW)	TS	2	4	1	2	4	1	2	2	1	2	2	1>	29.1	46.4	C	D
* Esplanade Ave. (EW)	TS	1	4	1	2	3	1	2	3	1	2	2	1>	26.8	33.3	C	C
* Florida Ave. (EW)	TS	2	3	1	2	3	1>	2	3	1>	2	3	1>	26.8	35.9	C	D
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
* Street C (EW)	TS	0	0	0	1.5	0.5	1>	0	3	1	2	3	0	11.3	17.5	B	B
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
* Street C (EW)	TS	0.5	0.5	1	0	0	0	0	3	1>	0	3	1	4.9	11.8	A	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1l = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; 1 = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

As shown in *Table 5.9-12*, for 2023 EACP conditions all of the study intersections are projected to operate at unacceptable LOS E or F during the peak hours without improvements. As in the 2017 EACP scenario, some required improvements would exceed the General Plan typical roadway cross sections and are therefore not feasible due to the uncertainty of obtaining adequate right-of-way for such measures. As shown on *Table 5.9-13*, the improvements in excess of the ultimate planned roadway cross-sections at the study intersections would not be required to achieve acceptable LOS for the EACP 2023 scenario with completion of the Mid-County Parkway and SR-79 projects. However, it should be noted that completion of these regional improvements cannot be guaranteed by the City. As such, the project would contribute to a significant unmitigable impact for EACP 2023 traffic conditions if these improvements are not in place.

Table 5.9-13
2023 Existing + Ambient + Project + Project (EACP) Phases I + II + III
Intersection Conditions with and without Improvements

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	TS	0.5	0.5	1	0	1!	0	1	2	1	2	2	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	0.5	0.5	1	0	1!	0	1	**3**	0	2	**3**	0	20.8	43.2	C	D
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	CSS	1	0	1	0	0	0	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	**2**	0	**1>**	0	0	0	0	**4**	1	1	**3**	0	28.6	41.3	C	D
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	CSS	0	0	0	1	0	1	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	0	0	0	1	0	1	1	**4**	0	0	**3**	1	13.4	35.3	B	D
Warren Rd. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	0	1!	0	1	2	1	1	2	0	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	1	**1>>**	**1**	1	0	1	**5**	**1>>**	**3**	**3**	0	35.9	50.6	D	D
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	--[4]	--[4]	F	F
-With Improvements	TS	1	**2**	1	**2**	**2**	1	1	1	1	**1**	1	1	38.6	51.7	D	D
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	**TS**	**1**	**3**	0	**1**	**2**	0	**1**	1	0	**2**	**2**	0	33.8	48.4	C	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	0	0	**1**	0	0	0	0	0	0	0	**1**	10.4	11.8	B	B
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	9.7	11.0	A	B
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	9.7	11.1	A	B
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW)	**CSS**	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	17.3	12.5	C	B
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	**TS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	35.3	21.0	D	C
• Street "C"/Driveway 4 (EW)	**CSS**	***1***	**1**	0	**1**	**1**	0	0	***1!***	0	0	**1!**	0	10.8	10.4	B	B
• De Anza Dr. (EW)	**CSS**	0	0	0	**1**	0	0	0	0	0	0	0	**1**	12.0	9.6	B	A
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 10 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	CSS	0	**1!**	0	0	0	0	0	**1**	0	**1**	**1**	0	12.9	20.0	B	C
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	16.7	11.4	C	B
Street "A" (NS) at:																	
• Driveway 8 (EW)	--	DOES NOT EXIST												--	--	--	--
• Driveway 9 (EW)	--	DOES NOT EXIST												--	--	--	--
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	**1!**	0	0	0	0	0	**1**	0	9.4	9.3	A	A
Driveway 12 (NS) at:																	
• Bridge St. (EW)	--	DOES NOT EXIST												--	--	--	--
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	**CSS**	0	**1!**	0	0	**1!**	0	**1**	**1**	0	**1**	**1**	0	32.5	17.5	D	C
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	**CSS**	0	0	0	0	**1!**	0	0	**1**	0	0	**1**	0	10.2	9.9	B	A
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	**TS**	0	0	0	0.5	0.5	1	0	1	**1>>**	1	**2**	0	16.5	30.3	B	C

Table 5.9-13 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements	**TS**	**1.5**	0.5	1	0	0	0	1	1	0	0	1	1	30.9	51.4	C	D
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	1	1	0	1	1	1>	1	1	1>>	1	1	1>	--[4]	--[4]	F	F
-With Improvements[4]	TS	**3**	**5**	**1>>**	**3**	**5**	**1>>**	**3**	**5**	**1>>**	**3**	**5**	**1>>**	40.5	--[4]	D	F
• Ramona Blvd. (EW) (Realigned)	**CSS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	--[4]	--[4]	F	F
-With Improvements[4]	**TS**	**2**	**4**	0	**2**	**4**	**1**	1	1	**1>**	1	1	**1**	30.7	52.5	C	D
• Driveway 14 (EW)	**CSS**	0	**1**	0	0	**3**	0	0	0	**1**	0	0	0	13.3	33.8	B	D
• De Anza Dr. (EW)	**TS**	**2**	**3**	0	**1**	**3**	1	**1**	**1**	**1**	**1**	**1**	**1**	23.2	28.5	C	C
• Driveway 15 (EW)	**CSS**	0	**1**	0	0	**3**	0	0	0	**1**	0	0	0	14.6	28.6	B	D
• Bridge St. (EW)	**TS**	**1**	**3**	0	0	**3**	0	0	**1**	0	0	0	0	13.8	45.6	B	D
• Driveway 16 (EW)	--	DOES NOT EXIST												--	--	--	--
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	**4**	**1>**	**2**	**4**	0	**2**	**4**	**1>**	**2**	**3**	**1>**	43.3	53.0	D	D
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	1	**5**	0	**2**	**3**	1	**2**	**3**	1	**2**	**3**	**1>>**	31.8	54.2	C	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements[4]	TS	**2**	**4**	1	**2**	**3**	1	**2**	**4**	1	**2**	**3**	**1>>**	39.1	52.8	D	D
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements	TS	**2**	**2**	0	1	**3**	1	1	**3**	**1>>**	**2**	**3**	1	38.5	51.2	D	D
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	--[4]	--[4]	F	F
-With Improvements	TS	**2**	2	0	1	2	**1>**	**2**	**1**	1	**1**	**1**	0	35.8	54.3	D	D
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	45.9	--[4]	F	F
-With Improvements	TS	**2**	2	**1**	**2**	2	1	1	2	1	1	2	1	35.9	48.9	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; **1** = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop
Italicized = Lane to be constructed only with the +313 DU Project Alternative

[4] Geometrics shown illustrate the need for the MCP and SR-79 improvements and are not intended for construction.

Table 5.9-14
EACP 2023 with Mid-County Parkway and SR-79 Improvements

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Warren Rd. (NS) at:																	
* MCP Freeway WB Ramps (EW)	TS	0	2	1>>	0	2	1>>	0	0	0	1	0	1>>	11.5	10.7	B	B
* MCP Freeway EB Ramps (EW)	TS	0	2	1	1	2	0	2	0	1>>	0	0	0	13.4	22.4	B	C
Sanderson Ave. (NS) at:																	
* Ramona Expressway (EW)	TS	2	3	1>	2	3	1	1	3	1>	2	3	1	21.1	36.4	C	D
* Street C (EW)	TS	2	3	1>	2	3	1>	2	4	1>>	2	4	1>>	21.6	33.7	C	C
* Ramona Blvd. (EW) (Realigned)	TS	2	3	0	2	3	1	1	1	1	1	1	1>	20.5	40.2	C	D
* Cottonwood Ave. (EW)	TS	2	4	1	2	4	1	2	2	1	2	2	1>	29.8	47.7	C	D
* Esplanade Ave. (EW)	TS	1	4	1	2	3	1	2	3	1	2	2	1>>	28.3	39.8	C	D
* Florida Ave. (EW)	TS	2	3	1	2	3	1>	2	3	1>	2	3	1>>	28.1	42.3	C	D
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
* Street C (EW)	TS	0	0	0	1.5	0.5	1>>	0	3	1	2	3	0	11.0	18.5	B	B
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
* Street C (EW)	TS	0.5	0.5	1	0	0	0	0	3	1>>	0	3	1	5.7	14.5	A	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; 1 = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

Intersection Analysis for General Plan Build-Out with Project Phases I + II + III + IV (2035) Conditions

General Plan Build-out with Project Phases I + II + III + IV (2035) Conditions intersection LOS are shown in *Table 5.9-14*. As shown, the following intersections are projected to operate at unacceptable LOS E or F during the peak hours without improvements:

- Warren Road (NS) at:
  - Cottonwood Avenue (EW)
  - Esplanade Avenue (EW)
- Sanderson Avenue (NS) at:
  - Cottonwood Avenue (EW)
  - Esplanade Avenue (EW)

  - Florida Avenue (SR-74) (EW)
- Sanderson Avenue (SR-79 SB Ramps) (NS) at:
  - Gilman Springs Road (EW)
- Sanderson Avenue (SR-79 NB Ramps) (NS) at:
  - Gilman Springs Road (EW)
- State Street (NS) at:
  - Cottonwood Avenue (EW)
  - Ramona Expressway
  - Esplanade Avenue.

As shown in *Table 5.9-14*, for General Plan build-out with project Phases I + II + III + IV (2035) Conditions, study area intersections are projected to operate at LOS D or better with the intersection improvements.

Table 5.9-15
General Plan Build-Out Intersection Analysis

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
Rider Street (NS) at:																	
• Ramona Expressway (EW)	DOES NOT EXIST FOR GENERAL PLAN BUILDOUT ROADWAY NETWORK[5]																
Lakeview Ave. (NS) at:																	
• Ramona Expressway (EW)	DOES NOT EXIST FOR GENERAL PLAN BUILDOUT ROADWAY NETWORK[5]																
Bridge Street (NS) at:																	
• Ramona Expressway (EW)	DOES NOT EXIST FOR GENERAL PLAN BUILDOUT ROADWAY NETWORK[5]																
Warren Rd. (NS) at:																	
• Ramona Exwy (EW)	TS	0	2	1>	1	2	0	0	0	0	2	0	1	9.3	27.5	A	C
• MCP Freeway WB Ramps (EW)	TS	0	2	1>>	0	2	1>>	0	0	0	1	0	1>>	11.3	11.2	B	B
• MCP Freeway EB Ramps (EW)	TS	0	2	1	1	2	0	2	0	1>>	0	0	0	14.4	37.1	B	D
• Ramona Blvd. (EW)	TS	0	2	1	1	2	0	0	0	0	1	0	1>	22.5	26.2	C	C
• De Anza Dr. (EW)	TS	2	2	0	1	2	1	1	1	1>>	1	1	0	16.6	36.2	B	D
• Bridge St. (EW)	TS	0	2	0	1	2	0	0	0	0	1	0	1	12.4	15.3	B	B
• Cottonwood Ave. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	--[4]	--[4]	F	F
- With Improvements	TS	1	2	1	2	2	1	1	1	1	1	1	1	36.9	47.8	C	D
• Esplanade Ave. (EW)	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	--[4]	--[4]	F	F
-With Improvements	TS	1	2	0	2	2	0	1	1	0	1	1	1	38.9	53.5	D	D
Odell St. (NS) at:																	
• Ramona Blvd. (EW)	TS	1	2	0	1	1	0	1	1	0	1	1	0	27.9	40.9	C	D
• De Anza Dr. (EW)	TS	1	1	0	1	1	0	1	1	0	1	2	0	22.2	32.0	C	C
• Bridge St. (EW)	TS	0	0	0	0	1!	0	1	1	0	0	1	0	16.0	27.7	B	C
Driveway 1 (NS) at:																	
• Ramona Blvd. (EW)	CSS	0	1!	0	0	0	0	0	2	0	1	1	0	12.6	23.1	B	C
Driveway 2 (NS) at:																	
• Ramona Blvd. (EW)	CSS	0	1!	0	0	0	0	0	2	0	1	1	0	12.2	19.3	B	C
Driveway 3 (NS) at:																	
• Ramona Blvd. (EW) (With High School)	TS	0	1!	0	0	0	0	0	2	0	1	1	0	20.5	--	C	--
• *Ramona Blvd. (EW) (With 313 Dus)*	*CSS*	*0*	*1!*	*0*	*0*	*0*	*0*	*0*	*2*	*0*	*1*	*1*	*0*	--	*21.5*	--	*C*
Cawston Ave. (NS) at:																	
• Ramona Blvd. (EW)	TS	1	2	0	1	1	0	1	2	0	1	1	1	33.7	44.0	C	D
• Street "C"/Driveway 4 (EW)	CSS	1	2	0	1	2	0	0	1!	0	0	1!	0	9.3	20.6	A	C
• De Anza Dr. (EW)	CSS	1	2	0	1	2	0	1	1	0	1	2	0	23.7	27.2	C	C
• Bridge St. (EW)	TS	0	0	0	0	1!	0	1	1	0	0	2	0	14.1	16.7	B	B
Driveway 10 (NS) at:																	
• Bridge St. (EW)	CSS	0	0	0	0	0	1	0	2	0	0	2	0	9.0	10.1	A	B
Driveway 5 (NS) at:																	
• Ramona Blvd. (EW)	CSS	0	1!	0	0	0	0	0	2	0	1	2	0	16.4	38.7	C	E
-With Improvements[4]	TS	0	1!	0	0	0	0	0	2	0	1	1	0	10.9	12.8	B	B
-With No Left Turns Out	CSS	0	0	1	0	0	0	0	2	0	1	1	0	10.5	11.4	B	B
Street "A"/Driveway 6 (NS) at:																	
• De Anza Dr. (EW)	CSS	0	1!	0	1	1	0	1	2	0	1	2	0	16.8	30.8	C	D
Street "A" (NS) at:																	
• Driveway 8 (EW)	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	10.1	10.4	B	B
• Driveway 9 (EW)	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	9.3	12.0	A	B
Street "A"/Driveway 11 (NS) at:																	
• Bridge St. (EW)	TS	1	1	0	1	1	0	1	2	0	1	2	0	28.9	32.9	C	C
Driveway 12 (NS) at:																	
• Bridge St. (EW)	CSS	0	0	1	0	0	0	0	2	0	0	2	0	9.1	11.6	A	B
Street "B"/"C"/Driveway 7 (NS) at:																	
• De Anza Dr. (EW)	CSS	0	1!	0	0	1!	0	1	2	0	1	2	0	19.4	32.7	C	D
Street "B"/Driveway 13 (NS) at:																	
• Bridge St. (EW)	TS	1	1	0	1	1	0	1	2	0	1	2	0	26.0	33.9	C	C
Sanderson Ave. (NS) at:																	
• Ramona Expressway (EW)	TS	2	3	1>	2	3	1	1	3	1>	2	3	1	30.3	52.8	C	D
• Street C (EW)	TS	2	3	1>	2	3	1>	2	4	1>>	2	4	1>>	37.6	54.0	C	D

Table 5.9-15 (Continued)

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1] NORTH-BOUND L	T	R	SOUTH-BOUND L	T	R	EAST-BOUND L	T	R	WEST-BOUND L	T	R	DELAY[2] (SECS.) AM	PM	LEVEL OF SERVICE AM	PM
• Ramona Blvd. (EW) (Realigned)	TS	2	3	0	2	3	1	1	1	1	1	1	1>	36.8	52.3	D	D
• Driveway 14 (EW)	CSS	0	1	0	0	3	0	0	0	1	0	0	0	13.0	17.1	B	C
• De Anza Dr. (EW)	TS	2	3	0	2	3	0	1	1	1>	1	1	1	32.1	52.1	D	D
• Driveway 15 (EW)	CSS	0	1	0	0	3	0	0	0	1	0	0	0	13.4	17.2	B	C
• Bridge St. (EW)	TS	2	3	0	1	3	1	1	1	1>	2	1	0	33.6	54.1	C	D
• Driveway 16 (EW)	CSS	0	1	0	0	3	0	0	0	1	0	0	0	14.9	33.8	B	D
• SR-79 SB Ramps (EW)	TS	0	3	1	2	3	0	0	0	0	3	0	1>	16.8	41.8	B	D
• SR-79 NB Ramps (EW)	TS	0	3	1	0	3	1	2	0	1>>	0	0	0	6.2	12.7	A	F
• Cottonwood Ave. (EW)	TS	1	1	0	1	1	0	1	1	0	1	1	0	--[4]	--[4]	F	D
-With Improvements	TS	2	4	1	2	4	1	2	2	1	2	2	1>	26.4	46.6	C	D
• Esplanade Ave. (EW)	TS	1	1	0	1	1	1	1	1	0	1	1	1	--[4]	--[4]	F	F
-With Improvements	TS	1	4	1	2	3	1	2	3	1	2	2	1>>	32.8	47.8	C	D
• Florida Ave. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements	TS	2	3	1	2	3	1>	2	3	1>	2	3	1>>	53.9	54.2	D	D
Sanderson Ave. / SR-79 SB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0	0	0	0.5	0.5	1	0	1	1	1	1	0	--[4]	--[4]	F	F
-With Improvements	TS	0	0	0	1.5	0.5	1	0	1	1>>	1	2	0	14.3	13.7	B	B
• Street C (EW)	TS	0	0	0	1.5	0.5	1>>	0	3	1	2	3	0	16.4	35.4	B	D
Sanderson Ave. / SR-79 NB Ramps (NS) at:																	
• Gilman Springs Rd (EW)	CSS	0.5	0.5	1	0	0	0	1	1	0	0	1	1	--[4]	--[4]	F	F
-With Improvements	TS	1.5	0.5	1	0	0	0	1	2	0	0	1	1>>	13.7	14.8	B	B
• Street C (EW)	TS	0.5	0.5	1	0	0	0	0	3	1>>	0	3	1	9.1	21.2	A	C
State St. (NS) at:																	
• Ramona Expressway (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements	TS	2	3	1>>	3	3	1>	2	4	1>	2	3	1>	38.3	52.8	D	D
• Cottonwood Ave. (EW)	TS	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	--[4]	--[4]	F	F
-With Improvements	TS	2	2	0	1	2	1	2	2	1	1	2	0	37.4	54.1	D	D
• Esplanade Ave. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	--[4]	--[4]	F	F
-With Improvements	TS	2	3	1	2	3	1	2	2	1>	1	2	1	36.0	53.6	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Left-Thru-Right Lane; 1> = Right Turn Overlap; 1>> = Free-Right Turn Lane; 1 _ = IMPROVEMENT

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R4 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] A traffic signal is not warranted at this location. An alternative to provide acceptable LOS would be to prohibit left turns out.

Construction Related Traffic Impacts

Construction-related traffic would involve approximately 20 to 40 workers per day at the project site during each construction phase. Construction-related traffic would use Sanderson Avenue as the primary north/south access to and from the project site while various east/west routes may be used as appropriate during each phase of the project. Mass grading for the entire site would start in December 2011 and would be completed 7 months after. The grading plans anticipate that cut and fill will be balanced; no export or import of soil is planned. Phase I would be completed in December 2015. Fine grading for Phase II would start immediately after the completion of Phase

I in January 2016. Phase II would be completed in December 2017. Phase III would commence immediately after the completion of Phase II in December 2017. Phase III would include the construction of single-family residences and a high school. In July 2018, six months into the development phase, construction of the high school would start. Phase III, including the high school, would be completed in December 2023. Construction of the remaining nonresidential land uses in Phase IV would start in January 2024 and would be completed by December 2033.

The project would involve multiple construction subphases: 1) mass grading, 2) fine site grading of individual phases, 3) utilities/infrastructure (trenching), 4) building construction, 5) paving, and 6) architectural coating. Phases I, II, III, and IV would involve separate construction subphases with the exception of mass grading, which will cover the entire project site and occur during Phase I only. The proposed project would commence in 2011 and would be completed by 2033, for a total construction duration of 22 years. *Table 5.9-16* presents the heavy construction equipment assumptions for each construction stage.

Table 5.9-16
Construction Equipment

Construction Phase	Equipment	Number
Mass Grading	Grader	1
	Rubber Tired Dozers	1
	Tracker/Loader/Backhoe	1
	Water Trucks	1
Fine Grading	Graders	1
	Rubber Tired Dozers	1
	Tracker/Loader/Backhoe	1
	Water Trucks	1
Trenching	Excavators	2
	Tracker/Loader/Backhoe	1
	Other General Industrial Equipment	1
	Tractor/Loaders/Backhoe	1
Building Construction (Residential)	Cranes	1
	Generator Sets	1
	Forklifts	3
	Tractors/Loaders/Backhoe s	3
	Welders	1
Paving (Residential)	Paver	1
	Paving Equipment	2
	Rollers	2
Paving (Commercial/Mixed Use)	Cement and Mortar Mixers	4
	Pavers	1
	Paving Equipment	2

Table 5.9-16 (Continued)

Construction Phase	Equipment	Number
	Rollers	1
	Tractors/Loaders/Backhoes	1
Building Construction (Commercial/Mixed Use	Cranes	1
	Generator Sets	1
	Forklifts	3
	Tractors/Loaders/Backhoe s	3
	Welders	1

The additional worker and construction-related truck trips to and from the project site would potentially affect traffic operations at project area intersections during peak hours. Potential constructed-related traffic impacts are considered adverse, but less than significant because the increased traffic generation during peak hours would be temporary and intermittent during the construction periods. However, in order to avoid hazards or short-term delay, mitigation is provided for short-term construction traffic impacts (see *Section 5.9.5, Mitigation Measures, Mitigation Measure 5.9-f*). This measure requires a traffic control plan for each phase of the project which will serve to eliminate any potential hazards to surrounding roadways due to abnormally high traffic into or out of the site for a concentrated period of time.

Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The proposed residential and commercial/retail structures would not impede existing air traffic navigational patterns or cause a change in the location of existing airport facilities in the region. Therefore, no impacts related to air traffic patterns would occur.

Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Site access for the proposed development would be provided via a total of 17 driveways including seven full access driveways taking access from Odell Avenue, Cawston Avenue, Sanderson Avenue, Ramona Boulevard South, Bridge Street and De Anza Drive. The location of all driveways and traffic signal installations are shown below on *Figures 5.9-5* through *5.9-8*.

The proposed project provides appropriate access points and interior circulation patterns to ensure that adequate access and circulation is provided to and throughout the development. Site distance at each project access point would be reviewed to ensure standard Caltrans and City of San Jacinto sight distance requirements are provided by the project to avoid potential dangerous intersections. In addition, stop sign, stop bar, and stop legends would be provided at all project

driveways that intersect with public roadways (those not meeting traffic signal warrants), and on-site traffic signing and striping would be implemented in conjunction with detailed construction plans for the project site to ensure that the project provides adequate and safe site access and circulation, which meets minimum design standards applicable to the proposed development.

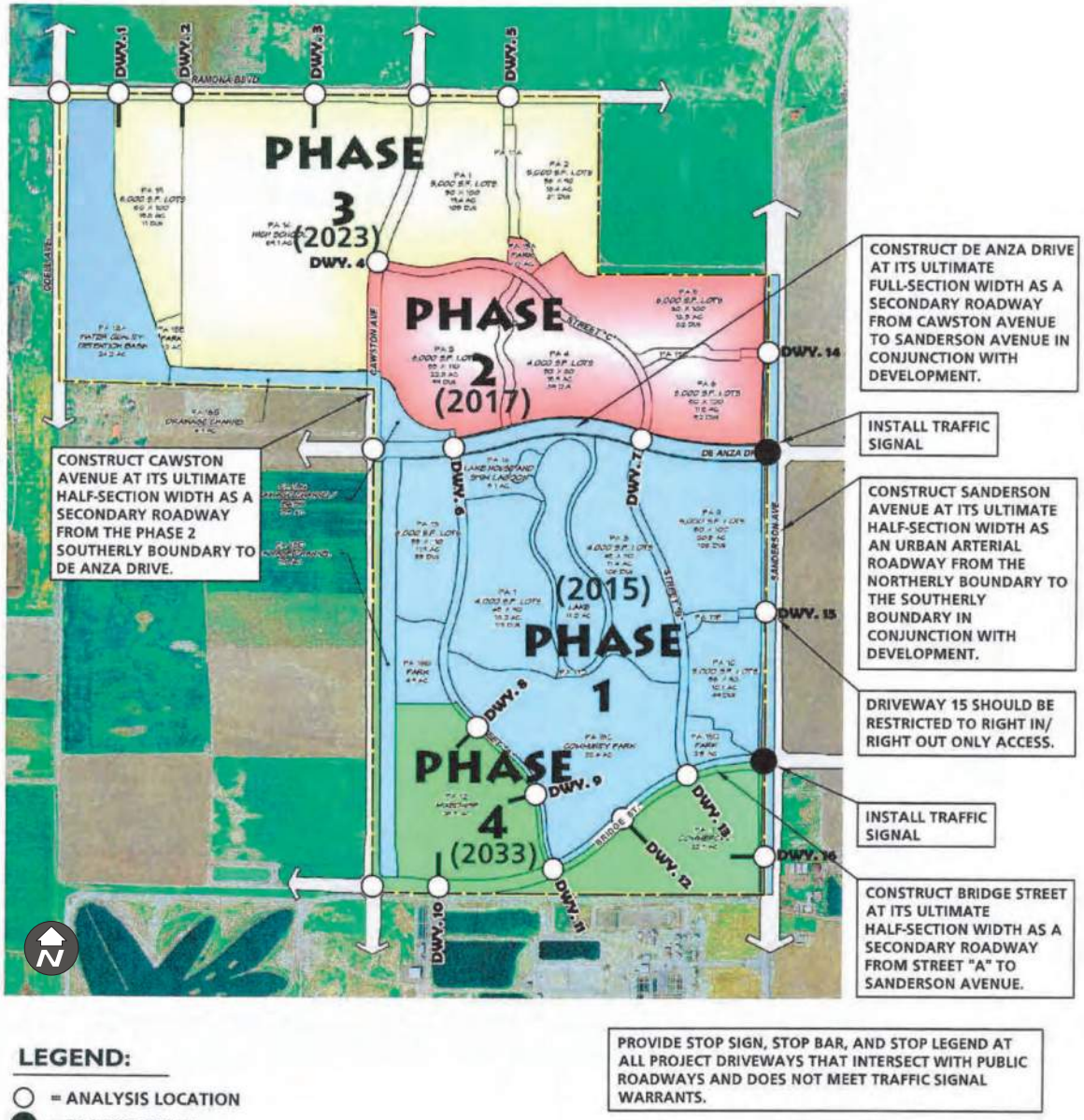
Mitigation measures that address project-related and cumulative traffic volume impacts to the surrounding street network will ensure that site access from the adjacent street system is maintained at acceptable levels to ensure that adequate and safe access and circulation is provided to the site (see *Section 5.9.5, Mitigation Measures, Mitigation Measures 5.9-a* through *5.9-f*).

Would the project result in inadequate emergency access?

As discussed above, the project will provide a total of 17 driveways including seven full access driveways and provides interior circulation patterns to ensure that adequate access and circulation is provided to and throughout the development. Therefore, no significant impacts related to emergency access would occur.

Would the project result in inadequate parking capacity?

The project is designed to have adequate parking for the proposed commercial, recreational and residential facilities. Parking requirements are set forth in the Villages of San Jacinto Specific Plan for each Planning Area within the development. Adherence to the project development standards will ensure that there is adequate parking for each proposed land use. The school facility, if built, is subject to the standards for parking adopted by the San Jacinto Unified School District.



SOURCE: URBAN CROSSROADS
APRIL 24, 2009

Villages of San Jacinto EIR

Phase 1 Circulation Recommendations

FIGURE 5.9-5

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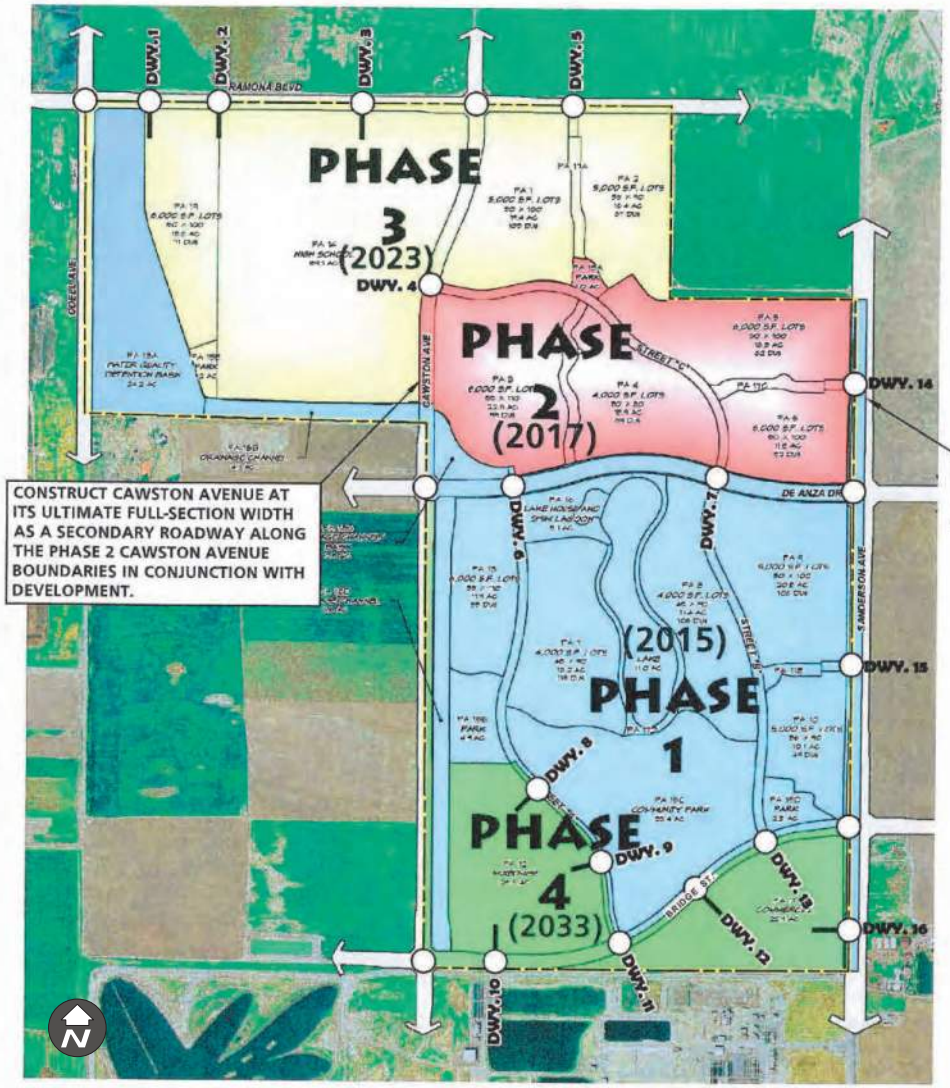

SOURCE: URBAN CROSSROADS
APRIL 24, 2009

Villages of San Jacinto EIR

Phase 2 Circulation Recommendations

FIGURE 5.9-6

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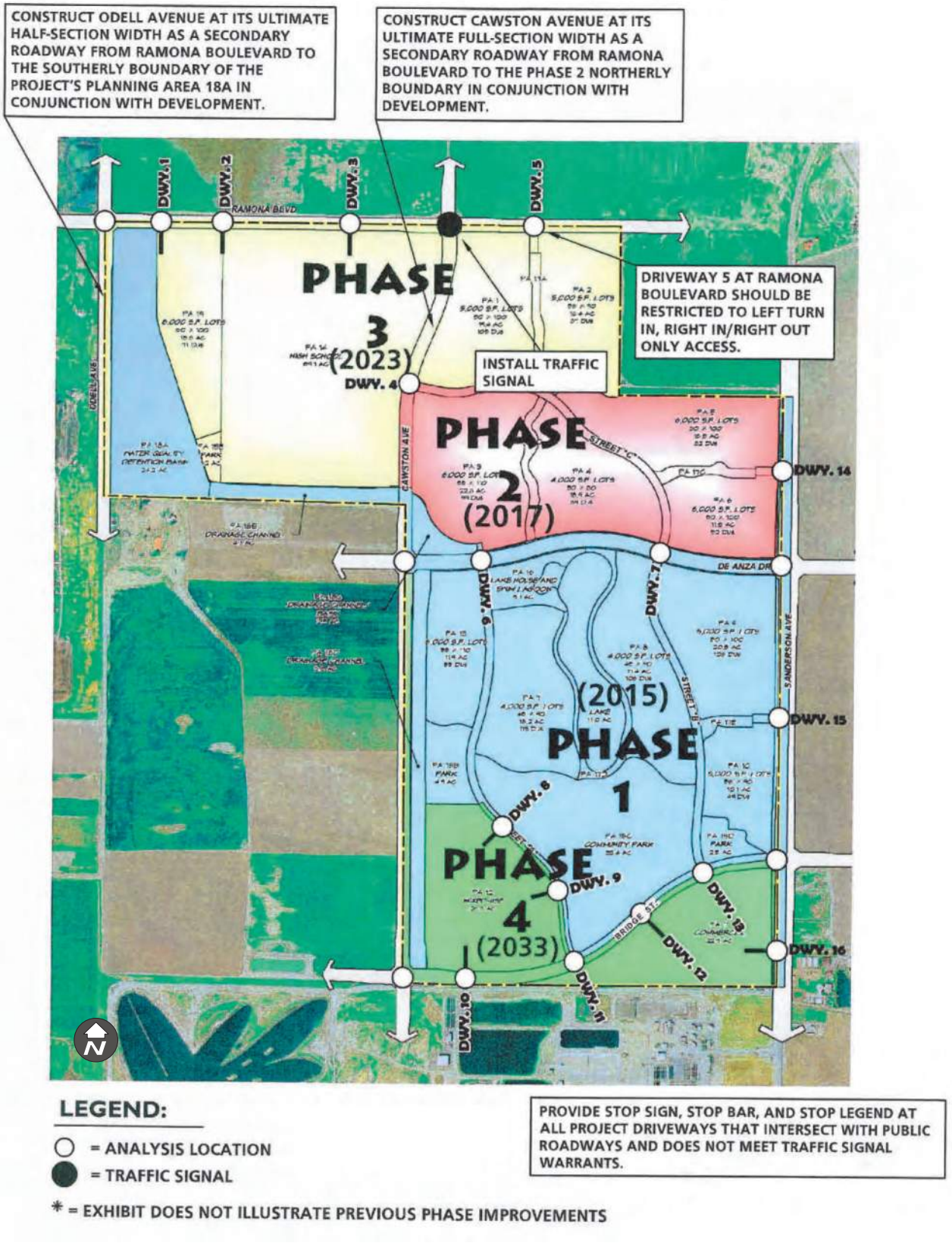

SOURCE: URBAN CROSSROADS, APRIL 24, 2009

Villages of San Jacinto EIR

Phase 3 Circulation Recommendations

FIGURE 5.9-7

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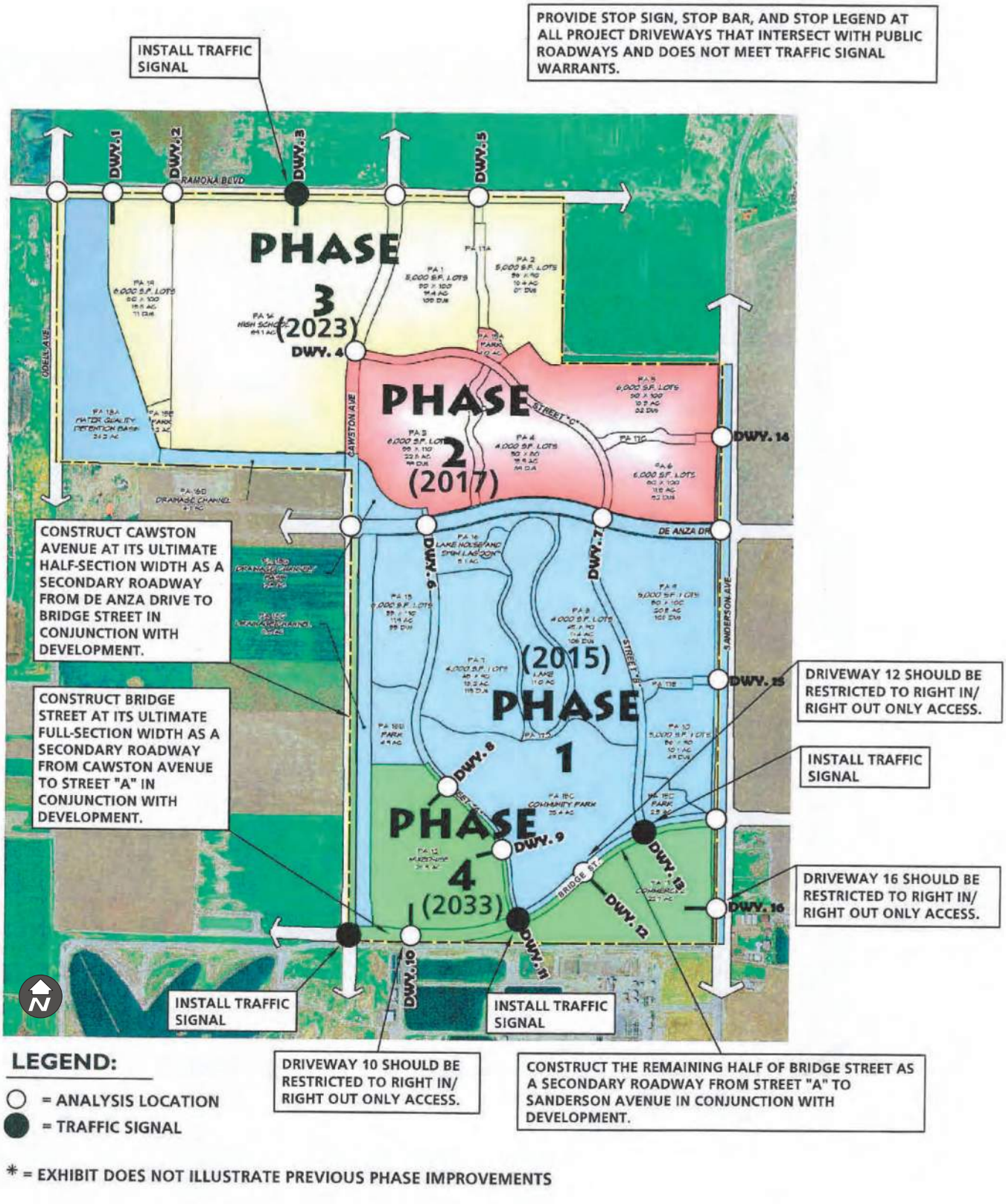

SOURCE: URBAN CROSSROADS, APRIL 24, 2009

Villages of San Jacinto EIR

Phase 4 Circulation Recommendations

FIGURE 5.9-8

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Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

There is currently no bus routes located on or near the project site. Local transit service is provided by the Riverside Transit Agency (RTA) with the nearest route (Route 31) traveling north-south through the City on State Street approximately two miles east of the site. Bus stops and or turnouts could be provided in the future, should RTA decide to locate a route adjacent to the site. One of the goals of the project is to develop a circulation system that meets projected traffic volumes and accommodates a variety of transportation modes and encourages alternatives to automobile use within the community. Design features include a series of landscaped paseos that will serve as pedestrian linkages between land uses. Pedestrian friendly design is encouraged for the mixed use and commercial portions of the project as well. Therefore, the project will not conflict with any adopted policies supporting alternative transportation.

5.9.5 Mitigation Measures

The following measures are site specific circulation and access requirements for each phase of the proposed project.

Phase I

5.9-a The following measures shall be implemented prior to issuance of the first residential and commercial building permits and as depicted on *Figure 5.9-5*:

- Construct Sanderson Avenue at its ultimate half-section width as an Urban Arterial roadway from the project's northerly boundary to the project's southerly boundary in conjunction with development.
- Construct De Anza Drive at its ultimate full-section width as a secondary roadway from Cawston Avenue to Sanderson Avenue in conjunction with development.
- Construct Bridge Street at its ultimate half-section width as a secondary roadway from Street "A" to Sanderson Avenue.
- Construct Cawston Avenue at its ultimate half-section width as a secondary roadway from the Phase II southerly boundary to De Anza Drive.
- Participate in fair share fees to construct a traffic signal at the following intersection in conjunction with Phase I of the development:
    - Sanderson Avenue (NS) at:
        - De Anza Drive (EW).

- Construct a traffic signal at the following intersection in conjunction with Phase I of the development:
  - Sanderson Avenue (NS) at:
    - Bridge Street (EW).
- Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants.
- Driveway 15 shall be restricted to right in/right out only access.
- Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans.
- On-site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site.

Phase II

5.9-b The following measures shall be implemented prior to issuance of the 432nd residential permit, any additional commercial building permits and as depicted on *Figure 5.9-6*:

- Construct Cawston Avenue at its ultimate full-section width as a secondary roadway along the Phase II Cawston Avenue boundaries in conjunction with Phase II of the development.
- Driveway 14 shall be restricted to right in/right out only access.
- Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants.
- Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans.
- On-site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site.

Phase III

5.9-c The following measures shall be implemented prior to issuance of the 754th residential permit, the high school, any additional commercial building permits and as depicted on *Figure 5.9-7*:

- Construct Odell Avenue at its ultimate half-section width as a secondary roadway from Ramona Boulevard to the project's southerly boundary in conjunction with Phase III development.
- Construct Cawston Avenue at its ultimate full-section width as a secondary roadway from Ramona Boulevard to the Phase II northerly boundary in conjunction with Phase III development.
- Construct Ramona Boulevard at its ultimate half-section width as a secondary roadway from Odell Avenue to Sanderson Avenue in conjunction with Phase III development.
- Driveway 5 at Ramona Boulevard shall be restricted to right in/right out only access.
- Participate in fair share fees to construct a traffic signal at the following intersection in conjunction with Phase III of the development:
    - Cawston Avenue (NS) at:
        - Ramona Boulevard (EW).
- Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants.
- Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans.
- On-site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site.
- Construct secondary access for PA 19 as approved by the City Engineer.

Phase IV

5.9-d The following measures shall be implemented prior to issuance of the final remaining commercial building permits and as depicted on *Figure 5.9-8*:

- Construct Cawston Avenue at its ultimate half-section width as a secondary roadway from Bridge Street to De Anza Drive in conjunction with Phase IV development.
- Construct Bridge Street at its ultimate full-section width as a secondary roadway from Cawston Avenue to Street "A" in conjunction with Phase IV development.
- Construct the remaining half of Bridge Street as a secondary roadway from Street "A" to Sanderson Avenue in conjunction with Phase IV development.
- Driveway 10 at Bridge Street shall be restricted to right in/right out only access.

- Driveway 12 at Bridge Street shall be restricted to right in/right out only access.
- Driveway 16 at Sanderson Avenue shall be restricted to right in/right out only access.
- Construct traffic signals at the following intersections in conjunction with Phase IV of the development:
  - Driveway 3 (NS) at:
    - Ramona Boulevard (EW) (Only if High School is constructed)
  - Street "A"/Driveway 11 (NS) at:
    - Bridge Street (EW)
  - Street "B"/Driveway 13 (NS) at:
    - Bridge Street (EW).
- Participate in fair share fees to construct a traffic signal at the following intersection in conjunction with Phase IV of the development:
  - Cawston Avenue (NS) at:
    - Bridge Street (EW).
- Provide stop sign, stop bar, and stop legend at all project driveways that intersect with public roadways and do not meet traffic signal warrants.
- Sight distance at each project access shall be reviewed with respect to standard Caltrans and City of San Jacinto sight distance standards at the time of preparation of final grading landscape and street improvement plans.
- On-site traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project site.

5.9-e Because the project, along with many others in the area, is contributing to the city-wide need for street improvements, the project will need to contribute to the Riverside County TUMF and City of San Jacinto DIF programs. As discussed in *Section 5.9.2*, these fees are collected as part of a funding mechanism aimed at ensuring that local and regional highway capacity keeps pace with projected growth throughout the area. Eligible facilities for funding by the City's DIF program are identified on the City's Facility Needs List, which currently extends through the year 2020. *Table 5.9-17, Estimated TUMF and DIF Fee Calculations*, includes estimated fee calculations for the proposed project based on current fee rates.

Table 5.9-17
Estimated TUMF and DIF Fee Calculations

FEE REFERENCE	SINGLE FAMILY RESIDENTIAL ($ PER DU)	MULTI-FAMILY ($ PER DU)	COMMERCIAL ($ PER SQ FT)	OFFICE / SERVICE ($ PER SQ FT)	INDUSTRIAL ($ PER SQ FT)
San Jacinto Development Impact Fee: Streets and Roads Component (DIF)[1]	$1,468	$1,239	$0.17	$0.17	$0.14
San Jacinto Development Impact Fee: Traffic Signals (DIF)[1]	$256	$216	$0.03	$0.03	$0.02
Transportation Uniform Mitigation Fee (TUMF)	$9,812	$7,054	$9.99	$5.71	$1.84

[1] Non-residential uses under DIF have been converted to square footage for comparison purposes. Actual fee based upon acreage as follows:

Fee Type	Commercial	Office	Industrial
Streets and roads:	$7,226	$7,226	$6,102
Signals:	$1,260	$1,260	$1,064

Project With School Site

Program	Category	Unit Cost	Units	Total Cost	Program Totals
DIF - Streets and Roads	SFR	$1,468	1,016	$1,491,488	
DIF - Streets and Roads	Commercial	$0.17	281,572	$46,709	
DIF - Streets and Roads	Office	$0.17	309,320	$51,312	
DIF - Streets and Roads Total					$1,589,509
DIF - Traffic Signals	SFR	$1,468	1,016	$1,491,488	
DIF - Traffic Signals	Commercial	$0.03	281,572	$8,145	
DIF - Traffic Signals	Office	$0.03	309,320	$8,947	
DIF - Traffic Signals Totals					$1,508,580
TUMF	SFR	$9,812	1,016	$9,968,992	
TUMF	Commercial	$9.99	281,572	$2,812,904	
TUMF	Office	$5.71	309,320	$1,766,217	
TUMF Totals					$14,548,113
Totals					**$17,646,202.19**

Project Without School Site

Program	Category	Unit Cost	Units	Total Cost	Program Totals
DIF - Streets and Roads	SFR	$1,468	1,329	$1,950,972	
DIF - Streets and Roads	Commercial	$0.17	281,572	$46,709	
DIF - Streets and Roads	Office	$0.17	309,320	$51,312	
DIF - Streets and Roads Total					$2,048,993
DIF - Traffic Signals	SFR	$256	1,329	$340,224	
DIF - Traffic Signals	Commercial	$0.03	281,572	$8,145	
DIF - Traffic Signals	Office	$0.03	309,320	$8,947	
DIF - Traffic Signals Totals					$357,316
TUMF	SFR	$9,812	1,329	$13,040,148	
TUMF	Commercial	$9.99	281,572	$2,812,904	
TUMF	Office	$5.71	309,320	$1,766,217	
TUMF Totals					$17,619,269
Totals					**$20,025,578.19**

Notes:
A Floor Area Ratio (FAR) conversion rate of 25% was used for PA11 and 30% for PA12 for fee calculation purposes
Government Office is included in "Office" category for worse case scenario. Most fee programs do not charge a fee for actual government uses.

Many off-site circulation improvements required as a result of project impacts would be mitigated through participation in the TUMF fee program. Many of the off-site improvements that are needed will be planned, designed and constructed by the City, Riverside County Transportation Department, Riverside County Transportation Commission, other cities or a combination of the above.

In order to ensure that all off-site traffic improvements are constructed by the City (or the County/RCTC), prior to construction of specific project phases, the City shall ensure that the improvements are made to compensate for the project's contribution to off-site circulation issues. The project applicant's payment of TUMF and DIF fees will allow the financing mechanism to conduct such improvements.

5.9-f The contractor for each phase of the project shall be required to prepare and implement a traffic control plan (TCP) in order to monitor construction equipment, deliveries and construction worker traffic to eliminate any potential hazards to surrounding roadways due to abnormally high traffic into or out of the site for a concentrated period of time. Each traffic control plan shall outline when flagging operations may be necessary (during large construction equipment arrival or deportation, etc.).

5.9.6 Residual Impacts/Level of Significance after Mitigation

Access and On-Site Circulation

With implementation of the mitigation measures included in *Section 5.9.5, Mitigation Measures*, to ensure that adequate and safe site access and circulation design is provided for the proposed development, potential impacts relative to site access and circulation, and emergency access, would be less than significant.

Cumulative Traffic Impacts/ Regional Mitigation Programs

Implementation of the mitigation measures included in *Section 5.9.5, Mitigation Measures*, would ensure that regional traffic conditions do not dip below an acceptable LOS (LOS D) for existing plus project conditions. However, without completion of the Mid-County Parkway and SR-79 projects, the project would contribute to a cumulative significant impact. There is no feasible mitigation for this significant cumulative impact due to exceedance of General Plan roadway criteria (e.g., triple left turn lanes) and due to the uncertainty of obtaining adequate right-of-way for such measures. Therefore, because the City can not guarantee that regional improvements would be implemented prior to completion of the project, a significant unmitigable cumulative traffic impact would occur. That said, it should be noted that the unacceptable LOS conditions would occur with or without the project under cumulative conditions in the absence of the Mid-County Parkway and SR-79 improvements.

5.10 AIR QUALITY

5.10.1 Introduction and Methodology

This section evaluates short-term (construction) and long-term (operational) impacts to air quality that would potentially occur as a result of implementation of the proposed project. Impacts are evaluated for their significance based on the South Coast Air Quality Management District's (SCAQMD) enumerated environmental thresholds. Mitigation measures required to reduce impacts are recommended as appropriate. However, impacts associated with construction and operation would remain significant after mitigation. Technical information related to the analysis below is contained in *Appendix I* to this EIR.

5.10.2 Existing Conditions

Regional Air Quality and Climate/Meteorology

The project site is located in western Riverside County within the City of San Jacinto, which lies at an elevation of approximately 1,567 feet. The natural topography of the project area can best be described as lying in valley lowland, intersected with rolling hills and surrounded by the Santa Ana Mountains to the west and the San Jacinto Mountains to the east. This project site is located within the South Coast Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. Air quality conditions in the SCAB are under the jurisdiction of the SCAQMD. The SCAQMD regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the California Air Resources Board (CARB).

Climate/Meteorology

Air quality in the planning area is not only affected by various emission sources (e.g., mobile, industry), but is also affected by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall, etc. The SCAB's combination of topography, low mean mixing height, abundant sunshine, and emissions from one of the largest urban areas in the United States have historically resulted in some of the worst air pollution in the nation.

Although the SCAB has a semi-arid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The dominant daily wind pattern is an onshore 8 to 12 miles per hour daytime breeze and an offshore 3 to 5 miles per hour nighttime breeze. The typical wind flow pattern fluctuates only with occasional winter storms, or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer

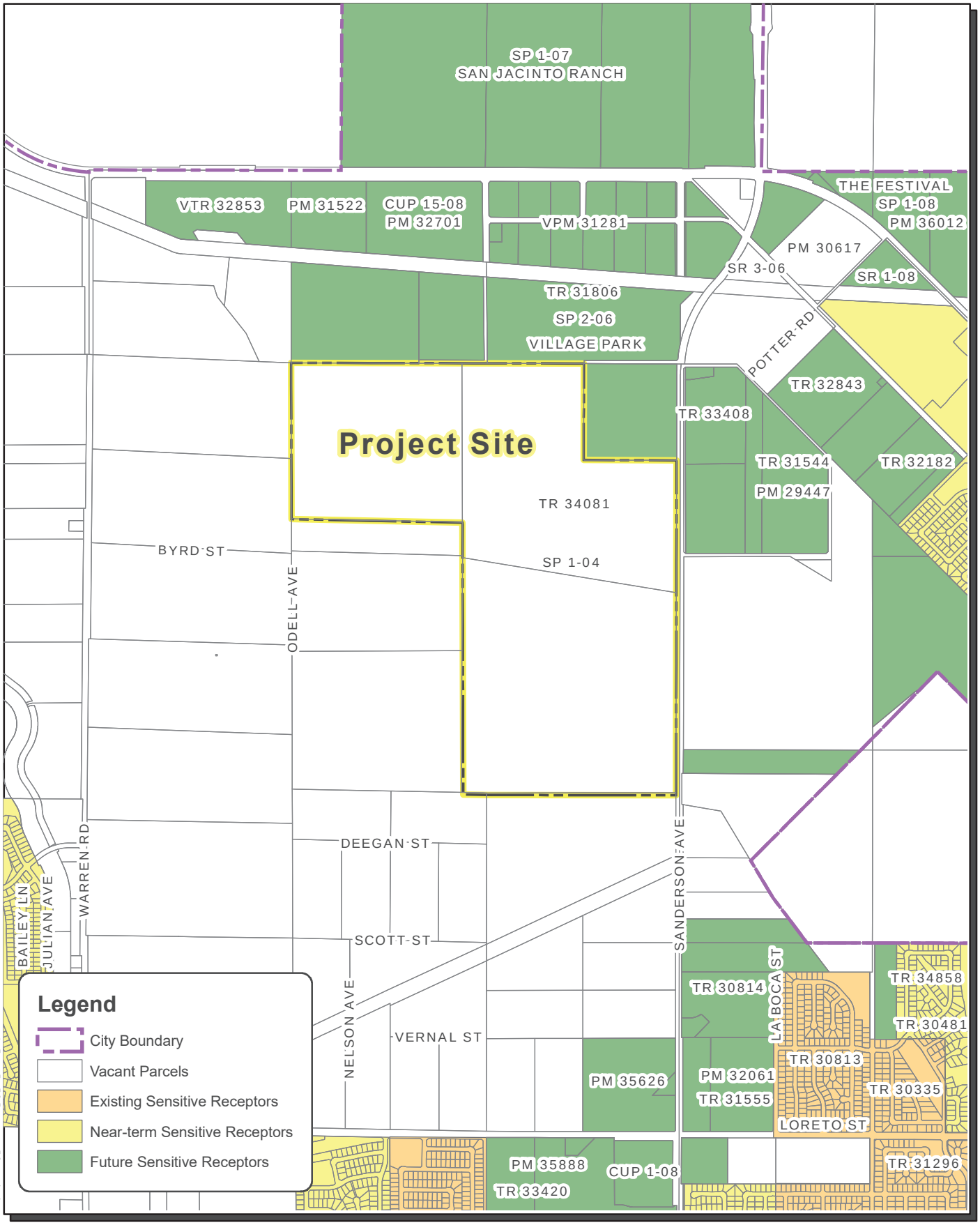
wind flow patterns represent worst-case conditions, as this is the period of higher temperatures and more sunlight, which results in ozone formation.

The San Jacinto area climate is characterized by relatively low rainfall, with warm summers and mild winters. Annual precipitation averages about 13 inches, with over 70% of that falling between December and March. Average monthly temperatures range from a high of 98 degrees Fahrenheit in August to a low of 37 degrees Fahrenheit in December (City-Data.com, Accessed June 6, 2005).

During spring and early summer, pollution produced during any one day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. The vertical dispersion of air pollutants in the SCAB is limited by temperature inversions in the atmosphere close to the earth's surface. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino counties. In the winter, the greatest pollution problems are carbon monoxide and nitrogen dioxide because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form photochemical smog.

Air Quality Characteristics

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed sensitive receptors are the most serious hazards of existing air quality conditions in the area. Sensitive receptors are those persons under 5 years of age, or older than 65, and/or persons with health problems; consequently sensitive receptors include hospitals, convalescent homes, schools, and retirement facilities. There are no sensitive receptors currently located adjacent to the proposed project site. However, some existing residential development is located south and southeast of the project site, and some residential developments are currently under construction to the southwest, southeast, south, and east of the proposed project site. Lastly, several parcels adjacent to the proposed project site to the north and northeast may include future residential development during the construction and operational phases of the proposed project. The existing, near-term (under construction) and potential future sensitive receptors in the vicinity of the proposed project are shown in *Figure 5.10-1*.



SOURCE: City of San Jacinto (2009), Riverside TLA (2008)

0 500 1,000 2,000 Feet

Villages of San Jacinto EIR

Sensitive Receptors

FIGURE 5.10-1

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Additional discussion of sensitive receptors in the vicinity of the project site is provided in the Localized Significance Thresholds Analysis in *Appendix I*.

Primary criteria pollutants are emitted directly from a source (e.g., an automobile) into the atmosphere and include volatile organic compounds (VOCs), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x) and particulate matter. Particulate matter is generally comprised of inert particles that become airborne, such as dust or ash. Particulate matter less than 10 microns in diameter is referred to as PM_{10}; particulate matter less than 2.5 microns in diameter is referred to as $PM_{2.5}$. VOCs are also a primary pollutant, but are not a "criteria" pollutant (see discussion below). Secondary pollutants are created by atmospheric chemical and photochemical reactions. Secondary pollutants include oxidants, ozone (O_3), particulate matter, and sulfate particulates.

Global Climate Change

The Earth's climate has undergone many changes during its history, ranging from ice ages to long periods of warmth. Natural factors such as volcanic eruptions, changes in the Earth's orbit, and the amount of energy from the sun have affected global temperatures and thus the Earth's climate. Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer) (EPA 2008a). The term climate change is often used interchangeably with the term global warming; however, the phrase "climate change" is preferred as it helps convey that there are other changes in addition to rising temperatures (NAS 2008).

Environmental Setting

The Greenhouse Effect and Greenhouse Gases (GHGs)

Heat retention within the atmosphere is an essential process to sustain life on Earth. The natural process through which heat is retained in the troposphere[1] is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through a three-fold process as follows: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and greenhouse gases (GHGs) in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and toward the Earth. This "trapping" of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. This natural process contributes to regulating the earth's temperature without which the temperature of the Earth would be about

[1] The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers).

zero degrees Fahrenheit (-18 degrees Celsius) instead of its present 57 degrees Fahrenheit (14 degrees Celsius) (NCDC 2008).

Gases that trap heat in the atmosphere are often called GHGs. Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and water vapor (H_2O). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Man-made GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6), which are byproducts of certain industrial processes. The major GHGs emitted by human activities remain in the atmosphere for periods ranging from decades to centuries; therefore, it is virtually certain that atmospheric concentrations of GHGs will continue to rise over the next few decades (EPA 2007).

It is generally agreed that human activity has been increasing the concentration of GHGs in the atmosphere (mostly carbon dioxide from combustion of coal, oil, and gas, and a few other trace gases) (NCDC 2008). The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm in 2005 (IPCC WGI 2007). Based on current rates of increase, carbon dioxide concentrations could reach between 490 to 1260 ppm by the end of the 21st century, 75 to 350% above the pre-industrial concentration (IPCC 2001).

A warming trend of approximately 1.0 to 1.7 degrees Fahrenheit occurred during the 20th century; warming occurred in both the northern and southern hemispheres, and over the oceans (IPCC WGI 2007). Most of the warming in recent decades is very likely the result of human activities (IPCC WGI 2007). There is much uncertainty, however, concerning the magnitude and rate of the warming. Specifically, the EPA notes that "important scientific questions remain about how much warming will occur, how fast it will occur, and how the warming will affect the rest of the climate system, including precipitation patterns and storms" (EPA 2007).

The effect each GHG has on climate change is measured as a combination of the volume or mass of its emissions, and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP), and is expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG gas emissions are typically measured in terms of pounds or tons of "carbon dioxide equivalent" (CO_2E).

Contributions to Greenhouse Gas Emissions

Global

Anthropogenic GHG emissions worldwide in 2005 totaled approximately 41,100 CO_2 equivalent million metric tons ($MMTCO_2E$)[2] (CAIT 2009). Six countries—China, United States, Russian Federation, India, Japan, Brazil—and the European Community accounted for approximately 60% of the total global emissions, approximately 25,000 $MMTCO_2E$ (CAIT 2009).

United States

The United States was the second highest producer of GHG emissions in 2005. The primary GHG emitted by human activities in the United States was CO_2, representing approximately 84% of total GHG emissions. Carbon dioxide from fossil fuel combustion, the largest source of United States GHG emissions, accounted for approximately 80% of United States GHG emissions (EPA 2008b).

State of California

According to the 2004 GHG inventory data compiled by CARB for the California 1990 GHG emissions inventory, California emitted emissions of 484 $MMTCO_2E$, including emission resulting from out-of-state electrical generation (CARB 2007b). The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions in 2004 are presented in *Table 5.10-1, GHG Sources in California*.

[2] The CO_2 equivalent emissions on a global or national scale are commonly expressed as "million metric tons of carbon dioxide equivalent ($MMTCO_2E$)" The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that $MMTCO_2E$ = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for methane is 21. This means that emissions of one million metric tons of methane are equivalent to emissions of 21 million metric tons of CO_2.

Table 5.10-1
GHG Sources in California [1]

Source Category	Annual GHG Emissions ($MMTCO_2E$) [a]	Percent of Total	Annual GHG Emissions ($MMTCO_2E$) [b]	Percent of Total
Agriculture	27.9	5.8%	27.9	6.6%
Commercial Uses	12.8	2.6%	12.8	3.0%
Electricity Generation	119.8	24.7%	58.5	13.8%
Forestry (excluding sinks)	0.2	0.0%	0.2	0.0%
Industrial Uses	96.2	19.9%	96.2	22.7%
Residential Uses	29.1	6.0%	29.1	6.9%
Transportation	182.4	37.7%	182.4	43.1%
Other [c]	16.0	3.3%	16.0	3.8%
Totals	**484.4**	**100.0%**	**423.1**	**100.0%**

[1] SOURCES: CARB 2007
[a] Includes emissions associated with imported electricity, which account for 61.3 $MMTCO_2E$ annually
[b] Excludes emissions associated with imported electricity
[c] Unspecified combustion and use of ozone-depleting substances

Potential Effects of Human Activity on Climate Change

Globally, climate change has the potential to impact numerous environmental resources though uncertain impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2 degrees Celsius (0.36 degrees Fahrenheit) per decade is projected, and there are identifiable signs that global warming could be taking place, including substantial ice loss in the Arctic (IPCC WGI 2007).

However, the scientific understanding of the effect of GHG emissions, particulate matter, and aerosols on global climate trends remains uncertain. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling rather than warming effects (IPCC 2001).

Below is a summary of some of the potential effects reported by an array of studies that could be experienced in California as a result of global warming and climate change.

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate

change and/or weather are less well studied, and even less well understood. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CCCC 2006).

Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, "considerable uncertainty about precise impacts of climate change on California hydrology and water resources will remain until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change" (Kiparsky and Gleck 2003). Even assuming that climate change leads to long-term increases in precipitation, analysis of the impact of climate change is further complicated by the fact that no studies have identified or quantified the runoff impacts such an increase in precipitation would have in particular watersheds (CCCC 2006). Also, little is known about how groundwater recharge and water quality will be affected. Higher rainfall could lead to greater groundwater recharge, although reductions in spring runoff and higher evapotranspiration could reduce the amount of water available for recharge (CCCC 2006).

The California Department of Water Resources report on climate change and effects on the State Water Project, the Central Valley Project, and the Sacramento-San Joaquin Delta concludes that "climate change will likely have a significant effect on California's future water resources [and] future water demand," yet it also reports that much uncertainty about future water demand remains (DWR 2006). Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky and Gleck 2003).

Hydrology

As discussed above, climate changes could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a $30 billion agricultural industry that produces half the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks (CCCC 2006).

Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Soil moisture is likely to decline in many regions, intense rainstorms are likely to become more frequent, and sea level could rise as much as two feet along most of the United States coast. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage (Parmesan and Galbraith 2004).

Regulatory Setting

Federal

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, which include National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions. NAAQS are established for "criteria pollutants" under the Clean Air Act, which are O_3, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb).

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation; these NAAQS may not be exceeded more than once a year, except annual standards, which may never be exceeded. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan that demonstrates how those areas will attain the standards within mandated time frames.

State

The Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to the California Air Resources Board (CARB), with subsidiary responsibilities assigned to AQMDs and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (Cal-EPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA) of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are more restrictive than the NAAQS, consistent with the Clean Air Act, which requires state regulations to be at least as restrictive as the federal requirements. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered in "attainment" if pollutant levels are continuously below the standards and violate the standards no more than once each year. The NAAQS and CAAQS are presented in *Table 5.10-2, California and National Ambient Air Quality Standards*.

Table 5.10-2
California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a,c]	National Standards [b]	
			Primary [c,d]	Secondary [c,e]
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	—	Same as primary
	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as primary
Carbon monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
Nitrogen dioxide (NO_2)	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary
	1-hour	0.18 ppm (339 µg/m^3)	—	—
Sulfur dioxide (SO_2)	Annual	—	0.030 ppm (80 µg/m^3)	—
	24-hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	—
	3-hour	—	—	0.5 ppm (1,300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	—	—
Respirable Particulate Matter (PM_{10})	Annual	20 µg/m^3 *	—	Same as primary
	24-hour	50 µg/m^3	150 µg/m^3	Same as primary
Fine Particulate Matter ($PM_{2.5}$)	Annual	12 µg/m^3 **	15.0 µg/m^3	Same as primary
	24-hour	—	35 µg/m^3	Same as primary

Table 5.10-2 (Continued)

Pollutant	Averaging Time	California Standards [a,c]	National Standards [b]	
			Primary [c,d]	Secondary [c,e]
Lead	30-day	1.5 µg/m^3	—	—
	Quarterly	—	1.5 µg/m^3	Same as primary
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	—	—
Vinyl chloride	24-Hour	0.01 ppm (26 µg/m^3)	—	—
Sulfates	24-hour	25 µg/m^3	—	—
Visibility reducing particles [f]	8-hour (10:00 a.m. to 6:00 p.m. PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%.	—	—

SOURCE: CARB 2008

a. California standards for O_3, CO, SO_2 (1 hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. The standards for SO_2 (24-hour), sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded.

b. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c. Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibars). All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

e. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70%.

* Measured as an arithmetic mean. New standard promulgated by the ARB on June 20, 2002

** New standard promulgated by the ARB on June 20, 2002

Local

While CARB is responsible for the regulation of mobile emission sources within the state, local AQMDs and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the proposed project is located. The SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air Quality Management Plans (AQMP) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The South Coast Air Quality Management District Governing Board adopted the 2003 AQMP on August 1, 2003. The 2003 AQMP updates the attainment demonstration for the federal standards for O_3 and PM_{10}; replaces the 1997 attainment demonstration for the federal CO standard,

provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992. The South Coast Air Quality Management District Governing Board adopted the 2007 AQMP on June 1, 2007. The 2007 AQMP includes the same updates as the 2003 AQMP and also incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. As part of the 2007 AQMP, the SCAQMD request that EPA "bump up" the O_3 nonattainment status from severe to extreme to allow additional time for the SCAB to achieve attainment with the federal standard. The additional time would provide for implementation of state and federal measures that apply to sources over which the SCAQMD does not have control. The 2007 AQMP has been approved by CARB but is undergoing review by EPA.

Emissions that would result from mobile, stationary, and areas sources during construction and operation of the proposed project are subject to the rules and regulations of the SCAQMD. The SCAQMD rules applicable to the proposed project may include the following.

Rule 403 (Fugitive Dust)

This rule requires fugitive dust sources to implement Best Available Control Measures for all sources and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust (see also Rule 1186).

Rule 431.2 (Sulfur Content of Liquid Fuels)

The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of both reducing the formation of SO_x and particulates during combustion and to enable the use of add-on control devices for diesel fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary source applications in the District. The rule also affects diesel fuel supplied for mobile source applications.

Rule 445 (Wood Burning Devices)

This rule prohibits the installation of permanently installed wood-burning devices into any new development and restricts the installation of wood-burning devices into existing development to specific devices, primarily those certified by EPA.

Rule 1113 (Architectural Coatings)

This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Rule 1121 (Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters)

This rule prescribes NOx emission limits for natural gas-fired water heaters with heat input rates less than 75,000 BTU per hour. It applies to manufacturers, distributors, retailers, and installers of natural gas-fired water heaters.

Rule 1146.2 (Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters)

This rule requires manufacturers, distributors, retailers, refurbishers, installers and operators of new and existing units to reduce NOx emissions from natural gas-fired water heaters, boilers, and process heaters as defined in this rule.

Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations)

This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the clean-up of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).

Greenhouse Gas Regulatory Programs

International Activities

Kyoto Protocol

The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was signed on March 21, 1994. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. The original Kyoto Protocol was negotiated in December 1997 and came into force on February 16, 2005. As of January 2009, 183 countries and the European Economic Community (EEC) have ratified the agreement (UNFCCC 2009). The goal of the protocol is to achieve overall emissions reduction targets for six GHGs by the period 2008 to 2012.

Federal Activities

Massachusetts vs. EPA

To date, the EPA has not regulated GHGs under the Clean Air Act based on the assertion that "(1) the Act does not authorize it to issue mandatory regulations to address global climate change, and (2) even if it had the authority to set GHG emission standards, it would have been unwise to do so at that time because a causal link between GHGs and the increase in global surface air temperatures was not unequivocally established."[3] In *Massachusetts v. EPA*, however, the Supreme Court held that EPA has the statutory authority under Section 202 of the Clean Air Act to regulate GHGs from new motor vehicles because GHGs meet the Clean Air Act definition of an air pollutant.[4] The court did not hold that the EPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs from motor vehicles cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. Upon the final decision, President Bush signed Executive Order 13432 on May 14, 2007, directing the EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision.

In *Massachusetts v. EPA*, the Supreme Court directed the Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On April 17, 2009, the Administrator signed a proposal with two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- The Administrator is proposing to find that the current and projected concentrations of the mix of 6 key greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.

- The Administrator is further proposing to find that the combined emissions of CO_2, CH_4, N_2O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key greenhouse gases and hence to the threat of climate change. This is referred to as the cause or contribute finding.

3 *Massachusetts et al. v. Environmental Protection Agency et al*., 549 U.S. 497 (2007).
4 Ibid.

Energy Independence and Security Act

On December 19, 2007, President Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022
2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by Model Year 2020, directs National Highway Traffic Safety Administration to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

State of California

AB 1493

In a response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers, which claimed that the law regulated vehicle fuel economy, a duty assigned to the federal government. Upon the U.S. Supreme Court's decision in *Massachusetts v. EPA*, the U.S. District Court for the Eastern District dismissed the case by the Alliance of Automobile Manufacturers in December 2007. However, before these regulations may go into effect, the EPA must grant California a waiver under the federal Clean Air Act, which ordinarily preempts state regulation of motor vehicle emission standards. On December 19, 2007, Stephen Johnson, the EPA Administrator, denied the waiver citing the need for a national approach to

reducing GHG emissions, the lack of a "need to meet compelling and extraordinary conditions," and the benefits to be achieved through the Energy Independence and Security Act of 2007 (Johnson 2007). The California Attorney General subsequently filed suit in January 2008 to overturn the administrator's decision. The Obama Administration has reevaluated the waiver, and the waiver was granted by Lisa Jackson, the EPA Administrator, on June 30, 2009.

SB 1078

Approved by Governor Davis in September 2002, Senate Bill 1078 (SB 1078, Sher) established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107). (See also Executive Order S-14-08.)

Executive Order S-3-05

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The Secretary of CalEPA is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Representatives from several state agencies comprise the Climate Action Team. The Climate Action Team is responsible for implementing global warming emissions reduction programs. The Climate Action Team fulfilled its report requirements through the March 2006 Climate Action Team Report to Governor Schwarzenegger and the legislature (CAT 2006). A second biennial report was released in April 2009.

The 2009 Draft Climate Action Team Report expands on the policy oriented in the 2006 assessment. The 2009 report provides new information and scientific findings regarding the development of new climate and sea-level projections using new information and tools that have recently become available and evaluates climate change within the context of broader soil changes, such as land use changes and demographics. The 2009 report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate change that were discussed that need future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

SB 107

Approved by Governor Schwarzenegger on September 26, 2006, Senate Bill 107 (SB 107, Simitian) requires investor-owned utilities such as Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric, to generate 20% of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017 (see SB 1078).

AB 32

In furtherance of the goals established in Executive Order S-3-05, the legislature enacted Assembly Bill 32 (AB 32, Nuñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB was been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. The original three adopted early action regulations meeting the narrow legal definition of "discrete early action GHG reduction measures" include:

- A low-carbon fuel standard to reduce the "carbon intensity" of California fuels
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of "do-it-yourself" automotive refrigerants
- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations, which were also considered "discrete early action GHG reduction measures," include:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification
3. Reduction of perfluorocarbons from the semiconductor industry
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)
5. Require that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency
6. Restriction on the use of sulfur hexafluoride (SF_6) from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMT CO_2E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources that fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit carbon dioxide in excess of specified thresholds.

On December 11, 2008, CARB approved the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations will occur over the next 2 years, becoming effective by January 1, 2012. The key elements of the Scoping Plan include (CARB 2008):

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33%;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions;

- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State of California's long term commitment to AB 32 implementation.

SB 1368

In September 2006, Governor Schwarzenegger signed SB 1368, which requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly-owned utilities. These standards must be consistent with the standards adopted by the Public Utilities Commission. This effort will help to protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07

Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in CO_2-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The LCFS is anticipated to replace 20% of the fuel used in motor vehicles with alternative fuels by 2020.

SB 97

In August 2007, the legislature enacted SB 97 (Dutton), which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of GHG emissions. OPR is to develop proposed guidelines by July 1, 2009, and the Natural Resources

Agency is directed to adopt guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines. This bill also protects projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 from claims of inadequate analysis of GHG as a legitimate cause of action. This latter provision will be repealed on January 1, 2010.

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less-than-significant level.

On April 13, 2009, OPR submitted to the Natural Resources Agency its proposed amendments to the state CEQA Guidelines relating to greenhouse gas emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting the proposed amendments, starting the public comment period. The Natural Resources Agency is directed to adopt guidelines by January 1, 2010.

SB 375

In August 2008, the legislature passed and on September 30, 2008, Governor Schwarzenegger signed SB 375 (Steinberg), which addresses GHG emissions associated with the transportation section through regional transportation and sustainability plans. By September 30, 2010, CARB will assign regional GHG reduction targets for the automobile and light truck sector for 2020 and 2035. The targets are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy within the Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the

growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy.

Executive Order S-13-08

Governor Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the Resource Agency, in cooperation with the California Department of Water Resources, CEC, California's coastal management agencies, and the Ocean Protection Council to request the National Academy of Sciences to prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess the vulnerability of the state's transportation systems to sea level rise within 90 days of the order. The Office of Planning and Research and the Resources Agency are required to provide land use planning guidance related to sea level rise and other climate change impacts. The order also requires the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years.

Executive Order S-14-08

On November 17, 2008, Governor Schwarzenegger issued Executive Order S-14-08. This Executive Order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the order directs state agencies to take appropriate actions to facilitate reaching this target. The Resources Agency, through collaboration with the CEC and Department of Fish and Game, is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and Department of Fish and Game creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

Pollution Constituents and Attainment Status

The significance of a pollutant concentration is determined by comparing it to state and/or federal ambient air quality standards, which represent the maximum allowable atmospheric concentrations of various pollutants which may occur and still protect public health and welfare, with a reasonable margin of safety. The EPA and CARB designate areas of California as having air quality better than (attainment) or worse than (nonattainment) the NAAQS/CAAQS.

The criteria pollutants of primary concern that are considered in this air quality assessment include O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O_3.

The criteria for nonattainment designation varies by pollutant. A system of monitoring stations which measure ambient air quality has been established to assist in the enforcement of the above-referenced standards. The following section describes the six criteria air pollutants and their attainment status according to both state and federal standards. *Table 5.10-3, South Coast Air Basin Attainment Classification*, shows the SCAB attainment designation/classification under the NAAQS and CAAQS.

Ozone

Ozone (O_3) is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. These precursors are mainly NO_x and VOCs (also referred to as reactive organic compounds or gases [ROC or ROG]). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Ozone concentrations are highest during the warmer months and coincide with the seasons of maximum solar radiation. Ozone is a pungent, colorless gas typical of Southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. Ozone levels peak during summer and early fall.

The entire SCAB is designated as a nonattainment area for both federal and state ozone standards. The EPA has classified the SCAB as a "severe" nonattainment area and has mandated that the SCAB achieve attainment by no later than 2021

Table 5.10-3
South Coast Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification
National		
Ozone (O_3)	8 hour	Nonattainment/severe
Nitrogen dioxide (NO_2)	Annual arithmetic mean	Attainment
Carbon monoxide (CO)	1 hour, 8 hour	Attainment
Sulfur dioxide (SO_2)	24 hour, annual arithmetic mean	Unclassifiable
Respirable particulate matter (PM_{10})	24 hour	Nonattainment/serious
Fine particulate matter ($PM_{2.5}$)	24 hour, annual arithmetic mean	Nonattainment
Lead (Pb)	Calendar quarter	Attainment
State [b]		
Ozone (O_3)	1 hour, 8 hour	Nonattainment[1]
Nitrogen dioxide (NO_2)	1 hour, Annual	Attainment[2]
Carbon monoxide (CO)	1 hour, 8 hour	Attainment

Table 5.10-3 (Continued)

Pollutant	Averaging Time	Designation/Classification
Sulfur dioxide (SO_2)	1 hour, 24 hour	Attainment
Respirable particulate matter (PM_{10})	24 hour, annual arithmetic mean	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	Nonattainment
Lead (Pb)[3]	30 day average	Attainment
Sulfates (SO_4)	24 hour	Attainment
Hydrogen sulfide (H_2S)	1 hour	Unclassified
Vinyl chloride[3]	24 hour	Unclassified
Visibility-reducing particles	8 hour (10:00 a.m.–6:00 p.m.)	Unclassified

SOURCES: [a] EPA 2008, [b] CARB 2009.

1 CARB has not issued area classification based on the new state 8-hour standard. The previous classification for the 1-hour O3 standard was Extreme.

2 CARB has not issued area classification based on the new state 1-hour and annual standards.

3 CARB has identified Pb, vinyl chloride, and Toxic Air Contaminants with no threshold level of exposure for adverse health effects determined.

Carbon Monoxide

Carbon monoxide (CO) is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions.

The SCAB is designated as an attainment area for federal CO standards. Although western portions of the SCAB are considered "unclassifiable" under state CO standards, Riverside County has been designated by CARB to be an attainment area.

Nitrogen Oxides

Nitrogen dioxide (NO_2), a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as oxides of nitrogen, or NO_x. NO_x is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 decreases lung function and may reduce resistance to infection.

The entire SCAB has not exceeded either federal or state standards for nitrogen dioxide in the past 5 years based published monitoring data. It is designated as an attainment area under the federal and state standards. The state NO_2 standard was revised in 2008, but new designations have not been adopted.

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

The entire SCAB is in attainment with both federal and state sulfur dioxide standards.

Lead

Lead (Pb) is found in old paints and coatings, plumbing and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead.

The entire SCAB is in attainment for the federal and state standards for lead.

Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse or respirable particles (all particles less than or equal to 10 micrometers in diameter, or PM_{10}) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers, or $PM_{2.5}$) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions. PM_{10} can accumulate in the respiratory system and aggravate health problems such as asthma. EPA's scientific review concluded that fine particles ($PM_{2.5}$), which penetrate deeply into the lungs, are more likely than coarse particles to contribute to adverse health effects.

The SCAB is designated as a "serious" nonattainment area for federal PM_{10} standards and as a nonattainment area for state PM_{10} standards. In regards to $PM_{2.5}$ attainment status, the SCAB is designated as a nonattainment area by CARB and by the EPA.

Existing Local Air Quality

The SCAQMD maintains ambient air quality monitoring stations throughout the SCAB. The closest ambient air quality monitoring station to the project site is the Perris Valley monitoring station, which measures O_3 and PM_{10}. For CO, NO_2, $PM_{2.5}$, and SO_2, values from the monitoring station closest to the project site that measures that specific pollutant were used in this analysis, as presented in *Table 5.10-4, Ambient Air Quality Data*. The most recent background ambient air quality data from 2006 through 2008 are presented in *Table 5.10-4* below.

Table 5.10-4
Ambient Air Quality Data

Pollutant	Monitoring Station	2006	2007	2008*
O_3				
Maximum 1-hour concentration (ppm)	Perris Valley	0.17	0.139	0.142
# of days of state exceedances (>0.08 ppm)	Perris Valley	76	66	65
Maximum 8-hour average concentration (ppm)	Perris Valley	0.122	0.116	0.115
# of days of state exceedances (>0.070 ppm)	Perris Valley	54	88	94
# of days of fed. exceedances (>0.08 ppm for 2006–07, >0.075 ppm for 2008)	Perris Valley	53	37	77
CO				
Max. Concentration 1 hour (ppm)	Lake Elsinore	1	2	1.1**
# of days of state exceedances (>20 ppm)	Lake Elsinore	0	0	0**
Max. Concentration 8 hours (ppm)	Lake Elsinore	1.01	1.40	0.84
# of days of state exceedances (>9.0 ppm)	Lake Elsinore	0	0	0
NO_2				
Max. Concentration 1-hour (ppm)	Lake Elsinore	0.07	0.06	0.055
# of days of state exceedances (>0.25 ppm for 2006-07, >0.18 ppm for 2008)	Lake Elsinore	0	0	0
Annual arithmetic mean	Lake Elsinore	0.015	0.017	0.013
PM_{10}				
Max. concentration 24-hour (µg/m^3)	Perris Valley	125	120	87
# of state exceedances (>50 µg/m^3)	Perris Valley	19	32	8
# of fed. exceedances (>150 µg/m^3)	Perris Valley	0	0	0
Annual arithmetic mean (state standard = 20 µg/m^3)	Perris Valley	45.0	54.8	29.6
$PM_{2.5}$				
Max. concentration (µg/m^3)	Metro RC2	55.3	68.6	47.9
# of fed. exceedances (>35 µg/m^3)	Metro RC2	9	8	5
Annual arithmetic mean (15.0 µg/m^3)	Metro RC2	17.0	18.1	14.25
SO_2				
Maximum 1-hour concentration (ppm)	Metro RC1	0.01	0.02	0.011
# of days of state exceedances (>0.25 ppm)	Metro RC1	--	--	--
Maximum 24-hour average concentration (ppm)	Metro RC1	0.004	0.002	0.003
# of days of state exceedances (>0.04 ppm)	Metro RC1	--	--	--
# of days of fed. exceedances (>0.14 ppm)	Metro RC1	--	--	--
Annual arithmetic mean (0.30 ppm)	Metro RC1	0.0013	0.0017	0.001

SOURCE: South Coast Air Quality Management District (2009)
Metro RC1 = Metropolitan Riverside County 1 (5888 Mission Blvd., Rubidoux)
Metro RC2 = Metropolitan Riverside County 2 (7002 Magnolia Ave., Riverside)
* 2008 data were taken from CARB Air Quality Data Statistics (2009) http://www.arb.ca.gov/adam/welcome.html,
** Data were taken from EPA AirData (2009) http://www.epa.gov/air/data/index.html

As the table above demonstrates, air quality within the project region is in compliance with both CAAQS and NAAQS for CO, NO_2, and SO_2. Federal and state 1-hour and 8-hour O_3 standards were, however, exceeded during each of the last 3 years. The PM_{10} level monitored at the air monitoring stations exceeded the state standard every year of the past 3 years; the federal standard was not exceeded once during this period. The federal standard, however, for $PM_{2.5}$ was exceeded several times during each of the past 3 years.

5.10.3 Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, the proposed project would have a significant impact to air quality if it:

- Conflicts with or obstruction of implementation of the applicable air quality plan.
- Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under applicable federal or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Exposes sensitive receptors to substantial pollutant concentrations.
- Creates objectionable odors affecting a substantial number of people.

In addition, Appendix G of the CEQA Guidelines indicates that where available, the significance criteria established by the applicable air quality management or pollution control district may be relied upon to determine if the proposed project would have a significant impact on air quality. The SCAQMD CEQA Air Quality Handbook (SCAQMD 1993) sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in *Table 5.10-5, SCAQMD Air Quality Significance Threshold*s, are exceeded. To evaluate whether a project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for ozone (see *Table 5.10-2*), which is a nonattainment pollutant, the SCAQMD considers a project to have a significant impact if the project's construction or operational emissions would exceed the VOC or NOx thresholds shown in *Table 5.10-5*. These emission-based thresholds for ozone precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse ozone impacts to occur) because ozone itself is not emitted directly (see discussion of ozone and its sources above) and the effects of an individual project's emissions of ozone precursors (VOC and NOx) on ozone levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 5.10-5
SCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
Criteria Pollutants Mass Daily Thresholds		
VOC	75 lbs/day	55 lbs/day
NO_x	100 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
SO_x	150 lbs/day	150 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
Lead [a]	3 lbs/day	3 lbs/day
Toxic Air Contaminants and Odor Thresholds		
(including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [b]		
NO_2 1-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state)	
NO_2 annual average	0.030 ppm (state)	
CO 1-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state)	
CO 8-hour average	9.0 ppm (state/federal)	
PM_{10} 24-hour average	10.4 μg/m³ (construction)[c] 2.5 μg/m³ (operation)	
PM_{10} annual arithmetic mean	20.0 μg/m³	
$PM_{2.5}$ 24-hour average	10.4 μg/m³ (construction)[c] 2.5 μg/m³ (operation)	

SOURCE: SCAQMD, 1993
lbs/day = pounds per day
ppm = parts per million
μg/m³ = microgram per cubic meter
≥ = greater than or equal to

[a] The phasing-out of leaded gasoline started in 1976. As gasoline no longer contains lead, the proposed project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

[b] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

[c] Ambient air quality threshold based on SCAQMD Rule 403.

The SCAQMD CEQA Air Quality Handbook also sets forth additional indicators of potential air quality impacts which should be used as screening criteria indicating the need for further analysis. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project would have the potential to create or be subjected to an objectionable odor over 10 dilutions to thresholds (D/T) that could impact sensitive receptors.
- Project would have hazardous materials on site and could result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.
- Project could emit an air toxic contaminant regulated by District rules or that is on a federal or state air toxic list.
- Project could involve burning of hazardous, medical, or municipal waste as waste-to-energy facility.
- Project could be occupied by sensitive receptors within a quarter mile of an existing facility that emits air toxics identified in District Rule 1401 or near CO hot spots.
- Project could emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million.

In addition to the above listed emission-based thresholds, the SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of construction activities. For project sites greater than 5 acres, potential impacts on local sensitive receptors are determined using an air quality dispersion model. Those impacts are then compared to the localized significance thresholds (LSTs). The LSTs for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The LSTs for NO_2 and CO were derived from the ambient air quality data for the 3 previous years as shown in *Table 5.10-3*. For construction, the LSTs for PM_{10} and $PM_{2.5}$ are both 10.4 $\mu g/m^3$ (SCAQMD 2008). The LSTs applicable to construction of the proposed project, along with the relevant ambient air quality standards, are shown in *Table 5.10-6, Localized Significance Thresholds.*

Table 5.10-6
Localized Significance Thresholds

Pollutant	Averaging Period	CAAQS/NAAQS		Peak Conc. in ppm	LST Criteria*	
		µg/m³	ppm			
Nitrogen Dioxide (NO2)	1 hour	339	0.18	0.07	207	0.11
Carbon Monoxide (CO)	1 hour	23,000	20	2	20,598	18
Carbon Monoxide (CO)	8 hours	10,000	9.0	1.4	8,697	7.6
Respirable Particulate Matter (PM10)	24 hours	50	—	NA	10.4	—
Fine Particulate Matter (PM2.5)**	24 hours	35	—	NA	10.4	—

SOURCE: SCAQMD 2008.

* LST Criteria for NO2 and CO are the differences between CAAQS and the Peak Concentration.

** California has not adopted a 24-hour AAQS for $PM_{2.5}$. The 24-hour $PM_{2.5}$ AAQS shown is the national standard.

To date, no local or state air quality agency has adopted significance criteria for GHG emissions for residential and commercial projects. Nonetheless, this Draft EIR provides a discussion of the impacts of the project with respect to global climate change in the absence of an established significance threshold. To assess the impact of the proposed project with respect to global climate change, the potential contribution of the project to this cumulative impact is evaluated under the following criterion:

- The project could impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32.

This analysis conforms closely to the methodologies recommended in the California Air Pollution Control Officers Association *CEQA and Climate Change* discussion (CAPCOA 2008). Calculations of carbon dioxide, methane, and nitrous oxide associated with the proposed project are provided for full disclosure of the magnitude of potential impacts. While a project may result in emission of GHGs, the significance of the impacts of a single project on the global climate cannot be quantified. The full disclosure of project GHG emissions is intended to provide information, which may be useful for regional agencies in the context of eventually developing regional or statewide emission projections.

5.10.4 Impacts

This section evaluates the air quality impacts associated with 1,016 single-family detached residential dwelling units, a high school with 2,000 students, 45.9 acres of park use, 281,570 square feet of general commercial/retail use, and 309,320 square feet of office type uses (general office and government complex such as a post office). If the 2,000-student high school site is not chosen by the School District, an additional 322 single-family detached residential dwelling units will be developed alternatively in Phase III. For purposes of air quality impact analysis, based on

the Institute of Transportation Engineers traffic rates (please refer to Traffic section), the development of the 2,000-student high school (as opposed to the alternative development of 322 residential units) would be the reasonable worst-case project, and is therefore, evaluated herein.

Would the project conflict with or obstruction of implementation of the applicable air quality plan?

While striving to achieve the NAAQS for ozone and $PM_{2.5}$ through a variety of air quality control measures, the 2007 AQMP also accommodates planned growth in the SCAB. Projects are considered to be consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population, employment) are consistent with the underlying regional plans used to develop the AQMP. As indicated in Chapter 3 of the 2007 AQMP, demographic growth forecasts for various socioeconomic categories, developed by SCAG for their interim 2007 Regional Transportation Plan (RTP), were used in the modified 2004 RTP to estimate future emissions in the 2007 AQMP (SCAQMD 2007). Key growth forecasts for the City of San Jacinto from the modified 2004 RTP (SCAG 2004) include:

- Population: 31,256 (2010), 40,025 (2025), 42,738 (2030)
- Employment: 8,587 (2010), 10,834 (2025), 11,620 (2030).

According to the California Department of Finance, the population of the City of San Jacinto as of January 1, 2009, was 36,477 (Department of Finance 2009). The estimated population of the proposed project, assuming that 322 single-family residences are built instead of the potential high school is 4,054, which would be achieved by 2023 according to the prescribed phasing of the project. When added to the current population, the total population (40,531) would exceed the forecasted population of the City of San Jacinto in 2025 but not 2030. However, the population growth projections for the neighboring City of Hemet are substantially higher than the current population. The SCAG RTP 2010 and 2025 population projections for the City of Hemet are 105,100 and 154,392, respectively, whereas the current Department of Finance 2009 population is 74,361 (Department of Finance 2009), more than 30,000 persons less than the 2010 projection. (This shift between the two cities is reflected in the population forecasts for the 2008 RTP, which shows higher growth for the City of San Jacinto and lower growth for the City of Hemet [SCAG 2008]). Accordingly, the proposed project would be accommodated in the subregional population forecasts used to prepare the 2007 AQMP.

The most recent employment estimate (May 2009) from the California Employment Development Department indicates 10,000 employees in the City of San Jacinto (California Employment Development Department 2009). The proposed project would create an estimated 675 jobs at full buildout in 2033. Thus, the total employment (10,675) would be within the

SCAG modified 2004 RTP forecast for 2030. Accordingly, the proposed project's employment would be accommodated in the forecasts used to prepare the 2007 AQMP.

As described in *Section 3.0, Project Description,* implementation of the proposed project would require a General Plan Amendment. The current General Plan includes residential, open space, and commercial land use designations for the project site. *Table 5.1-1, General Plan and Specific Plan Comparison,* in *Section 5.1 Land, Use, Planning, and Zoning,* compares the General Plan and Specific Plan levels of development. As shown in this table, the Specific Plan would provide for up to 1,329 residential units (assuming the potential high school is not built) and 49 acres of commercial and mixed use development. These values are less than the 3,077 residential units and 54.4 acres of commercial development that would be allowed under the current General Plan land used designations for the site. As indicated in *Section 5.1,* the Specific Plan's potential inconsistency with the existing General Plan Land Use Map is considered less than significant from a Land Use Plan Map perspective. *Section 5.1* also provides a detailed analysis of the Specific Plan's consistency with General Plan goals and policies.

Based on the preceding assessment, the proposed project would not conflict with or obstruct implementation of the AQMP, and this impact would be less than significant.

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under applicable federal or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors).

Construction Activity Impacts

Construction activities, including soil disturbance dust emissions and combustion pollutants from on-site construction equipment and from off-site trucks hauling dirt, cement or building materials would create a temporary addition of pollutants to the local airshed. These emissions are variable in time and space and differ considerably among various construction projects. Such emission levels can, therefore, only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

Emissions from the construction phase of the project were estimated through the use of emission factors from the URBEMIS 2007, Version 9.2.4, land use and air emissions model and the SCAQMD's CEQA Air Quality Handbook (SCAQMD 1993).

Construction phasing and other URBEMIS modeling assumptions are based on the project phasing in the project's Traffic Impact Study (refer to *Section 5.9, Transportation, Circulation, and Access*) and the project description provided in the Specific Plan. For purposes of this assessment, the following assumptions were made regarding the project phases and construction

subsphases. Mass grading for the entire site would start in December 2011 and would be completed 7 months after. The grading plans anticipate that cut and fill will be balanced; no export or import of soil is planned. Phase I would be completed in December 2015. Fine grading for Phase II would start immediately after the completion of Phase I in January 2016. Phase II would be completed in December 2017. Phase III would commence immediately after the completion of Phase II in December 2017. Phase III would include the construction of single-family residences and a high school. In July 2018, six months into the development phase, construction of the high school would start. Phase III, including the high school, would be completed in December 2023. Construction of the remaining nonresidential land uses in Phase IV would start in January 2024 and would be completed by December 2033.

Additional details of the construction schedule are included in *Appendix I.*

The project would involve multiple construction subphases: 1) mass grading, 2) fine site grading of individual phases, 3) utilities/infrastructure (trenching), 4) building construction, 5) paving, and 6) architectural coating. Phases I, II, III, and IV would involve separate construction subphases with the exception of mass grading, which will cover the entire project site and occur during Phase I only. The proposed project would commence in 2011 and would be completed by 2033, for a total construction duration of 22 years. Within the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, six days per week (26 days a month), during project construction.

URBEMIS 2007 model defaults were utilized where detailed project data is unknown at this time (refer to *Appendix I*). For example, the specific construction equipment and specifications may change over time and cannot be identified with certainty during the planning phase. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least three times daily, resulting in a approximately 61% reduction, to comply with Rule 403. *Table 5.10-7, Heavy Construction Equipment,* presents the heavy construction equipment assumptions for each construction stage, as applied in the model. The assumptions identified above and the number of equipment units presented in the table below represent a reasonably conservative estimate of construction activity.

Table 5.10-7
Heavy Construction Equipment

Construction Phase	Equipment	Number
Mass Grading	Grader	1
	Rubber Tired Dozers	1
	Tracker/Loader/Backhoe	1
	Water Trucks	1
Fine Grading	Graders	1

Table 5.10-7 (Continued)

Construction Phase	Equipment	Number
	Rubber Tired Dozers	1
	Tracker/Loader/Backhoe	1
	Water Trucks	1
Trenching	Excavators	2
	Tracker/Loader/Backhoe	1
	Other General Industrial Equipment	1
	Tractor/Loaders/Backhoe	1
Building Construction (Residential)	Cranes	1
	Generator Sets	1
	Forklifts	3
	Tractors/Loaders/Backhoe s	3
	Welders	1
Paving (Residential)	Paver	1
	Paving Equipment	2
	Rollers	2
Paving (Commercial/Mixed Use)	Cement and Mortar Mixers	4
	Pavers	1
	Paving Equipment	2
	Rollers	1
	Tractors/Loaders/Backhoes	1
Building Construction (Commercial/Mixed Use	Cranes	1
	Generator Sets	1
	Forklifts	3
	Tractors/Loaders/Backhoe s	3
	Welders	1

SOURCE: URBEMIS 2007 V 9.2.4 Phase Assumptions (see *Appendix I*).

In addition to the heavy construction equipment identified above, construction material delivery truck and worker trips and architectural coatings were calculated for all relevant construction phases based on URBEMIS 2007 defaults. *Table 5.10-8, Estimated Maximum Daily Construction Emissions*, provides a summary of the emission estimates for the construction phase of the proposed project. Refer to *Appendix I* for detailed emission calculations.

Table 5.10-8
Estimated Maximum Daily Construction Emissions (lbs/day)

	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Year 2011						
2011 Daily Maximum	2.86	23.49	12.93	0.00	36.58	8.48
Significance Criteria	75	100	550	150	150	55

Table 5.10-8 (Continued)

	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Potentially Significant?	No	No	No	No	No	No
Year 2012						
2012 Daily Maximum	2.72	22.00	12.42	0.00	36.48	8.38
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2013						
2013 Daily Maximum	12.54	29.79	72.64	0.10	2.23	1.79
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2014						
2014 Daily Maximum	12.07	27.22	68.23	0.10	2.05	1.62
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2015						
2015 Daily Maximum	11.65	24.66	64.10	0.10	1.93	1.51
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2016						
2016 Daily Maximum	715.50	20.52	48.58	0.08	14.92	3.66
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2017						
2017 Daily Maximum	15.17	18.74	45.98	0.08	1.42	1.10
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2018						
2018 Daily Maximum	7.37	29.81	57.75	0.08	21.85	4.99
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2019						
2019 Daily Maximum	**79.98**	27.26	55.73	0.08	1.80	1.35
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	**YES**	No	No	No	No	No
Year 2020						
2020 Daily Maximum	4.61	13.62	34.06	0.06	0.99	0.75
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2021						
2021 Daily Maximum	4.38	12.67	28.00	0.06	0.97	0.73
Significance Criteria	75	100	550	150	150	55

Table 5.10-8 (Continued)

	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Potentially Significant?	No	No	No	No	No	No
Year 2022						
2022 Daily Maximum	4.38	12.67	28.00	0.06	0.97	0.73
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2023						
2023 Daily Maximum	4.38	12.67	28.00	0.06	0.97	0.73
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2024						
2024 Daily Maximum	6.30	11.17	16.31	0.03	11.11	2.67
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2025						
2025 Daily Maximum	6.30	9.36	16.31	0.03	0.62	0.49
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2026						
2026 Daily Maximum	6.24	9.17	14.75	0.03	0.61	0.49
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2027						
2027 Daily Maximum	6.24	9.17	14.75	0.03	0.61	0.49
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2028						
2028 Daily Maximum	6.24	9.17	14.75	0.03	0.61	0.49
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2029						
2029 Daily Maximum	5.91	9.26	15.42	0.03	0.64	0.50
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2030						
2030 Daily Maximum	5.91	9.26	15.42	0.03	0.64	0.50
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2031						
2031 Daily Maximum	5.88	9.16	14.38	0.03	0.63	0.50
Significance Criteria	75	100	550	150	150	55

Table 5.10-8 (Continued)

	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Potentially Significant?	No	No	No	No	No	No
Year 2032						
2032 Daily Maximum	5.88	9.16	14.38	0.03	0.63	0.50
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No
Year 2033						
2033 Daily Maximum	5.88	9.16	14.38	0.03	0.63	0.50
Significance Criteria	75	100	550	150	150	55
Potentially Significant?	No	No	No	No	No	No

SOURCE: URBEMIS 2007 Version 9.2.4 Appendix I for calculations.
NOTES: These estimates reflect control of fugitive dust required by Rule 403. Emissions in bold represent the maximum pollutant emissions that would occur over any day during the construction for the specific year and that would exceed the significance thresholds

Ground disturbances and equipment operation during construction activities would produce potentially significant short-term PM_{10} and $PM_{2.5}$ emissions. Implementation of the proposed project would generate construction-related air pollutant emissions from two general activity categories, entrained dust and vehicle emissions. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Vehicle exhaust results from internal combustion engines used by construction equipment and vehicle which results in emissions of NO_x, VOCs, CO, PM_{10}, and $PM_{2.5}$.

As shown in the preceding table, maximum construction-generated PM_{10} emissions of 36.58 pounds per day would be below the SCAQMD's quantitative significance threshold of 150 pounds per day. $PM_{2.5}$ maximum daily emissions of 8.48 lbs/day would also be below the established threshold of 55 pounds per day. Although such fugitive dust would be short term and would only last during the duration of grading activity, such PM_{10} and $PM_{2.5}$ emissions could be considered problematic since they could cause a public nuisance or further exacerbate the existing PM_{10} nonattainment situation in the SCAB. During construction, the project would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the SCAQMD, but does not require a permit for construction activities. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) such that the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source. SCAQMD Rule 403 also prohibits a construction site from causing an incremental PM_{10} concentration impact at the property line of more than 50 micrograms per cubic meter as determined through PM_{10} high-volume sampling, but the concentration standard and associated PM_{10} sampling do not apply if specific measures identified in the rule are implemented and appropriately documented. In order to reduce potential PM_{10} impacts and fugitive dust emissions, mitigation is recommended (see *Section 5.10.5, Mitigation*

Measures, Mitigation Measure 5.10-a). Without mitigation, however, air quality impacts related to anticipated PM_{10} emission levels during construction would be considered less than significant.

The application of architectural coatings (exterior/interior paint and other finishings) would produce VOC emissions that would exceed the SCAQMD's established quantitative significance threshold. As indicated above in *Table 5.10-8*, maximum construction-generated VOC emissions in 2019 would exceed the 75 lbs/day significance threshold. In order to reduce these potential impacts, mitigation is provided (see *Section 5.10.5, Mitigation Measures*, Mitigation Measure 5.10-c). Although mitigation is provided, these impacts would not be reduced to a level below significance; therefore, the construction phase of the project would result in significant, unmitigable air quality impacts due to anticipated VOC emission levels.

Operational Impacts

Operations of the project would produce VOC, NO_x, CO, SO_x, PM_{10} and $PM_{2.5}$ emissions from all combined proposed residential and nonresidential project land uses, including vehicular traffic, space heating and cooling, water heating, and consumer products.

Specifically, the proposed project would impact air quality through the vehicular traffic generated by project residents, visitors, customers and employees. According to the project's traffic analysis (see *Section 5.9, Transportation, Circulation, and Access*), total project-generated daily traffic is estimated to be 27,166 trip-ends per day. The URBEMIS 2007 model was utilized to estimate daily emissions from proposed vehicular sources (refer to *Appendix I*, which includes the data and assumptions used to generate emissions information summarized within this section for both the summer and winter seasons). URBEMIS 2007 default data, including temperature, trip characteristics, variable start information, emission factors, and trip distances, were conservatively used for the model inputs. Project-related traffic (identified above) was assumed to be comprised of a mixture of vehicles in accordance with the model outputs for traffic. This assumption includes light-duty autos and light-duty trucks (i.e., small trucks, SUVs, and vans) as well as medium- and heavy-duty vehicles that may be traveling within the project area to make deliveries or as business customers with larger vehicles. Emission factors representing the vehicle mix and emissions for the year 2017 and 2020 were used to estimate emissions. The year 2017 would be an intermediate year of development, and 2020 was assumed to be the year of full occupancy/operation. It is expected that project emissions would decrease on an annual basis from 2020 onward due to phase-out of higher polluting vehicles and implementation of more stringent emission standards.

In addition to estimating mobile source emissions, the URBEMIS 2007 model was also used to estimate emissions from the project area sources, which include natural gas appliances, natural-

gas burning fireplaces, gas-powered landscape maintenance equipment, architectural coatings, and consumer products. It should be noted that as specific operational characteristics of the proposed business park and retail uses are presently unknown, associated process activity emissions for any specific uses cannot be estimated at this time. However, if these emissions were substantial, they may require further CEQA analysis and would fall under the jurisdiction of the SCAQMD air permit process which would require the application of standard mitigation measures and permit conditions and/or emission offsets to ensure that any proposed stationary emissions remain less than significant. The present estimation of proposed operational emissions is based upon typical business park and commercial uses for this type of project, and the analysis is considered a reliable estimate of the project's likely emissions.

Table 5.10-9, Summary of Estimated Phase I + Phase II + Phase III Operational Air Pollutant Emissions, presents the maximum daily emissions associated with partial build-out of the proposed project during the year 2023. Details of the emission calculations are provided in *Appendix I*.

Table 5.10-9
Summary of Estimated Phase I + Phase II + Phase III Operational Air Pollutant Emissions (lbs/day)

	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer 2023						
Area Source Emissions	66.72	18.88	59.98	0.00	0.16	0.16
Vehicular Emissions	66.40	63.97	632.97	1.27	207.40	40.36
Total	**133.12**	**82.85**	**689.95**	**1.27**	**204.56**	**40.52**
Significance Criteria	55	55	550	150	150	55
Significant?	**YES**	**YES**	**YES**	NO	**YES**	NO
Winter 2023						
Area Source Emissions	58.70	25.49	11.59	0.05	0.61	0.60
Vehicular Emissions	66.22	75.82	599.76	1.06	207.40	40.36
Total	**124.92**	**102.31**	**611.35**	**1.11**	**208.01**	**40.96**
Significance Criteria	55	55	550	150	150	55
Significant?	**YES**	**YES**	**YES**	NO	**YES**	NO

Source: URBEMIS 2007 V 9.2.4
The URBEMIS2007 year options for operational emissions modeling are in five-year increments, starting in 2020. As such, the year 2020 was utilized in the model to represent year 2023, which is a conservative approach.

As shown in *Table 5.10-9*, operation of Phase I, Phase II, and Phase III of the proposed project would exceed SCAQMD established thresholds for VOC, NO_x, CO, and PM_{10}.

The peak daily emissions predicted for the both the summer and winter season in the project's full buildout of operation (2033) are summarized in *Table 5.10-10, Summary of Estimated Full*

Buildout Operational Air Pollutant Emissions, along with a comparison with the SCAQMD's significance criteria. Details of the emission calculations are provided in *Appendix I*.

Table 5.10-10
Summary of Estimated Full Buildout Operational Air Pollutant Emissions (lbs/day)

	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer 2033						
Area Source Emissions	71.01	23.75	67.19	0.00	0.19	0.19
Vehicular Emissions	81.80	66.55	739.26	2.20	355.79	69.09
Total	**152.81**	**90.30**	**806.45**	**2.20**	**355.98**	**69.28**
Significance Criteria	55	55	550	150	150	55
Significant?	**YES**	**YES**	**YES**	NO	**YES**	**YES**
Winter 2033						
Area Source Emissions	62.50	30.27	15.61	0.05	0.62	0.61
Vehicular Emissions	86.63	79.94	703.95	1.81	355.79	69.09
Total	**149.13**	**110.21**	**719.56**	**1.86**	**356.41**	**69.70**
Significance Criteria	55	55	550	150	150	55
Significant?	**YES**	**YES**	**YES**	NO	**YES**	**YES**

SOURCE: URBEMIS 2007 V 9.2.4
The URBEMIS2007 year options for operational emissions modeling are in five-year increments, starting in 2020. As such, the year 2030 was utilized in the model to represent year 2033, which is a conservative approach.

As shown in the preceding table, the projected operational emissions from both area source and vehicular emissions are substantially above the SCAQMD significance criteria for all pollutants except SO_x. This would represent a significant impact with regard to operation of the project, and therefore, mitigation would be required (see *Section 5.10.5, Mitigation Measures*, Mitigation Measure 5.10-d). Even with implementation of Mitigation Measure 5.10-d, long-term operational air quality impacts would be considered significant and unmitigable.

Mobile source impacts occur basically on two scales of motion. Regionally, project-related travel will add to regional trip generation and increase the vehicle miles traveled (VMT) within the local airshed. Locally, project traffic will be added to the San Jacinto roadway system near the project area. If such traffic occurs during periods of poor atmospheric ventilation, is comprised of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of micro-scale air pollution CO "hot spots" in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, regional air pollution "hot spot" potential is steadily decreasing.

Projects involving adverse traffic impacts may result in the formation of CO hot spots. To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hot spots was conducted. The project's Traffic Impact Study (refer to *Section 5.9, Transportation, Circulation, and Access*) evaluated whether or not there would be a decrease in the level of service at the intersections affected by the project. The potential for CO hot spots was evaluated based on the results of the traffic study. The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) was followed.

In accordance with the Protocol, CO hot spots are typically evaluated when: 1) the level of service (LOS) of an intersection or roadway decreases to a LOS E or worse; 2) signalization and/or channelization is added to an intersection; and 3) sensitive receptors such as residences, commercial developments, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment.

The project traffic study evaluated 16 intersections in the project vicinity to evaluate project build-out/General Plan build-out LOS (2033). The traffic study assumed the implementation of a number of traffic improvements which reduce and/ or maintain traffic levels of services at 11 out of the 16 identified study intersections at LOS D or above under the General Plan build-out scenario (refer to *Section 5.9, Transportation, Circulation, and Access* for specific data).

Although the remaining 5 intersections would operate at unacceptable level of service under the project build-out/General Plan build-out condition, the County of Riverside and Riverside County Transportation Commission (RCTC) have yet to define the future design configurations for these regional intersections under General Plan Buildout conditions. Although it may be reasonable to assume that RCTC will complete the design and implementation of these regional interchange improvements prior to project/General Plan build-out, which the applicant will fund in part through payment of appropriate mitigation fees [Western Riverside County Transportation Uniform Mitigation Fee (TUMF) and City of San Jacinto Traffic Fees], and that these regional improvements would operate at an LOS D or above; until such time as these improvements are planned and funded, CO hotspot impacts must be assumed to occur at these intersections. This would represent a significant impact with regard to cumulative operation of the project and therefore, mitigation would be required (see *Section 5.10.5, Mitigation Measures,* Mitigation Measure 5.10-e). Even with implementation of Mitigation Measure 5.10-e, long-term operational air quality impacts would be considered significant and unmitigable.

Health Impacts of Criteria Air Pollutants Emissions

The construction of the proposed project would result in VOC emissions that exceed the SCAQMD mass-emission thresholds; all other criteria pollutants were found to be less than significant. Specific VOCs may be toxic air contaminants; however, the specific VOCs

associated with project construction are unknown. Some VOC would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would result in the exceedances of the SCAQMD threshold as shown in *Table 5.10-8*. Generally, the VOCs in architectural coatings are of relatively low toxicity. In addition, VOCs are a precursor to ozone, for which the SCAB is designated as nonattainment with respect to the NAAQS and CAAQS. Thus, existing ozone levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with ozone, as discussed in *Section 5.10.2*, are generally associated with reduced lung function. The contribution of VOCs to regional ambient ozone concentrations is the result of complex photochemistry. The increase in ozone concentrations in the SCAB due to ozone precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive ozone concentrations also would depend on the time of year that the VOC emissions would occur because exceedances of the ozone AAQS tend to occur between April and October when solar radiation is highest. The effect of a single project's emissions of ozone precursor is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC emissions associated with project construction could contribute to regional ozone concentrations and the associated health impacts.

According to the LST analysis, the construction of the proposed project could contribute substantially to exceedances of the NAAQS and CAAQS for PM_{10} and $PM_{2.5}$. As described in *Section 5.10.2*, PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and aggravate health problems such as asthma. For the proposed project, the possibility of impacting nearby receptors depends on the presence of receptors at neighboring parcels and their proximity to active construction areas. Currently, the project site is surrounded by agricultural uses rather than existing neighborhoods. An existing residence is located approximately 500 feet southeast of the southeast corner of the project site. Furthermore, the primary source of PM_{10} and $PM_{2.5}$ emissions would be mass grading of the project site, followed by fine grading of the residential and commercial/mixed-use phases. These operations are relatively short-term and would be well controlled to comply with SCAQMD Rule 403 (e.g., no visible dust may leave the construction site). Accordingly, it is expect that any potential increases in health impacts associated with PM_{10} and $PM_{2.5}$ would be minor and temporary.

During operation of the proposed project, the emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ would exceed the SCAQMD mass-emission thresholds. The VOC and NO_x emissions, as described above, would contribute to regional ozone concentrations and the associated health effects. In addition to ozone, NO_x contributes to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in *Table 5.10-4*, the existing NO_2 concentrations are well below the NAAQS and CAAQS. Thus, it is not expected the project's NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO "hot spots" were

discussed previously as a significant and unavoidable impact after mitigation. Thus, the project's CO emissions may contribute to the health effects associated with this pollutant, which include impairments to central nervous system functions. The PM_{10} and $PM_{2.5}$ emissions during operation would result primarily from fugitive road dust and, to a lesser extent, motor vehicle exhaust. Thus, the emissions would be dispersed throughout the project area and not confined to specific locations that would result in localized impacts to receptors. The PM_{10} and $PM_{2.5}$ would contribute to the regional exceedances of the NAAQS and CAAQS and the associated health effects for these pollutants.

Would the project violate any air quality standard or contributes substantially to an existing or projected air quality violation?

As indicated in the discussion of the thresholds of significance, the SCAQMD also recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project site. The impacts were analysis using methods consistent with those in the SCAQMD's *Final Localized Significance Threshold Methodology* (SCAQMD 2008). The Industrial Source Complex – Short Term, Version 3 (ISCST3) air quality dispersion model was used for the analysis. ISCST3 is approved for use by the SCAQMD for the purposes of performing an LST analysis. Details of the LST analysis are described in *Appendix I*.

Table 5.10-11, LST Modeling Results, shows the maximum NO_2, CO, PM_{10}, and $PM_{2.5}$ concentrations associated with the proposed project at sensitive receptors in the vicinity of the project site. The values shown in these tables are the maximum results associated with the construction phase and activity producing the highest impacts.

Table 5.10-11
LST Modeling Results

Pollutant	Averaging Period	Modeling Results		LST Criteria		Exceeds Threshold?
		µg/m³	ppm	µg/m³	ppm	
Nitrogen Dioxide (NO_2)	1 hour	12.2	0.01	244	0.13	NO
Carbon Monoxide (CO)	1 hour	115	0.10	17,165	15	NO
Carbon Monoxide (CO)	8 hours	48	0.04	6,065	5.3	NO
Respirable Particulate Matter (PM_{10})	24 hours	70.4	NA	10.4	NA	**YES**
Fine Particulate Matter ($PM_{2.5}$)	24 hours	15.7	NA	10.4	NA	**YES**

As shown in *Table 5.10-11*, the project impacts on NO_2 and CO concentrations would not cause or contribute to exceedances of the CAAQS. The maximum 24-hour PM_{10} and $PM_{2.5}$ concentrations are anticipated to exceed the LST at the maximally impacted sensitive receptor in

the vicinity of the project site. Thus, construction of the proposed project would result in significant air quality impacts during the construction phase.

Would the project create objectionable odors affecting a substantial number of people?

Odors are a form of air pollution that is most obvious to the general public. Odors can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern. During the construction period, the potential odors associated with the proposed project would result from the application of asphalt, from diesel and gas fumes, and from the application of paint. Due to the temporary nature of construction and the relatively sparse population surrounding the project site (i.e., mostly agricultural fields), temporary odors associated with project construction would be considered less than significant.

During the operational phase of the proposed project, anticipated odors would be generated from cooking facilities and landscape/building maintenance. In general, these odors are not considered to create a significant nuisance and it is not likely that these odors would cause a significant impact to surrounding receptors. Nevertheless, if specific businesses within the proposed commercial component of the project are identified and specific permits are requested for uses that could cause a significant impact, the City of San Jacinto may further evaluate odor emissions from such uses to determine if additional environmental review is warranted at that time. In addition to these potential odor sources, the proposed project would incorporate a detention basin that will collect the runoff that emanates from offsite and onsite areas and will serve as a regional water quality facility for the project. Proper maintenance of the detention basin including periodic cleaning and maintaining aerobic conditions should alleviate the potential for the collected water to generate objectionable odors. At this time, however, long-term operational impacts associated with project-generated odors would be considered less than significant.

The project site is bordered by undeveloped agricultural land to the north (and future westward extension of Ramona Boulevard), Sanderson Avenue to the east, Odell Avenue to the west, and undeveloped agricultural land and a municipal wastewater treatment plant to the south (see *Figure 3.3, Project Location Map*). Land uses in the project area consist of agricultural operations including sod farms, dry farming, animal grazing pastures and dairies. Although several parcels within the project vicinity are in the process of being developed with residential subdivisions and/or commercial centers, project residents, employees, and/or customers may be subjected to noticeable odors associated with standard agricultural operations (fertilizers, pesticides, etc.) and/or odors associated with the wastewater treatment plant (WWTP) operations to the south. The odors associated with agriculture are often characterized as having a heavy, pungent nitrogen smell, while the odors associated with the WWTP can at times (particularly in hotter conditions) smell rotten and sulfuric in character. Odors would likely be most pronounced

on days when hot temperatures are experienced and/or gusts of winds occur. Given the proximity of the project to off-site odor sources, the project could result in odor nuisance complaints. As a part of the proposed project specific plan, the applicant has agreed to incorporate setbacks, fencing, and vegetative screening to protect and/or screen sensitive project receptors. Potential off-site odor impacts would, therefore, be considered less than significant.

Would the project expose sensitive receptors to substantial pollutant concentrations?

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. Although not anticipated at this time, if a business/commercial use is subsequently proposed that would involve potential TACs that require air permits, such permits would be subject to SCAQMD health risk assessment and public notification requirements. The SCAQMD permit requires the application of appropriate safeguards to ensure the public safety. If specific permits are requested for uses that could create TACs, the City of San Jacinto may further evaluate the project to determine if additional environmental review is warranted at that time. At this time, however, long-term operational impacts associated with toxic air contaminants are considered less than significant.

CARB has published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005), which identifies certain types of facilities or sources that may emit substantial quantities of TACs and therefore could conflict with sensitive land uses, such as "schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities." The *Air Quality and Land Use Handbook* is a guide for siting of new sensitive land uses, but it does not mandate specific separation distances to avoid potential health impacts. The enumerated facilities or sources include:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

CARB recommends that sensitive receptors not be located downwind or in proximity to such sources to avoid potential health hazards.

With the possible exception of dry cleaners, the proposed project would not include these types of TAC sources on site. (New dry cleaners in the SCAQMD are prohibited from using perchloroethylene, a TAC; thus, siting of a dry cleaner within the proposed project would not result in TAC emissions). Moreover, the proposed project's residential uses, parks, or the potential high school would not be located in proximity to any of these listed sources off site. Accordingly, the proposed project would not generate substantial TAC emissions that would conflict with surrounding sensitive receptors nor expose the project's inhabitants to TAC emissions from these sources.

Would the project could impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32?

Quantification of GHG Emissions

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) published *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. This white paper is "intended as a resource, not a guidance document. It is not intended, and should not be interpreted, to dictate the manner in which an air district or lead agency chooses to address greenhouse gas emissions in the context of its review of projects under CEQA" (CAPCOA 2008). This document describes analytical methodologies for estimating direct (mobile and area sources) and indirect (electrical and water/wastewater utilities) GHG emissions associated with a development project. For the most part, the calculation methods described below are consistent with this guidance as well as the OPR technical advisory (OPR 2008).

Construction GHG Emissions

Emissions from Construction Equipment and Vehicles

Construction of the proposed project would result in GHG emissions, which are primarily associated with use of off-road construction equipment and vehicles and on-road construction and worker vehicles. The URBEMIS 2007 model was used to calculate the annual CO_2 emissions based on the construction scenario described in *Section 5.10.4*. The model results were adjusted to estimate methane (CH_4) and nitrous oxide (N_2O) emissions in addition to CO_2. The CO_2 emissions from off-road equipment and vehicles and delivery trucks, which are assumed by URBEMIS 2007 to be diesel fueled, were adjusted by a factor derived from the relative CO_2, CH_4, and N_2O for diesel fuel as reported in the California Climate Action Registry's (CCAR) *General Reporting Protocol* (CCAR 2009) for transportation fuels and the GWP for each GHG. The CO_2 emissions associated with construction worker trips were multiplied by a factor based on the assumption that CO_2 represents 95% of the CO_2E emissions associated with passenger vehicles (EPA 2005). The results were then converted from annual tons per year to metric tons

per year. As shown in *Table 5.10-12, Estimated Annual Construction Emissions of Greenhouse Gases*, the maximum GHG emissions during construction would range from 29 metric tons of emissions per year (expressed as CO_2 equivalent) to 1,771 metric tons per years, peaking in 2014 and 2015. Additional detail regarding these calculations is found in *Appendix I*.

Table 5.10-12
Estimated Annual Construction Emissions of Greenhouse Gases

Construction Year	Metric Tons CO_2E/Year
2011	29
2012	335
2013	1,644
2014	1,771
2015	1,771
2016	859
2017	1,406
2018	953
2019	1,707
2020	1,208
2021	1,204
2022	1,204
2023	1,201
2024	483
2025	647
2026	647
2027	647
2028	647
2029	693
2030	693
2031	693
2032	695
2033	693

Emissions from Release of Methane from Disturbed Soil During Construction

The project site included a former 20-acre cattle operation. If manure from this operation remained on the site and were buried where it could undergo anaerobic decomposition and generate methane (a GHG), methane could be released to the atmosphere during subsurface operations such as excavation. Surface or near surface deposits of manure would undergo aerobic decomposition, which does not generate methane. However, according to the Phase I environmental site assessment (*Appendix L*), the manure was removed from the site for use as fertilizer. Mitigation Measure 5.13-a in *Section 5.13, Hazards*, addresses the potential for

methane releases from the former cattle operation. Methane investigations would take place and in the event that methane is detected in this area, installation of mitigation mechanisms to collect methane would occur in accordance with the most recent Riverside County Department of Environmental Health's preliminary methane investigation protocols.

Operational GHG Emissions

Development of the proposed project would result in the generation of GHGs, primarily CO_2. The project includes features that would reduce the generation of GHG relative to a project developed without these features. The latter scenario is described as "business-as-usual" in the following discussion. The following sections discuss the calculations of GHG emissions resulting from the primary sources of GHGs associated with the operation of the proposed project at full buildout in 2033.

Emissions from Motor Vehicles

Annual CO_2 emissions from motor vehicle trips for full project buildout in 2033 were quantified using the URBEMIS 2007 model. As described above for construction worker vehicles, CH_4 and N_2O emissions were accounted for by multiplying the URBEMIS 2007 CO_2 emissions by a factor based on the assumption that CO_2 represents 95% of the CO_2E emissions associated with passenger vehicles (EPA 2005). The business-as-usual scenario assumes that the project would be developed with single-family residential only. The commercial and mixed-use development was assumed to be developed at a different, noncontiguous location. Accordingly, the adjustment of the trip generation for "internal capture" (also referred to as "double counting") would not occur. To generate the business-as-usual emissions associated with motor vehicles, the URBEMIS 2007 model was run without an adjustment for double counting. The estimated GHG emissions from motor vehicles under the business-as-usual scenario are shown in *Table 5.10-13, Estimated Business-As-Usual Operational Emissions of Greenhouse Gases*. The estimated GHG emissions from motor vehicles under the proposed project scenario are shown in *Table 5.10-14, Estimated Proposed Project Operational Emissions of Greenhouse Gases* Additional details regarding these calculations are found in *Appendix I.*

Emissions from Natural Gas Combustion and Landscape Maintenance

Annual CO_2 emissions from natural gas combustion for space and water heating and gas fireplaces (new wood-burning devices are prohibited in the SCAB) were estimated using URBEMIS 2007. The CO_2 emissions were adjusted by a factor derived from the relative CO_2, CH_4, and N_2O for natural gas as reported in the CCAR's *General Reporting Protocol* (CCAR 2009) for stationary combustion fuels and their GWPs. Implementation of the Specific Plan's Energy Efficiency Guidelines would likely result in a reduction in the GHG emissions from natural gas usage. However, those emission reductions cannot be quantified because the

Guidelines do not provide sufficient detail to compute the reduction in natural gas usage. The estimated GHG emissions from natural gas combustion are shown in *Tables 5.10-13* and *5.10-14* under the business-as-usual and proposed project scenarios, respectively. Additional details regarding these calculations are found in *Appendix I.*

URBEMIS 2007 estimates the CO_2 emissions associated with use of landscape maintenance equipment. The contribution from this source category is very small; thus, it was assumed that the CO_2 emissions account for all of the GHG emissions.

Emissions from Electricity Use

Annual electricity use was based upon the SCAQMD's estimated generation rates for the land uses of the proposed project (SCAQMD 1993). Development of the proposed project at buildout would consume approximately 16,323,400 kilowatt-hours per year (see *Appendix I* for calculations). The generation of electricity through combustion of fossil fuels typically results in emissions of CO_2 and to a smaller extent CH_4 and N_2O. Annual electricity emissions were estimated using the reported CO_2 emissions per kilowatt-hour for Southern California Edison, which would provide electricity for the project (CCAR 2009).[5] The contributions of CH_4 and N_2O for powerplants in California were obtained from the CCAR's *General Reporting Protocol*, which were adjusted for their GWPs. Implementation of the Specific Plan's Energy Efficiency Guidelines would likely result in a reduction in the GHG emissions associated with electrical use and generation. However, those emission reductions cannot be quantified because the Guidelines do not provide sufficient detail to compute the reduction in electrical usage. *Tables 5.10-13* and *5.10-14* show the estimated emissions of GHGs associated with electrical use under the business-as-usual and proposed project scenarios, respectively. Additional details regarding these calculations are found in *Appendix I.*

Emissions from Water Supply and Wastewater Treatment

Water supplied to the proposed project is a large user of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions. The GHG emissions associated with water supply were based on the estimated water usage by the proposed project (RBF 2005), the estimated electrical usage associated with supply, conveyance, treatment, and distribution of water (CEC 2006), and the same methodology as that for the project's electrical use. The business-as-usual scenario assumes that all of the project water would be provided as potable water from EMWD, while the proposed project would use reclaimed water from EMWD's San Jacinto wastewater treatment plant. *Tables 5.10-13 and*

[5] The GHG emission factor for Southern California Edison will be substantially lower in 2033 due to compliance with SB 107, SB 1368, and measures adopted under AB 32 to increase the renewable energy portfolio for utilities.

5.10-14 show the estimated GHG emissions associated with water provided to the project users under the business-as-usual and proposed project scenarios, respectively.

Similarly, wastewater treatment requires electricity and would generate its own GHG emissions. According to the *Local Governmental Operations Protocol* (CARB et al. 2008), CH_4 emissions are associated with unburned digester gas (which contains CH_4) and N_2O is associated with some types of wastewater treatment and discharged to aquatic environments. The electrical usage associated with wastewater treatment was estimated using the same references as those for water supply (RBF 2005 and CEC 2006). The population-based estimates from the *Local Governmental Operations Protocol* were used to estimate CH_4 and N_2O emissions from wastewater treatment processes.

Tables 5.10-13 and *5.10-14* show the estimated emissions of GHGs associated with water supply and wastewater treatment under the business-as-usual and proposed project scenarios, respectively. Additional details regarding these calculations are found in *Appendix I.*

Table 5.10-13 lists the operational emission sources of GHGs for the proposed project. The project is estimated to result in GHG emissions of approximately 49,650 metric tons CO_2E. While the proposed project would result in emissions of GHGs, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally the case that an individual project is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). Accordingly, further discussion of the project's GHG emissions and their impact on global climate are addressed in *Section 6*.

Table 5.10-13
Estimated Business-As-Usual Operational Emissions of Greenhouse Gases

Source	Metric Tons CO_2E/Year	Percent of Total
Motor Vehicles	43,181	75.13
Area Sources		
Natural Gas Combustion	4,814	8.29
Hearth Combustion	19	0.03
Electrical Generation	4,694	8.17
Water Supply	4,340	7.55
Wastewater Treatment	429	0.75
Year 2033 Totals	**57,478**	**100.00%**

Table 5.10-14
Estimated Proposed Project Operational Emissions of Greenhouse Gases

Source	Metric Tons CO_2E/Year	Percent of Total
Motor Vehicles	36,488	73.49
Area Sources		
Natural Gas Combustion	4,814	9.70
Hearth Combustion	19	0.04
Electrical Generation	4,694	9.46
Water Supply	3,056	6.16
Recycled Water Supply	147	0.30
Wastewater Treatment	429	0.86
Year 2033 Totals	**49,648**	**100.00%**

Comparing the results in *Tables 5.10-3* and *5.10-14*, the proposed project would result in a GHG emission reduction of 7,830 metric tons CO_2E per year (14%) relative to the business-as-usual scenario. Implementation of the Specific Plan's Energy Efficiency Guidelines would provide additional benefits in terms of reduced natural gas and electrical usage and the associated GHG emissions. However, those emission reductions cannot be quantified because the Guidelines do not provide sufficient detail to compute the reduction in energy usage.

5.10.5 Mitigation Measures

Construction

5.10-a Consistent with SCAQMD Rule 403, it is required that fugitive dust generated by grading and construction activities be kept to a minimum with a goal of retaining dust on the site, by following the dust control measures listed below:

a) During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

b) During construction, water truck or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas later in the morning and after work is completed for the day and whenever winds exceed 15 miles per hour.

c) Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

d) Reduce speeds on unpaved roads to less than 15 miles per hour.

e) Halt all grading and excavation operations when wind speeds exceed 25 miles per hour.

f) Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadways shall be swept, vacuumed, and/ or washed at the end of each workday.

g) Should minor import/export of soil materials be required, all trucks hauling dirt, sand, soil, or other loose material to and from the construction site shall be tarped and maintain a minimum two feet of freeboard.

h) At a minimum, at each vehicle egress from the project site to a paved public road, install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long (or as otherwise directed by SCAQMD).

i) Review and comply with any additional requirements of SCAQMD Rule 403.

5.10-b The following shall be adhered to during project grading and construction to reduce VOC, NOx, and CO from construction equipment:

a) Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) shall be utilized.

b) The engine size of construction equipment shall be the minimum size.

c) The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest number is operating at any on time.

d) Construction equipment shall be maintained in tune per the manufacturer's specifications.

e) Catalytic converters shall be installed on gasoline-powered equipment.

f) Diesel catalytic converters shall be installed.

g) Diesel powered equipment shall be utilized in lieu of electric equipment.

5.10-c The project developer shall use zero-Volatile Organic Compounds (VOC)-content architectural coatings during project construction/ application of paints and other architectural coatings to reduce ozone precursors. If zero-VOC paint cannot be utilized, developer shall avoid application of architectural coatings during the peak smog season: July, August, and September. Developer shall procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings).

The following websites provide information/ lists of manufacturers related to zero-VOC content coatings:

http://www.aqmd.gov/prdas/brochures/paintguide.html

http://www.delta-institute.org/publications/paints.pdf

http://www.cleanaircounts.org/factsheets/FS%20PDF/Low%20VOC%20Paint.pdf

Operational

Substantial reductions in emissions from proposed land use-related sources would be difficult, as these sources would mainly be low-emitting, natural gas-fired units. Nonetheless, optimization of energy conservation techniques in proposed building design would minimize emissions resulting from lighting and space heating demands and help reduce the overall project significant impact of ROG and NO_x emissions. To help mitigate for operational impacts, the following shall occur.

5.10-d The applicant shall incorporate the following energy conservation measures into project building plans:

- Install low NO_x water heaters and space heaters
- Install heat transfer modules in furnaces
- Use light-colored, water-based paint and light-colored roofing materials to the satisfaction of the City.
- Install solar panels for water heating systems and other facilities and/or use water heaters that heat water only on demand.
- Use passive solar cooling/heating.
- Maximize the use of natural lighting.
- Install energy efficient appliances and lighting.
- Use landscaping to shade buildings and parking lots.

In addition to the above area source mitigations/required site design features, the following mitigation measures are required in order to minimize long-term vehicular impacts:

- Provide preferential parking spaces for employee carpools and vanpools in the commercial and business park land uses.
- Install covered bus stops to encourage use of mass transportation.
- Coordinate with the local transit agency to provide public transit to the project site.

- Develop, in coordination with the City of San Jacinto, public outreach programs to promote alternative methods of transportation.

5.10-e To mitigate the traffic conditions that could result in potential CO "hotspots", the project applicant shall participate in funding off-site traffic improvements which are needed to serve cumulative future traffic conditions through payment of appropriate traffic mitigation fees (Riverside County TUMF and City of San Jacinto DIF fees). TUMF provides a key funding source for General Plan improvements within the project area, including the required improvements related to the Ramona Expressway. (It should be noted that this mitigation measure also appears as Mitigation Measure 5.9-e.)

5.10.6 Residual Impacts/ Level of Significance after Mitigation

Implementation of the above mitigation measures would help reduce construction impacts; however, significant unmitigable impacts would remain. Operational impacts related to on-site and off-site odors and toxic air contaminants would remain or be mitigated to less-than-significant levels with mitigation. The combined contribution of the project's area source and vehicular emissions would remain significant and unmitigable despite identified mitigation measures.

5.11 NOISE

5.11.1 Introduction and Methodology

The following evaluation and discussion of potential noise impacts associated with the Villages of San Jacinto project implementation has been prepared as a complete technical noise study by Dudek.

This technical noise section evaluates noise effects of the project, including potential impacts from current and future ambient noise levels upon proposed land uses as well as noise generation potential from proposed land uses and activities within the Villages of San Jacinto Specific Plan area. Noise generation sources from future implementation of the Specific Plan include traffic, school-related playground and sports activity, and mechanical equipment and exterior activities from commercial uses.

Terminology Used to Describe Sound

Please refer to *Appendix J* for detailed definitions of technical terms used in the description and evaluation of noise. The following descriptions are provided for direct reference in reviewing the information in this section.

Sound is defined as any pressure variation detected by the human ear. The preferred unit for measuring sound is the decibel (dB). The dB expresses the logarithmic ratio of the amount of energy radiating from a source in the form of an acoustic wave. Zero dB corresponds approximately to the threshold of healthy human hearing, while 120 to 140 dB correspond to an average person's threshold of pain.

The human ear is not equally responsive to all frequencies of the audible sound spectrum. An electronic filter is normally used when taking noise measurements that de-emphasizes certain frequencies in a manner that mimics the human ear's response to sound; this method is referred to as A-weighting. Sound levels expressed under the A-weighted system are sometimes designated dB(A). All sound levels discussed in this report are A-weighted.

The equivalent continuous sound level (L_{eq}) is a single noise level that, if held constant during the specified time period, would represent the same total energy as a fluctuating noise. L_{eq} values are commonly expressed for periods of 1 hour, but longer or shorter time periods may be specified.

The noise descriptor Community Noise Equivalent Level (CNEL) is typically used when describing community noise. CNEL averages the varying sound levels occurring over a 24-hour period and gives a 10 dB penalty to noises occurring between the hours of 10:00 p.m. and

7:00 a.m. and a 5 dB penalty for noise between the hours of 7:00 p.m. to 10:00 p.m., to take into account noise sensitivity during nighttime and evening hours, respectively.

Noise Criteria

General Plan Noise Element Criteria:

The City of San Jacinto has an adopted Noise Element in the City's General Plan (City of San Jacinto 2006). The City's Noise Element identifies the limits for "normally acceptable" exterior ambient noise levels at residential land uses to be 65 dB CNEL. Also, the Noise Element stipulates that the interior noise level not exceed 45 dB CNEL within the habitable rooms of residences.

The Noise Element also identifies 65 dB CNEL and 45 dB CNEL as the maximum exterior and interior noise levels (respectively) for commercial land uses such as office, retail, reception, and restaurant. For parks and recreation facilities, the exterior limit is also proposed to be 65 dB CNEL, but the interior noise level is proposed to be 50 dB CNEL for this land use category.

Noise sources that are not directly related to transportation, such as construction, manufacturing or business operations; agricultural operations; and property maintenance activities should be controlled to minimize exposure to excessive noise levels and reduce the impacts of noise-producing land uses and activities on noise-sensitive land uses.

Municipal Code Noise Ordinance Criteria:

The City's noise ordinance (City of San Jacinto 2008) provides controls for excessive and annoying noise from stationary sources, such as air conditioning and refrigeration units, industrial development, and commercial activities. The ordinance also regulates construction activities within the City. Certain noise sources are prohibited, and the ordinance establishes an enforcement process.

Relative to construction noise, it is unlawful to create and emit noise from equipment operated during construction activities, whether on private property or within the public right of way between the hours of 7:00 p.m. of one day and 7:00 a.m. of the following day, and at any time on Sunday. Such equipment includes, but is not limited to, trucks, road graders, tractors, power saws, power drills, and generators.

5.11.2 Existing Conditions

Project Setting

The project site is generally located south of Ramona Expressway and adjacent to the west side of North Sanderson Avenue in the City of San Jacinto. The primary existing noise source at the site is vehicular traffic along North Sanderson Avenue. The current average daily traffic (ADT) volumes on North Sanderson Avenue are provided in *Table 5.11-1, Existing Average Daily Traffic Volumes near Villages of San Jacinto.*

Table 5.11-1
Existing Average Daily Traffic Volumes near Villages of San Jacinto

Location	Existing ADT
Sanderson Avenue (north of Cottonwood Avenue)	13,700
Sanderson Avenue (south of Ramona Boulevard)	12,800

SOURCE: Urban Crossroads 2009

Ambient Noise Monitoring

Since the primary existing noise source affecting the property is North Sanderson Avenue, an original noise measurement was conducted within the subject property boundaries and adjacent to Sanderson Avenue to determine the existing noise level associated with Sanderson Avenue, and for use in calibrating the noise model. The measurement was made using a calibrated Larson-Davis Laboratories Model 700 (S.N. 2132) integrating sound level meter equipped with a Type 2551 one-half-inch pre-polarized condenser microphone with pre-amplifier. When equipped with this microphone, the sound level meter meets the current American National Standards Institute standard for a Type 1 precision sound level meter. The sound level meter was positioned at a height of approximately 5 feet above the ground.

The original noise measurement location is depicted as Site 1 on *Figure 5.11-1, Noise Measurement Locations.* Site 1 is approximately 62 feet from the center line of Sanderson Avenue and is at approximately the same elevation as the roadway surface. The measured average noise level was 67 dB at Site 1. *Table 5.11-2, Measured Average Sound Level at Villages of San Jacinto Site,* shows the measured noise level and concurrent traffic volumes.

To more fully characterize existing noise conditions on the project site, a series of additional noise measurements were conducted. These supplemental noise measurement locations are depicted as Sites A to D on *Figure 5.11-1, Noise Measurement Locations.* The measured average noise levels at Sites A to D are illustrated in *Table 5.11-2, Measured Average Sound Level at Villages of San Jacinto Site.* Traffic counts were not conducted during the supplemental noise

measurements, because the locations were at distances beyond the area influenced by existing traffic noise sources.

Table 5.11-2
Measured Average Sound Level at Villages of San Jacinto Site

Site	Description	Date/Time	L_{eq} [1]	Cars	MT [2]	HT [3]
1	Approximately 62 feet to center line of Sanderson Avenue	11/01/2004 1:00 p.m. to 1:20 p.m.	67 dB	208	10	13
A	At property boundary for parcel to the northwest	7/8/2009 11:30 a.m. to 11:45 a.m.	39 dB	N.A.	N.A.	N.A.
B	At future Cawston Avenue alignment, just north of future De Anza Drive	7/8/2009 11:55 a.m. to 12:10 p.m.	41 dB	N.A.	N.A.	N.A.
C	Along Ramona Avenue, at northwest corner of property	7/8/2009 12:20 p.m. to 12:35 p.m.	40 dB	N.A.	N.A.	N.A.
D	Along future Bridge Street, at midpoint of southeast property line	7/8/2009 12:55 p.m. to 1:10 p.m.	42 dB	N.A.	N.A.	N.A.

NOTES: Temperature 70°, clear sky, 2 miles-per-hour northerly wind (November 1, 2004)
Temperature 88°, clear sky, 5 miles-per-hour southwest wind (July 8, 2009)

[1] Equivalent continuous sound level (time-average sound level)

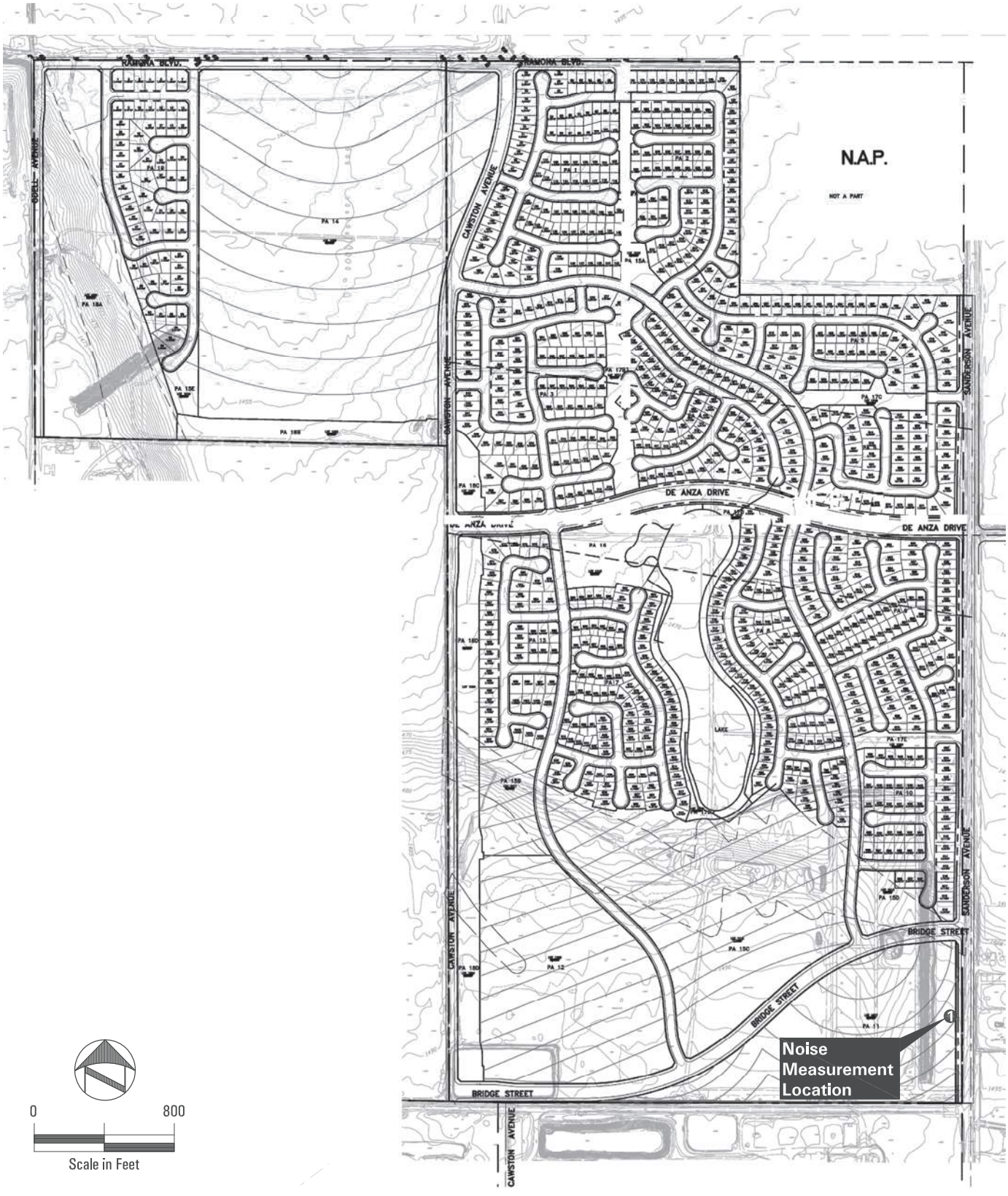
[2] Medium trucks

[3] Heavy trucks

Traffic Noise Modeling – Current Conditions

The existing CNEL along North Sanderson Avenue was determined based on the ambient noise measurement and using the current daily traffic volume for the road (with normalized medium and heavy truck percentages as provided by the County of Riverside) in the Federal Highway Administration's Highway Traffic Noise Prediction Model (FHWA 2004). For the current condition, the modeled CNEL at Site 1 is 72 dB (Dudek and Associates 2006). It should be noted that this noise level is in terms of the CNEL and not the L_{eq} as shown in *Table 5.11-2*.

The existing 65 dB CNEL contour from Sanderson Avenue within the Villages at San Jacinto project site is approximately 180 feet from the current center line of North Sanderson Avenue. The noise measurements conducted at interior portions of the site verify that most of the property is not directly affected by this traffic noise source, with average measured noise levels in the 39 – 42 dB range.



Source: C & V Consulting, Inc. Feb. 2009

Villages of San Jacinto EIR

Noise Measurement Location

FIGURE 5.11-1

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5.11.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on noise if it would result in:

1. The exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
2. The exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

5.11.4 Impacts

The project site would be exposed to existing and future traffic noise. Noise associated with the project would most likely result from project-generated traffic noise and noise from on-site commercial, school, and construction activities.

Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Traffic Noise Exposure

While only North Sanderson Avenue currently exists along the eastern boundary of the project site, the project site would eventually be served by three principal roadways oriented north/south and three principal roadways oriented east/west. The north/south roadways include Odell Avenue (western boundary), Cawston Avenue (central), and Sanderson Avenue (eastern boundary). The east/west roads include Ramona Boulevard South (northern boundary), De Anza Drive (central) and Bridge Street (southern boundary*). Figure 5.11-2, Noise Contours Associated with Future Roadways*, provides a graphical depiction of future roadway locations. These roadways are either on the boundary of the site or traverse the interior of the site and provide vehicular access from the site to the regional roadway network.

The public roadway system that abuts or traverses the site would carry project and regional traffic. To determine the future noise impact, City of San Jacinto General Plan build-out with project traffic volumes were used in the noise modeling (Urban Crossroads 2009). North Sanderson Avenue would have a future community build-out traffic volume ranging from 43,000

to 44,600 ADT adjacent to the project site. The other roadways would have future ADT volumes ranging up to 16,900 ADT along Ramona Boulevard; 6,800 ADT along Odell Avenue; 9,000 ADT along Cawston Avenue; 9,000 ADT along De Anza Drive and 7,000 ADT along Bridge Street. It should be noted that two new freeways, State Route 79 (SR 79) and Mid County Parkway (MCP) are currently in various planning stages. Detailed design drawings are not available for these two freeways. However, it is anticipated that the alignments of both freeways would be located at least 1,000 or more feet from the project site. As the area develops, there would be buildings and other structures that would most likely provide shielding between the freeways and the project site that would substantially attenuate the traffic noise. However, for the purposes of this study, it is conservatively assumed that the potential noise contribution from future SR 79 and MCP freeways would be 60 dB CNEL at the north and east boundaries of the project site.

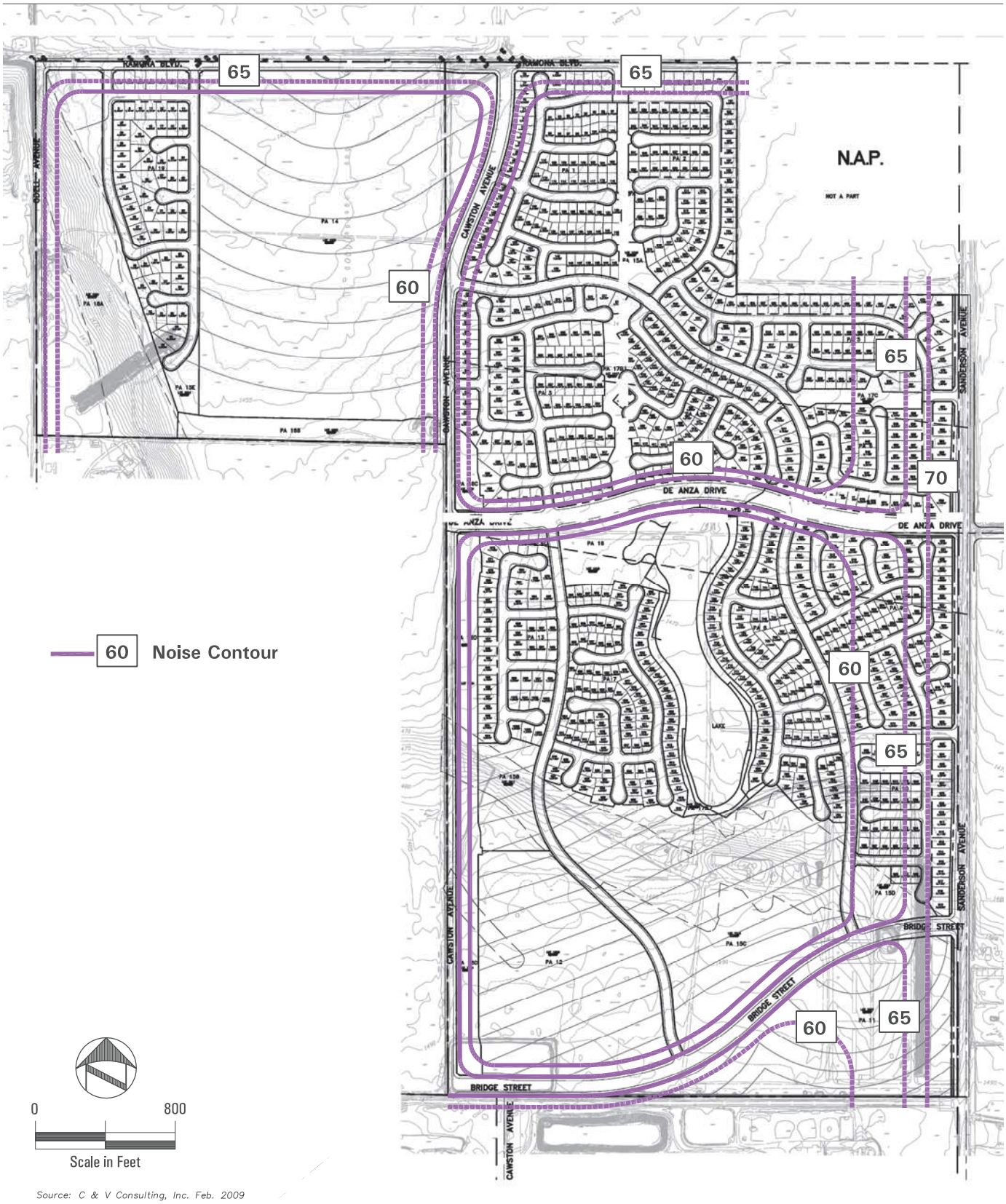
Utilizing the planned roadway sections and identified future traffic volumes (from project development and full build-out of the General Plan), traffic noise along each of the project-related roadways was modeled. The results of the noise modeling for roadway traffic noise are presented in *Table 5.11-3, Modeled Future Sound Level along Project Roadways*.

Table 5.11-3
Modeled Future Sound Level along Project Roadways

Roadway	Distances from Center Line to CNEL Contours (feet)		
	70 db	65 db	60 db
Sanderson Avenue	220	350	650
Ramona Boulevard South	R/W [1]	110	170
Odell Avenue	R/W [1]	50	120
Cawston Avenue			
North of Bridge Street	R/W [1]	70	130
South of Bridge Street	R/W [1]	R/W [1]	90
De Anza Drive	R/W [1]	70	130
Bridge Street	R/W [1]	55	120

[1] Within right-of-way

Appendix J contains a summary of the noise roadway configuration, vehicle mix, and speed limit information used for each noise model run.



Source: C & V Consulting, Inc. Feb. 2009

Villages of San Jacinto EIR

Noise Contours Associated with Future Roadways

FIGURE 5.11-2

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Residential, commercial, school, and park land uses are proposed to be located immediately adjacent to the right-of-way for each of these roadway facilities with the exception of Odell Avenue. Therefore, with the exception of Odell Avenue, the potential exists for significant noise impacts to occur from exterior noise exposure above 65 dB CNEL for residential, commercial, school, and park uses located adjacent to the planned right-of-way for these roadway facilities. In order to reduce these potential impacts, mitigation is provided (see *Section 5.11.5, Mitigation Measures*, Mitigation Measures 5.11-a and 5.11-f).

Off-Site Noise Impacts Associated With Project Traffic

Traffic-related noise impacts, especially in the context of a Specific Plan analysis, must primarily evaluate the future noise environment resulting from long-range community build-out. This is performed by using the traffic volumes anticipated from General Plan build-out, as assessed by the assigned project transportation engineer. Future project traffic volumes within the development are largely derived from the project itself, and are addressed by noise barriers and other measures (see *Section 5.11.5, Mitigation Measures*, and *Figure 5.11-3, Noise Barrier Heights and Locations*). With distribution of project-generated trips onto the area roadway network off site, the noise attributable to project-contributed trips versus regional traffic becomes largely indistinguishable. An extensive level of cumulative development is anticipated to occur within the San Jacinto region. Sanderson Avenue is the primary off-site roadway that exists today and is that which will bear the majority of immediate project-related traffic. The noise level associated with the existing traffic volumes on Sanderson Avenue is compared against the noise levels resulting from existing-plus-project traffic (Phase I), and from traffic volumes for build-out of the General Plan (including the project volumes for Phases I–IV). The results are presented in *Table 5.11-, Project Contribution to Off-Site Traffic Noise (Off-Site Traffic Noise Level Increase).*

Table 5.11-4
Project Contribution to Off-Site Traffic Noise (Off-Site Traffic Noise Level Increase)

Street (Segment)	Existing ADT	Existing + Project (Year 2015) ADT	CNEL Increase[1] (dB)	Existing + General Plan Build-Out ADT	Existing + Project + General Plan Build-Out ADT	CNEL Increase[2] (dB)
Sanderson Avenue						
South of Ramona Blvd.	12,800	16,100	1	41,600	43,000	5
Cottonwood Ave. to future SR 79	13,700	15,900	1	53,200	61,600	7

[1] Existing vs. existing-plus-project noise increase
[2] Existing vs. General Plan build-out, including project

In the near term (year 2015), the project would increase the existing ambient noise level by 1 dB CNEL. This noise level increase is less than significant.

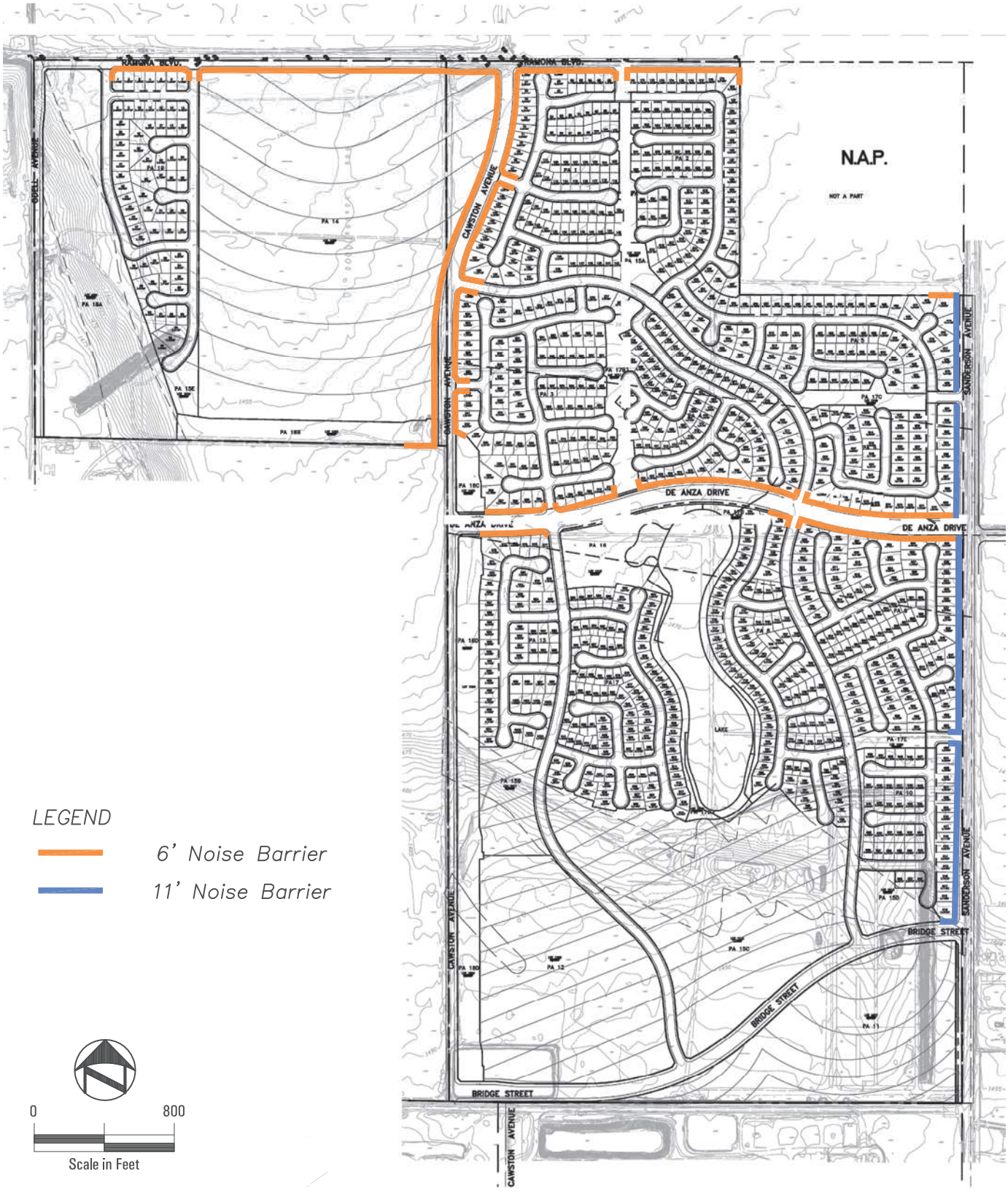
In the long term, the increase in traffic noise from the proposed project and cumulative developments (i.e., General Plan build-out) is calculated to range from 5 to 7 dB, which is a noticeable change in the noise environment. The noise increase associated with traffic from cumulative developments is therefore considered potentially significant. However, the project's contribution to cumulatively significant traffic noise impacts is less than significant (1 dB or less increase, which by itself is not a discernible increase). Consequently, mitigation is not required for the project's contribution to off-site noise impacts associated with General Plan build-out traffic volumes but is required for the cumulatively significant impact (see *Section 5.11.5, Mitigation Measures*, Mitigation Measure 5.11-a).

Noise Generation Associated with Commercial Land Uses

A retail commercial area and mixed-use area are proposed at the southern end of the subject property. The land uses at the commercial site could include neighborhood retail uses, such as a grocery store, drug store, cleaners, restaurants, fast food, and specialty stores. The mixed-use area could provide a broad range of land uses, including a library, police and fire facilities, dental and medical offices, real estate offices, banks, coffee shop, printers, and postal/shipping outlets. The commercial and mixed-use areas are generally buffered from on-site residential land uses by a park. The proposed commercial areas are located immediately adjacent to an existing off-site municipal wastewater treatment plant that would not be a noise-sensitive receptor. Residential land uses exist east of the proposed commercial area, across Sanderson Avenue; these residential land uses are currently protected by a sound-wall along Sanderson Avenue.

Sources of commercial and mixed-use noise typically include activities at loading/unloading docks and parking lots, heating/ventilation and air conditioning equipment (HVAC), maintenance activities, and additional truck traffic along adjacent roads.

Noise levels associated with the commercial and mixed-use activities would vary depending on the number of delivery trucks, loading dock areas, and customer traffic generated by the commercial site. Similarly, HVAC equipment noise would vary depending on the number and types of equipment selected. Typical roof-top HVAC packaged units generate noise levels of approximately 70 dB at 10 feet from the source. In order to avoid any potential impacts related to commercial use noise, mitigation is provided (see *Section 5.11.5, Mitigation Measures*, Mitigation Measure 5.11-b).



Source: C & V Consulting, Inc. Feb. 2009

Villages of San Jacinto EIR

Noise Barrier Heights & Locations

FIGURE 5.11-3

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School-Related Noise Concerns

A high school is designated as part of the proposed specific plan project. Schools are both noise-sensitive and noise generating. The high school would be located at the southwest corner of Ramona Boulevard and Cawston Avenue. The future exterior traffic noise at the high school site would exceed a CNEL of 65 dB as previously depicted in *Figure 5.11-2*. Traffic-related noise exposure levels within exterior use areas for the school (i.e., sports fields, athletic courts, etc.) could exceed acceptable noise standards, thereby resulting in potentially significant noise impacts. In order to avoid potentially significant noise impacts, mitigation is provided (see *Section 5.11.5, Mitigation Measures*, Mitigation Measures 5.11-c).

Future school buildings that are located in areas exposed to a noise level greater than 60 dB CNEL could exceed an interior noise level of 45 dB CNEL. In order to avoid these potentially significant impacts, mitigation is provided (see *Section 5.11.5, Mitigation Measures*, Mitigation Measure 5.11-c, 5.11-d and 5.11-e).

The proposed high school would be located adjacent to future residences along the west side of the site and also east of Cawston Avenue. Noise associated with schools generally consists of traffic noise and outdoor activities. Noise created by and emanating during the conduct of any authorized school activity upon school grounds is specifically excluded from the restrictions of the City's noise ordinance. However, some residents living adjacent to the high school may find the noise emanating from the school to be annoying. Therefore, a mitigation measure is provided to notify neighbors of the potential for this nuisance noise (see *Section 5.11.5, Mitigation Measures*, Mitigation Measure 5.11- d).

Short-Term Noise Impacts (Construction-Related Noise)

The applicant has indicated that build-out of the project would occur in four major phases, with construction beginning in 2011. Please refer to *Section 3.0, Project Description*, for a detailed discussion of the project phasing schedule and construction phasing exhibit. Because the development of the project would occur in distinct phases, portions of the development will be completed and occupied during the construction of subsequent project phases; the occupied project phases have the potential to be impacted by noise from ongoing construction activities.

Development activities for each phase of project construction would involve a four-step sequence: (1) demolition, (2) site preparation, (3) building construction, and (4) paving. Mass grading for the entire site would occur during Phase I. Specific project construction details and equipment fleet specifications are not available at this time; however, for the air quality analysis, a worst-case equipment fleet was derived. Please refer to *Table 5.11-3, Heavy Construction Equipment*, for an estimate of assumed heavy construction equipment requirements for project construction. The equipment information in *Table 5.11-3* is meant to represent a reasonable

worst-case estimate of construction equipment employment. As a summary, the derived equipment list for construction includes the following types of construction equipment:

- Tractor/Backhoe
- Bulldozer
- Loader
- Scraper
- Grader
- Off-Highway Water Truck
- Roller
- Crane
- Forklift
- Trencher
- Paving Equipment
- Paver
- Surfacing Equipment.

As demonstrated by the summary above, construction equipment anticipated for project development includes only standard equipment that would be employed for any routine construction project of this scale; construction equipment with substantially higher noise generation characteristics (such as pile drivers, rock drills, or blasting equipment) would not be needed for development of the proposed project. Based upon the standard construction equipment anticipated to be employed for project development, short-term noise associated with the grading and construction could result in maximum noise levels of up to approximately 90 dB measured 50 feet from the noise source (FTA 2006). Noise attenuation for a point source occurs over distance at a rate of approximately 6 dB every time the distance from the source is doubled. Therefore, at a distance of 900 feet from the source of the noise, noise attenuation would reduce typical construction-related maximum noise levels from 90 dB to 65 dB.

With respect to the proposed construction phasing schedule and the above discussion, constructed and occupied residences that are located within 900 feet of an area under construction could potentially experience nuisance noise (i.e., average noise levels above 65 dB).

The generation of noise from construction activities during sensitive time periods upon completed and occupied components of the project is considered a significant nuisance. As such, project-generated construction noise would pose a potentially significant effect on noise-sensitive

receptors if construction hour limitations are not imposed. However, with adherence to a restricted construction schedule dictating project-related site preparation and construction activities, consistent with the City's noise ordinance, significant construction-related noise impacts could be avoided. In order to avoid potentially significant construction-related noise impacts, mitigation is provided (see *Section 5.11.5, Mitigation Measures*, Mitigation Measure 5.11-f).

Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Ground-borne vibration is typically attenuated over short distances. The heavier pieces of construction equipment that may be used at this site include a dozer, scraper, excavator and loaded materials trucks. These types of construction equipment would be located approximately 50 or more feet from the closest existing residences. Based on the anticipated construction equipment, the demolition of existing structures and excavation of the site could generate perceptible vibrations at some residences in the project vicinity. However, the vibration levels would be below levels that would significantly disturb the residences. Additionally, construction hours will be limited by the City's noise ordinance. Therefore, the potential vibration impacts to these residential structures are less than significant. Once construction is completed, the project would not generate groundborne vibration or groundborne noise levels.

Would the project result in substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

A permanent increase in ambient noise levels will occur in the project vicinity with implementation of the project due to added traffic volumes. However, as discussed above, the project's contribution to significant traffic noise impacts is less than significant (a 1 dB or less increase, which by itself is not a discernible increase).

5.11.5 Mitigation Measures

5.11-a Residential lots located adjacent to Sanderson Avenue shall include an 11-foot-high noise barrier; residential lots adjacent to Ramona Boulevard and Cawston Avenue (between Ramona Boulevard and De Anza Drive) shall require noise barriers a minimum of 6 feet in height. The project noise barriers must have a surface density of at least 4 pounds per square foot, and have no openings or cracks. The noise barriers may be constructed of acrylic glass, any masonry material, earthern berm, or a combination of these materials.

5.11-b Individual acoustical analyses shall be prepared as part of site plan/development plan review for future commercial development applications submitted to the City, to ensure noise levels would comply with the City's General Plan noise standards (maximum exterior noise levels of 65 dB CNEL; maximum interior noise levels of 45 dB CNEL) and not result in significant noise impacts at adjacent park land or residences. The

applicant for each commercial development proposal shall be required to commission or fund the required acoustical analysis. Although the future building-specific noise study will determine exact specifications, it is likely that interior noise mitigation would consist of sound-rated windows and mechanical ventilation systems for the commercial buildings. All required noise control measures identified in the acoustical analysis shall be made conditions of ultimate development approval to ensure that all measures are implemented to fully mitigate anticipated noise impacts.

5.11-c For the high school site, the specified noise barriers along Ramona Boulevard and Cawston Avenue shall be installed to protect exterior use areas of the site from traffic-related noise.

5.11-d A Notice-to-Property Owner shall be recorded on a separate buyer information sheet with the final map providing notice to potential future property owners in the vicinity of the school site (i.e., Planning Areas 1, 3, and 19) stating that they could be exposed to noise associated with outdoor activities at the high school. The disclosure will function to make potential buyers aware of the anticipated noise levels/impacts, such that particularly noise-sensitive individuals would have the opportunity to decide against purchase of a home which is subject to these periodic noise conditions.

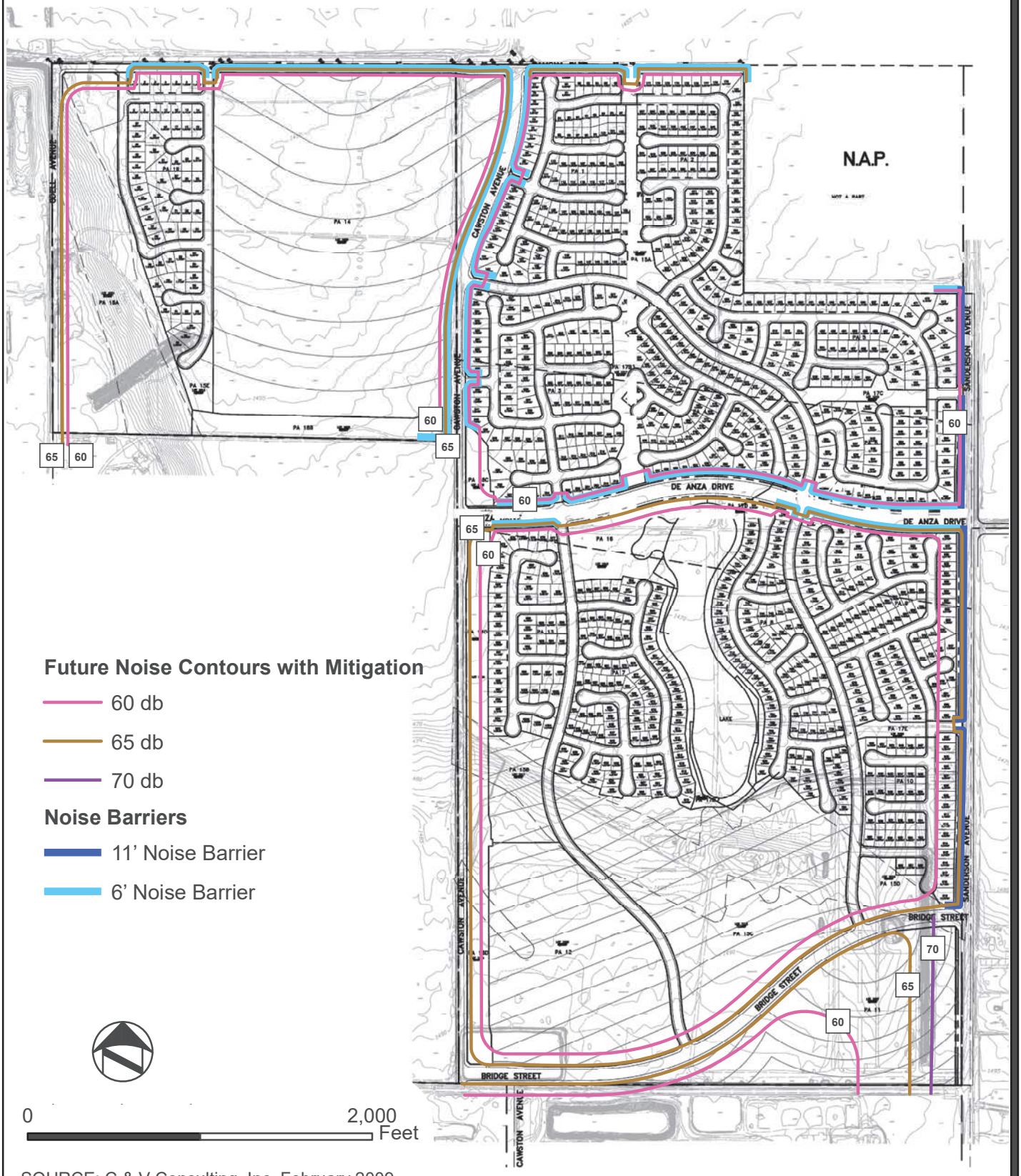
5.11-e For residences proposed within the future 60 dB CNEL contour, an interior acoustical analysis shall be required prior to the issuance of building permits to ensure that the interior CNEL would not exceed 45 dB. Interior noise mitigation would most likely consist of sound-rated windows and mechanical ventilation systems for the homes. All required noise control measures identified in the acoustical analysis shall be made conditions of building permit issuance.

5.11-f Future project-related site preparation and construction activities shall be conducted in accordance with the City's noise ordinance. No construction shall occur Sundays or federal holidays (e.g., Thanksgiving, July 4th, Labor Day, etc.). Construction operation and equipment maintenance shall be limited to the hours of 7:00 a.m. to 7:00 p.m. Non-noise-generating construction activities, such as interior painting, are not subject to these restrictions.

5.11.6 Residual Impacts/Level of Significance after Mitigation

With implementation of the mitigation measures included in *Section 5.11.5* to ensure that adequate noise control elements are designed and implemented for the proposed development, potential noise impacts would be less than significant and residual impacts would not occur.

Figure 5.11-4 Noise Contours with Mitigation illustrates the residual noise levels under future traffic conditions, and with installation of prescribed noise walls.



SOURCE: C & V Consulting, Inc. February 2009

Villages of San Jacinto EIR

Future Noise Contours with Mitigation

FIGURE 5.11-4

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5.12 PUBLIC SERVICES AND UTILITIES

5.12.1 Introduction and Methodology

This section discusses public services and utilities necessary to serve the proposed Villages of San Jacinto and includes an analysis of potential project impacts to fire and police protection services, parks and recreation and, schools facilities; the availability of wastewater treatment facilities, stormwater drainage facilities, domestic water supply resources, and solid waste disposal and recycling.

Potential project impacts associated with increased demand on public services including fire, police, park and recreational facilities were evaluated per correspondence with City fire, police and regional park personnel and per the criteria identified in the City of San Jacinto Development Impact Fee Justification Study, prepared by David Taussig & Associates, Inc., approved by the City in October 2005. Impacts to school facilities associated from increased demand resulting from project development were analyzed pursuant to correspondence with school district personnel and utilizing the San Jacinto Unified School District Residential Development School Fee Justification Study and the Commercial/Industrial Development School Fee Justification Study prepared by David Taussig & Associates, Inc., February 13, 2004.

The availability of adequate domestic water supply and infrastructure necessary to serve the proposed Villages of San Jacinto area was determined by a Water Supply Assessment Report prepared by the Eastern Municipal Water District, December 15, 2004, and a letter dated May 11, 2009, confirming their previous conclusions. Both documents are included in *Appendix K*. In addition, the availability of water, wastewater and drainage facilities and related infrastructure required to serve the project were evaluated through a November 2005 Study prepared by RBF, the May 2006 Preliminary Drainage Study for TTM 34081 prepared by RBF, the August 2006 Phase 1, and 2 Drainage Study prepared by RBF, the December 12, 2006, Preliminary Drainage Analysis for Phases 1, 1A, 1B and 1C prepared by RBF and the February 23, 2009, *Preliminary Hydrology and Hydraulics Study for the Villages of San Jacinto* by JLC Engineering & Consulting Inc. (all included as *Appendix G*). Impacts associated with solid waste production and disposal and availability of recycling facilities were analyzed be means of evaluating the availability of sufficient landfill capacity to receive solid waste generated by the proposed development, including construction-generated wastes and projected, long-term residential and commercial-generated wastes, and the ability of the proposed development and City programs to meet State mandated recycling requirements.

Unlike other environmental impact sections in this EIR, this section is organized by category instead of a discussion of all existing conditions followed by significance criteria followed by impacts and finally a discussion of mitigation. *Section 5.12* is instead organized by topic. Each

topic includes a description of existing conditions, followed by significance criteria associated with the specific topic, impact assessment, mitigation measures and finally a discussion of the impact after mitigation. For example, Fire Protection – first a discussion of existing conditions is provided, then the relevant significance criteria related to fire protection, followed by an impact discussion on fire protection and finally a discussion of relevant mitigation measures. After a complete discussion of fire protection, police protection is provided and so on. It was determined that this method of analysis presentation would be easier to follow. Existing and Proposed Public Facilities and Service Systems are depicted on *Figures 5.12-1, Existing Public Services and Facilities, 5.12-2, Master Sewer Plan* and *5.12-3, Master Water Plan.*

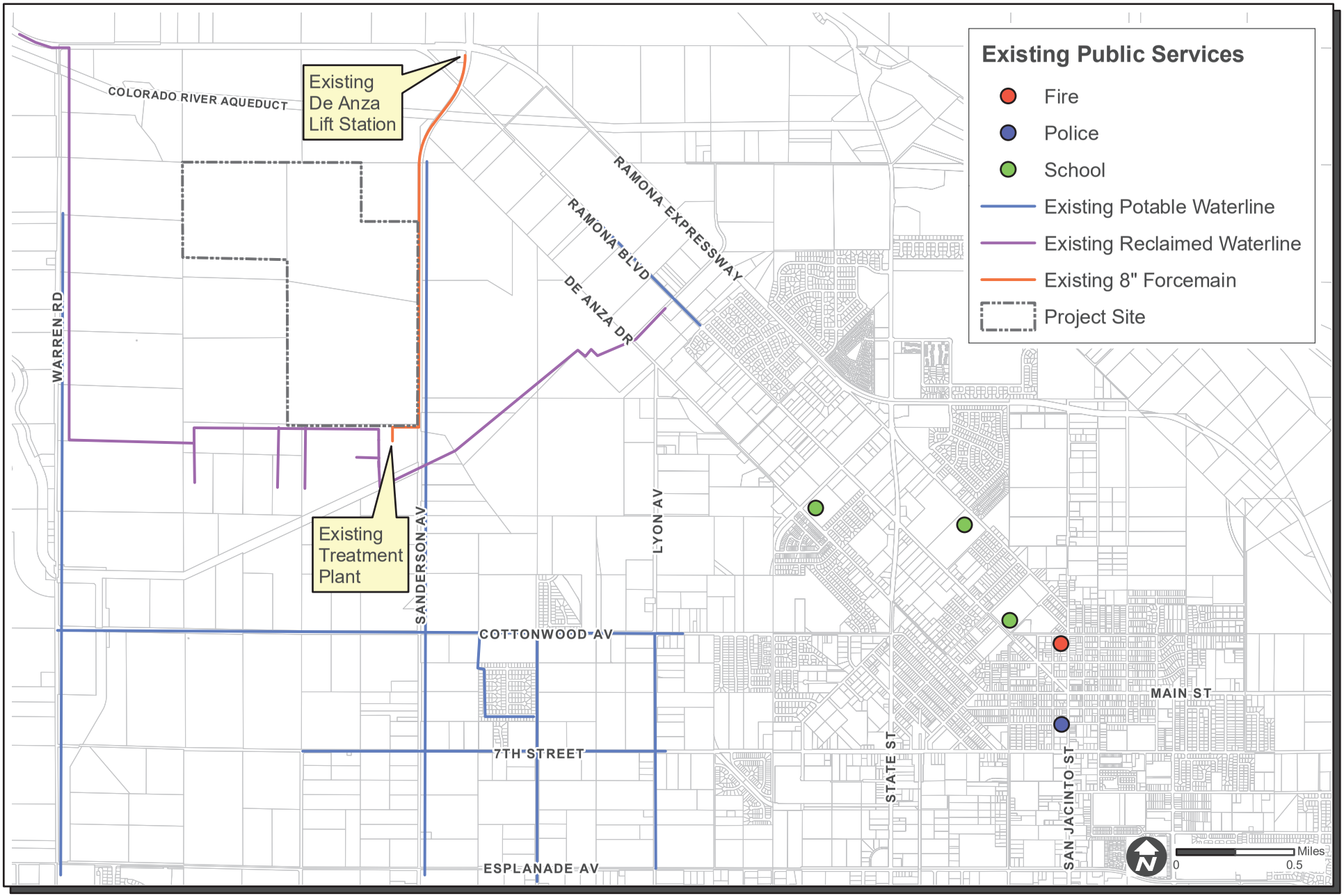
5.12.2 Fire Protection

Existing Conditions

Fire protection services are provided throughout the City of San Jacinto under contract by the Riverside County Fire Department (RCOFD)/California Department of Forestry and Fire Protection (CAL Fire). The Departments provide services for fire suppression, emergency medical services, hazardous materials team response, fire prevention, public education, disaster preparedness and operations planning and staff training. The Riverside County Fire Department is staffed with 1,300 career employees (contracted from California Department of Fire), 300 Riverside County personnel, and 750 volunteer fire fighters, and currently serves approximately 1.6 million residents within an approximate area of 7,000 square miles. This service area consists of the unincorporated County areas, fourteen contract cities, one Community Service District, and one correctional corporation. The City of San Jacinto is served by Fire Station No. 25 located at 132 South San Jacinto Avenue, approximately 3 miles from the project area. Seven city firefighters (3 on duty each day) and approximately 5 volunteer personnel are assigned to Station No. 25 which maintains one city and one state fire engine. The City is also served by Station No. 78, located at 2450 West Cottonwood Avenue, approximately one mile south from the project site. This Station is currently staffed with 8 city firefighters and maintains one city fire engine for daily operations. (Personal Communication, Fire Captain Tim Chavez, June 25, 2009).

Significance Criteria

1. ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?***



Village of San Jacinto EIR

Existing Public Services and Facilities

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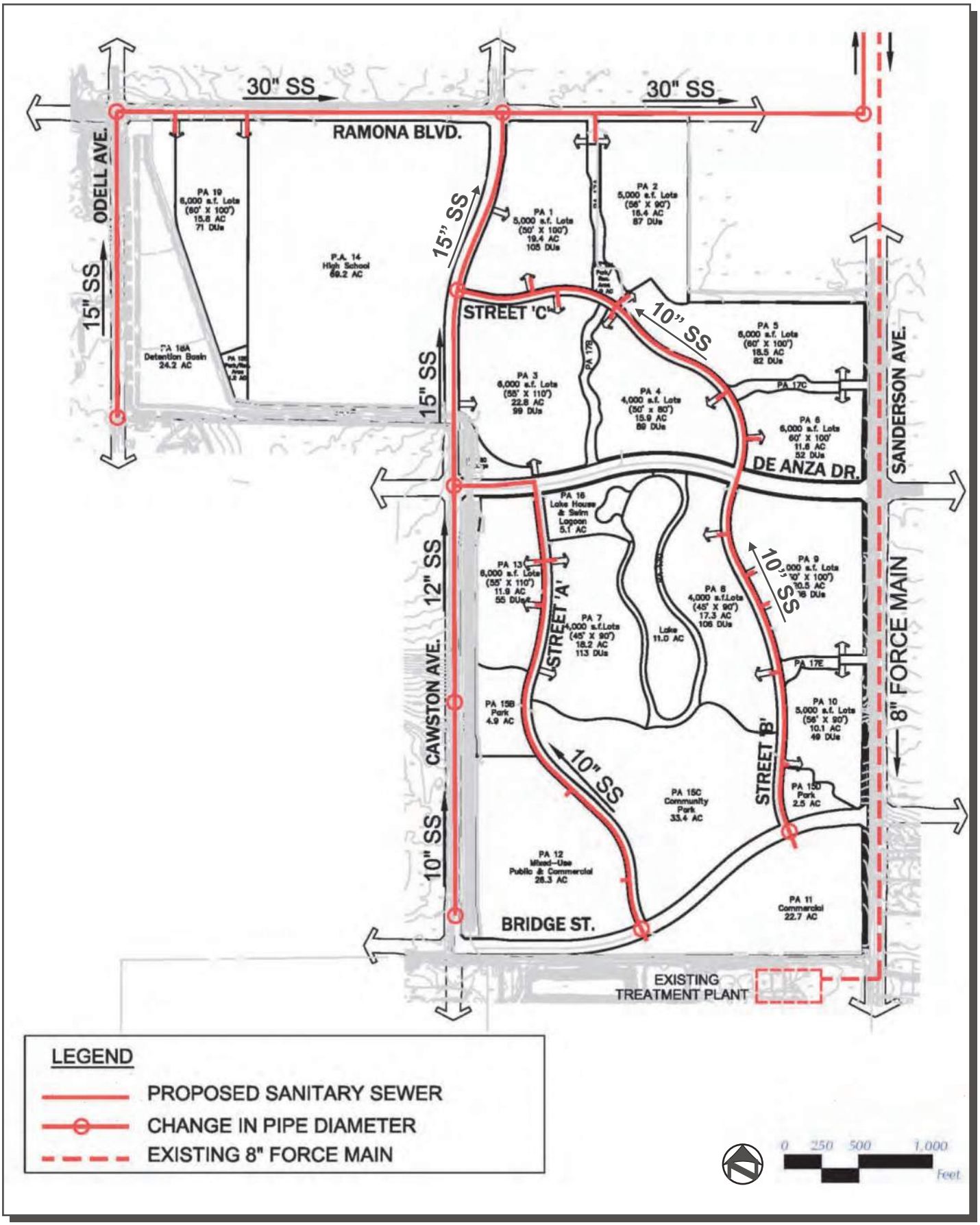

SPECIFIC MAP SOURCE: T&B PLANNING CONSULTANTS, February 2009

Villages of San Jacinto EIR

Proposed Sanitary Sewer Facilities

FIGURE 5.12-2

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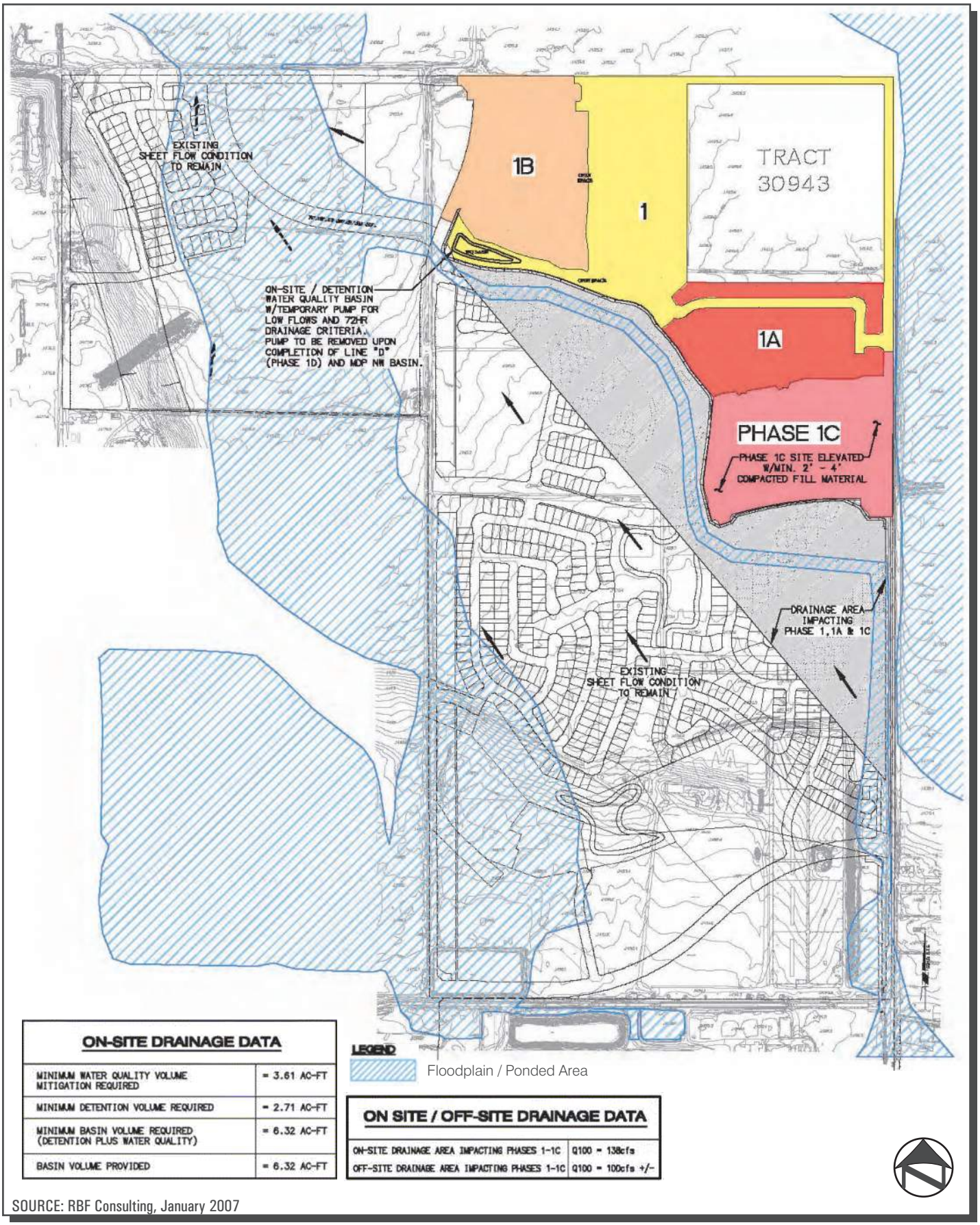

SOURCE: RBF Consulting, January 2007

Villages of San Jacinto EIR

Proposed Phase 1-1C Interim Drainage Scenario

FIGURE 5.12-3

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Impacts

The proposed Villages of San Jacinto is located within an existing fire protection service area. The City of San Jacinto Development Impact Fee Justification Study, states that City staff has determined existing public facilities to be sufficient to meet the current health, safety, and welfare needs of existing residents and employees (City of San Jacinto 2009). The development of the Villages of San Jacinto would result in an incremental increase in the local demand for fire services. Calls for emergency fire protection and emergency medical services generated from the new development are expected to be similar to that of other suburban residential and commercial areas within the City. Potential hazards and medical emergencies can be adequately addressed with the types of equipment typically found at City fire stations (e.g., response vehicles, EMT equipment) and the proposed project's internal circulation network would provide access to individual home sites and commercial areas from major roadways and would facilitate any necessary community evacuation plans.

The development of the Villages of San Jacinto would result in an incremental increase in demand for fire protection and emergency medical services and, when combined with the increased demand associated with other potential development projects within the project area, additional fire personnel, support staff, and related equipment and facilities would ultimately be required to effectively meet the demands of the proposed development and that of anticipated future development in the surrounding area.

Although the development of the proposed Villages of San Jacinto will not independently impact existing fire services, the City recognizes that new residential and non-residential development in the City within the next 15 years will generate additional residents and employees which will result in increased service calls and increased demand for fire protection personnel and facilities. The City of San Jacinto Development Impact Fee Justification Study identifies the City's determination that four new fire stations and one new fire training facility, and a number of additional service vehicles, will be needed to adequately service new development in the City within the next 15-year period. The Development Impact Fee Justification Study evaluates the need for new fire facilities as it relates to the level of service demanded by new development, which varies in proportion to the equivalent dwelling unit (EDU) generated by a specific land use. When evaluating the level of service demand for new fire protection facilities associated with new development, specific land uses (single family residential, retail commercial and non-retail commercial) are assigned an EDU factor that is derived from the number of persons per residential unit or the number of employees per commercial acreage.

The proposed development would result in a minor incremental increase in demand for fire protection services and, with consideration of future cumulative increases in demand for fire protection services associated with other development proposals and area-wide growth, could

potentially result in decreased levels of service within the project area and city-wide. The proposed project would, therefore, result in potentially significant cumulative impacts to fire protection services. However, feasible mitigation has been identified which would require the developer to pay appropriate development impact mitigation fees which would be used exclusively for future facility improvements as discussed above to ensure that the development contributes its fair share of the cost of the fire facilities and equipment determined to be necessary to adequately accommodate new development in the City. Development of the proposed school site into single-family homes, allowing for a maximum of 1,329 dwelling units would create the highest demand for fire protection services. Implementation of *Mitigation Measure 5.12-a* would ensure that the appropriate mitigation fees are contributed by the development to aid in acquiring the additional resources needed to reduce potential cumulative impacts to fire services to less than significant levels. Therefore, cumulative impacts associated with fire protection services are potentially significant. In order to avoid potential impacts, mitigation is provided (see *Section 5.12.5, Mitigation Measures, Mitigation Measure 5.12-a*).

Mitigation Measures

5.12-a The Developer shall be required to pay the Development Impact Mitigation Fees, as determined to be necessary by the development agreement, City Community Development Department and Public Works Department to offset impacts on City fire services. The current fee amount is outlined in *Table 5.12-1, Fire Facilities Fee Derivation Summary*.

Table 5.12-1
Fire Facilities Fee Derivation Summary*

Land Use	Residents/ Employees per Unit/Acre	EDUs per Unit/Acre	Number of Proposed EDUs/Acres	Development Impact Fee per Unit/Acre	Total Facility Impact Fee
Single Family	3.05	1.00	1,329**	$212	$281,748
Retail Commercial	15.03	4.93	22.7	$1,042	$23,653
Non-Retail Commercial	12.70	4.16	26.3	$880	$23,144
				Total	**$328,545**

* Fees are based on those established by the City at the time this RDEIR No. 2 was prepared. Fees may be adjusted in the future as building permits are requested for each specific phase.
** Assumes worse-case scenario that the proposed school site will be developed into single-family homes

Residual Impacts/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services such

as fire protection are provided in conjunction with build-out of the development. With implementation of the additional mitigation measure above, impacts to fire protection services/facilities would be less than significant.

5.12.3 Police Protection

Existing Conditions

The San Jacinto Police department, located approximately three miles from the project area at 160 West Sixth Street, provides police protection in the City of San Jacinto. As of May 2009, police services are provided throughout the City of San Jacinto under contract by the Riverside County Sheriff's Department. The police department employs a total of 48 staff employees, consisting of 39 sworn personnel (including the police chief, captains, detectives, juvenile officer, and training support supervisor) and 9 non-sworn personnel (community service officers, dispatch supervisor, dispatchers, communications specialist); and maintains 22 marked patrol units, 8 unmarked units and 3 volunteer automobiles. The Department operates in 3 shifts per day, consisting of 3 deputies and 1 sergeant. Emergency call response times for priority 1 calls in the City of San Jacinto average just over four minutes, which is considered slightly below the average and acceptable response times defined by the County Sheriff's Department for other contract City and County police departments. (Personal Communication, Sergeant Brian Tonseth, June 26, 2009).

Significance Criteria

2. ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?***

Impacts

The proposed project would result in a maximum of 1,329 residential dwelling units, assuming that the proposed high school would be developed with single-family homes. The development of the school site into single-family homes would create the greatest impact to police protection services and, therefore, that scenario is analyzed. In addition, the proposed project would include public parks and other passive recreational facilities, 22.7 acres of general commercial development, and 26.3 acres of mixed-use development. The proposed Villages of San Jacinto is serviced by the City of San Jacinto Police Department which currently maintains acceptable levels of emergency call response times as defined by the County Sheriff's Department for other contract City and County police departments. The development of the Specific Plan area would

result in an incremental increase in the local demand for police services. Police personnel have indicated that the project area is located in a relatively rural area of limited development where few calls are currently received and attended; therefore, project development will likely result in an increase in the Department's average response time when attending calls from the proposed development (Tonseth, personal communication, June 26, 2009).

The development of the Villages of San Jacinto would result in an incremental increase in demand on police services and, when combined with the demand associated with anticipated population growth and other potential development projects within the project area, additional police personnel, support staff, and related equipment and facilities would be required to effectively meet the demands of the proposed development as well as anticipated future development in the surrounding area. However, the increased demand that would occur with development of the Villages of San Jacinto would be a small portion of the anticipated area-wide increased demand associated with overall population growth and other development projects within the project area. Therefore, increased demand for police protection services resulting from development of the Villages of San Jacinto would be minor and incremental in nature and is not expected to substantially diminish existing service levels of police response or necessitate the construction of any new police facilities (or the expansion of any existing police facilities) that could entail changes in the physical environment. Therefore, impacts to police services would be less than significant.

Although the development of the proposed Villages of San Jacinto would not independently impact existing police services, the City recognizes that new residential and non-residential development in the City of San Jacinto within the next 15-years would generate additional residents and employees, which would result in increased service calls and increased demand for police protection personnel and facilities. The City of San Jacinto Draft Development Impact Fee Justification Study identifies the City's determination that one new police facility and a number of additional service vehicles would be needed to adequately service new development in the City within the next 15-year period. The Draft Development Impact Fee Justification Study evaluates the need for new police facilities as it relates to the level of service demanded by new development, which varies in proportion to the equivalent dwelling unit (EDU) generated by a specific land use. When evaluating the level of service demand for new police protection facilities associated with new development, land uses are assigned an EDU factor that is derived from the number of calls for police services generated for specific land uses (single family residential, multiple family residential, retail commercial, and non-retail commercial).

The proposed development would result in a minor incremental increase in demand for police services and, with consideration of future cumulative increases in demand for police services associated with other development proposals and area-wide growth, could potentially result in decreased levels of service within the project area and city-wide. The proposed project would,

therefore, contribute to potentially significant cumulative impacts to police services. However, feasible mitigation has been identified which would require the developer to pay appropriate development impact mitigation fees which would be used exclusively for the future facility improvements as discussed above to ensure that the development contributes its fair share of the cost of the police facilities and equipment determined to be necessary to adequately accommodate new development in the City. Therefore, cumulative impacts associated with police services are potentially significant. In order to reduce potential impacts, mitigation is provided (see *Section 5.12.5, Mitigation Measures, Mitigation Measure 5.12-b*).

Mitigation Measures

5.12-b The Developer shall be required to pay the Development Impact Mitigation Fees, as determined to be necessary by the development agreement, City Community Development Department and Public Works Department to offset impacts on police services. Current fee amounts are summarized in *Table 5.12-2, Police Facilities Fee Derivation Summary*.

Table 5.12-2
Police Facilities Fee Derivation Summary*

Land Use	Call Generation Rate	EDUs per Unit/Acre	Number of Proposed EDUs	Development Impact Fee per Unit/Acre	Total Facility Impact Fee
Single Family	3.05	1.00	1,329**	$198	$263,142
Retail Commercial	15.03	4.93	22.7	$2,012	$45,672
Non-Retail Commercial	12.70	4.16	26.3	$2,012	$52,916
				Total	**$361,730**

* Fees are based on those established by the City at the time this RDEIR No. 2 was prepared. Fees may be adjusted in the future as building permits are requested for each specific phase.
** Assumes worse-case scenario that school site will be developed into single-family homes

Residual Impacts/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services such as police protection are provided in conjunction with build-out of the development. With implementation of the additional mitigation measure above, impacts to police protection services/facilities would be less than significant.

5.12.4 Parks and Recreation

Existing Conditions

The City of San Jacinto owns and maintains three parks throughout the City including Salle Park (3.5 to 4 acres) located near Monte Vista School, Mistletoe Park (5 acres) located on Main Street, and Rancho San Jacinto Park (7 acres). In addition, a 36-acre regional park, owned and operated by the Valley Wide Park and Recreation District, is located at 901 W. Esplanade in San Jacinto and includes a 22,000-square-foot sports center, six lighted tennis courts, seven baseball/softball diamonds, six soccer fields, picnic areas with barbecues and play equipment, batting cages, administration offices, outside basketball and volleyball courts, and six horseshoe pits. None of these park facilities are located in the vicinity of the proposed Villages of San Jacinto project site.

The City's General Plan Land Use Map indicates that a total of approximately 44.7 acres of land area on the project site is currently designated for Open Space- Recreation (OS-R) land use. The General Plan indicates that the OS-R category allows for preservation of open space as well as outdoor recreational facilities.

Significance Criteria

3. ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?***

Impacts

As seen in *Table 5.12-3, Proposed Open Space Designation,* the proposed Villages of San Jacinto project includes a total of 105.4 acres of open space/recreation uses. There will be a total of 43 acres of parks provided on site, including three public parks (40.8 acres) and two private neighborhood parks (2.2 acres). The largest of these parks is the 33.4-acre public Community Park north of Bridge Street in the southern portion of the proposed development. Other recreational amenities include a 5.1-acre Lake House Beach Club and Swim Lagoon. The 11-acre private lake will be located adjacent to the Swim Lagoon. It will feature a concrete trail surrounding lake and connecting to the community park. A total of 9.6 acres of landscaped walkways or "paseos" will serve as pedestrian linkages between land uses and will create landscaped buffer areas between Planning Areas. These paseos will be a minimum of 50 feet wide and have 10-foot-wide concrete trails. The proposed Villages of San Jacinto would result in

an increase in the 44.7 acres of land area within the project area presently designated for open space to a total of 105.4 acres.

Table 5.12-3
Proposed Open Space Designation

Land Use Type	Acres
Public Neighborhood and Community Parks	40.8
Private Neighborhood Parks	2.2
Paseos	9.6
Drainage/Basins	15.2
Lake Surfaces	11.0
Landscape Easements	2.4
Water Quality Detention Basin	24.2
Total	**105.4**

The City's General Plan requires that developers of residential projects provide adequate parkland equal to 5 acres per 1,000 residents and non-residential development provide parkland equal to 2.5 acres per employee. Based on factors in the Development Fee Justification Study (*Table 5.12-1*), the project would result in up to 4,054 residents (1,329 units × 3.05 residents per dwelling unit) creating the need for 20 acres of parkland. Employees associated with the project would create the need for approximately 2 acres of parkland for a total of 22 acres. Since the project provides 41 acres of public parkland, it would exceed the General Plan requirement and no mitigation is required. It should be noted that, in the previous recirculated DEIR (January 2007), a park mitigation fee was required due to the private nature of proposed parks. Because the project provides adequate public parkland, this is no longer the case and the fee is not required. Therefore, development of the Villages of San Jacinto would have an overall beneficial impact to the supply of park land and recreational opportunities to new residents of this community and the public.

Mitigation Measures

None.

Residual Impacts/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning areas. These standards specifically include development elements and/or policies and measures to ensure that adequate public facilities and services, such as parks and recreational facilities, are provided in conjunction with build-out of the development. Therefore, impacts to parks and recreational facilities would be less than significant.

5.12.5 Schools

Existing Conditions

The project site is located in the San Jacinto Unified School District (SJUSD) which serves approximately 7,000 students in eight primary K-5 schools, two middle 6–8 schools and two 9–12 high schools (website accessed May 5, 2009, http://www.sanjacinto.k12.ca.us/). The City's Land Use Map indicates that two future school sites are planned at the project site.

The closest existing elementary school site to the project area is De Anza Elementary located at 1089 De Anza Drive. The proposed project includes a potential new high school facility which would serve students of the proposed development. Should the proposed high school site not be included in the final build-out of the development, San Jacinto High School, located at 500 Idyllwild Drive, would accommodate high schools students from the project area. Monte Vista Middle School, located at 181 North Ramona Boulevard, would accommodate middle school students from the project area.

According to the San Jacinto Unified School District Residential Development School Fee Justification Study, prepared by David Taussig & Associates, Inc., February 13, 2004, the overall capacity of the District facilities was 7,456 students (including the addition of 7 portables at the elementary level), determined per Section 17071.10 of the California Education Code. The Study determined that of the 7,456 seats, 4,065 were at the elementary level, 1,418 were at the middle-school level, and 1,973 were at the high school level. The study determined that student enrollment in the 2003–2004 school year exceeded the District's facilities at the elementary level, but fell 354 and 158 seats short of the District's middle and high school capacity levels, respectively.

District personnel have indicated that facilities of the San Jacinto Unified School District currently exceed design capacity and the District has been adding additional portable classrooms to accommodate enrollment levels. Of the thirty portable classrooms currently planned to be installed, twenty will be used for elementary students and ten will be used for middle school students. In addition, the District is currently pursuing two new elementary school sites; however, these planned school sites are incorporated into other development proposals and would not accommodate new students generated by the proposed development (Arthur 2004).

Significance Criteria

4. ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios,***

response times or other performance objectives for fire other public facilities such as schools?

Impacts

The proposed project would result in development of a maximum 1,329 dwelling units, assuming worse case that the proposed school site is developed into single-family homes. The proposed project would also include 22.7 acres of general commercial development, a 26.3-acre mixed-use development, and would also potentially include a 69.1 acre site for a new high school that would accommodate up to 2,000 students. However, as discussed above, existing school facilities in the City are currently at capacity or exceeding capacity at all education levels and the development of future residences on the property would produce new demand for school resources. As such, new development in the City of San Jacinto would result in an increase in residents and employees within the City and would thereby increase demand on school facilities potentially resulting in a significant impact to schools which are already at or approaching maximum enrollment capacity levels.

The San Jacinto Unified School District utilizes student generation rates as published in the District's Residential Development School Fee Justification Study and the Commercial/ Industrial Development School Fee Justification Study to determine the projected number of students that would be generated for a new development proposal. *Table 5.12-4, Residential Project Student Generation,* contains the anticipated student generation that would result from the proposed residential development and *Table 5.12-5, Commercial Project Student Generation,* contains the anticipated student generation that would result from the proposed commercial development. The total projected student generation is based on student generation factors contained in the Residential Development School Fee Justification Study and the Commercial/Industrial Development School Fee Justification Study as provided by the School District.

Table 5.12-4
Residential Project Student Generation

School District/ Grade Level	Residential Unit Type	# of Units	Generation Factor (Students/Unit)	Total Students
Proposed Project				
Elementary				
K–6	Single-Family	1,329[1]	0.4832	642
Middle School				
7–8	Single-Family	1,329[1]	0.1320	175
High School				
9–12	Single-Family	1,329[1]	0.2302	306
			Total Student Generation	**1,123**

[1] Assumes worse-case scenario that proposed school site will be developed into single-family homes

Based on the proposed number and type of residential units and student generation rates as presented in *Table 5.12-3, Residential Project Student Generation*, the proposed project would generate 642 elementary school students, 175 middle school students and 306 high school students. A total of 1,123 students would be generated by the proposed residential development. In addition, based on the proposed land use type and the amount of new commercial square footage, and student generation rates as presented in *Table 5.12-5, Commercial Project Student Generation*, the proposed project would generate 93 elementary school students, 25 middle school students and 45 high school students for a total of 163 new students and a combined total of 1,286 students.

Table 5.12-5
Commercial Project Student Generation

School District/ Grade Level	Proposed Land Use	Square Footage	Student Generation/ 1,000 Square Feet	Total Students
Elementary				
K–6	Retail	247,000	0.1188	29
	Mixed-Use	343,400	0.1856	64
			Subtotal K–6	*93*
Middle School				
7-8	Retail	247,000	0.0322	8
	Mixed-Use	343,400	0.0503	17
			Subtotal 7–8	*25*
High School				
9-12	Retail	247,000	0.0572	14
	Mixed-Use	343,400	0.0895	31
			Subtotal 9–12	*45*
			Total Student Generation	**163**

The proposed project would be required to pay state-mandated school facilities fees (per Government Code Section 65996) at a maximum of $4.46 per residential square foot and $0.47 per square foot of new commercial development per current requirements. These fees may be adjusted by the state in the future as building permits for each phase are requested. Payment of such fees represents full mitigation for impacts to schools (see *Section 5.12.5, Mitigation Measures, Mitigation Measure 5.12-c*). Additionally, the proposed project would potentially include the designation of a new 69.1-acre high school site, to be located in the northwest portion (PA 14) of the site, which would accommodate the additional high school students that would be generated by the proposed development.

As discussed above, it is anticipated that the proposed high school site would accommodate 2,000 students. Provision of this school facility in the Villages of San Jacinto Specific Plan would serve new students generated by the proposed development as well as students from adjacent neighborhoods. Payment of state mandated fees will help to offset the cost of this facility.

Mitigation Measures

5.12-c The Developer shall be required to pay the Development Impact Mitigation Fees, as determined to be necessary by the development agreement, City Community Development Department, Public Works Department and San Jacinto School District, to offset impacts on school facilities.

Requiring payment of the school facility mitigation fees would aid in acquiring the additional resources to provide adequate school facilities necessary to accommodate existing and future residents. Therefore, contribution of the mitigation fees by the developer would ensure that adequate mitigation is provided to reduce potential direct and cumulative school impacts to less than significant levels. Should the developer assist the City in facilitating the construction of the school site identified in the Specific Plan, the City may decide to waive or reduce some portion of the school mitigation fees typically required to an appropriate lesser amount in consideration of the partial mitigation provided by developer-assisted, on-site school facility construction.

Residual Impact/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services such as schools are provided in conjunction with build-out of the development. With implementation of the additional mitigation measure above, impacts to schools would be less than significant.

5.12.6 Wastewater Treatment

Existing Conditions

Wastewater treatment for the City of San Jacinto is provided by the Eastern Municipal Water District (EMWD) Hemet/San Jacinto Regional Water Reclamation Facility. The facility collects and treats municipal sewage and produces recycled water for reuse. According to the Eastern Municipal Water District's wastewater treatment website page for the Hemet/San Jacinto Regional Water Reclamation Facility the facility currently maintains a typical daily treatment flow of 7.8 million gallons a day (MGD) and a maximum raw sewage treatment capacity of 11

MGD. The facility is slated for an expansion to provide a maximum of 27 MGD treatment capacity to accommodate projected future sewage production from growth in the facility's service area (EMWD, http://www.emwd.org/news/Insights/insights_hemet-san_jacinto.pdf accessed May 5, 2009). All EMWD facilities are currently determined to be in compliance with Regional Water Quality Control Board wastewater treatment requirements. Currently, there is an existing force main located within the Sanderson Avenue right-of-way along the east property boundary. The existing De Anza lift station located at the northeast corner of the project area conveys flows through the sewer main to the Hemet/San Jacinto Regional Water Reclamation Facility located directly south of the project site.

Significance Criteria

5. ***Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?***

6. ***Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?***

7. ***Would the project result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

Impacts

Wastewater treatment for the City of San Jacinto is provided by the EMWD Hemet/San Jacinto Regional Water Reclamation Facility. The facility collects and treats municipal sewage and produces recycled water for reuse, maintaining a typical daily treatment flow of 7.8 MGD and a raw sewage treatment capacity of 11 MGD. The facility is slated for an ultimate expansion of 27 MGD to accommodate projected future sewage production from growth in the facility's service area. All EMWD facilities are currently determined to be in compliance with Regional Water Quality Control Board wastewater treatment requirements.

Wastewater production of the proposed project would be conveyed via on-site infrastructure improvements and the City's existing public sewer system facilities to the Hemet/San Jacinto Regional Water Reclamation Facility for treatment. The proposed development would include new on-site sewer infrastructure improvements including 12- to 30-inch sewer lines that would gravity flow via the proposed internal roadways to within a 30-inch trunk line in Ramona Boulevard and then continue to gravity flow toward the existing De Anza lift station, which would then travel through a force main to the Hemet/San Jacinto Regional Water Reclamation Facility for treatment (see *Figure 5.12-2, Master Sewer Plan*).

Based on an average sewage generation rate of 300 gallons per day per household, and 1,700 gallons per day per acre of commercial/mixed-use development, the proposed project's maximum of 1,329 residential units and 49 acres of commercial/mixed-use would generate 482,000 gallons per day of wastewater (based on factors from RBF Consulting, November 9, 2005). This wastewater would be treated by the Hemet/San Jacinto Regional Water Reclamation Facility. This assumes that the school site would be developed into single-family residential (the 313 dwelling units that would be built at the school site would generate more wastewater than a school and thus represents a worst case scenario). As described above, the Hemet/San Jacinto Regional Water Reclamation Facility currently treats up to 7.8 MGD and has a current capacity of 11 MGD and ultimate capacity of 27 MGD. The quantity of wastewater generated by the proposed project would not exceed the current sewage treatment capacity, assuming a worst-case scenario that no expansion of the facility takes place prior to project completion. Therefore, the proposed project's impacts related to availability of existing sewer treatment services would be less than significant.

The Specific Plan identifies the following conditions for development in the Specific Plan area:

- All water and sewer lines will be designed per the Eastern Municipal Water District's Water and Sewer System Planning and Design Criteria dated July 2, 2007, and September 1, 2006, respectively.
- The infrastructure system and phasing shall be designed and installed consistent with the City of San Jacinto Engineering Department requirements.
- The Eastern Municipal Water District will manage the development of infrastructure for the project area.
- Water and sewer facilities shall be installed in accordance with the requirements and specifications of the San Jacinto Engineering Department and the Riverside County Health Department.

The quantity of wastewater generated by the proposed development is not expected to exceed the sewage treatment capacity and the proposed Specific Plan policies require that a written agreement with EMWD be executed which states that the provision of services shall be available prior to the recordation of any tract maps. The Specific Plan policies further require that new sewer facilities are developed consistent with EMWD's planning and design criteria, and in accordance with the City Engineering Department. Therefore, all necessary facility infrastructure will be appropriately designed and constructed to serve the proposed development. Impacts related to sewer services would be less than significant.

Mitigation Measures

None.

Residual Impact/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services such as wastewater are provided in conjunction with build-out of the development. Therefore, impacts to wastewater systems would be less than significant.

5.12.7 Storm Drain Facilities

Existing Conditions

Stormwater runoff generated in the Specific Plan area currently drains primarily via sheet flow in a northerly direction toward the San Jacinto River. Existing drainage features on or near the project site consist of an open channel adjacent to the east property boundary that runs along Sanderson Avenue that conveys runoff north toward the San Jacinto River, and a depressed portion of land located at the northwest section of the project area which receives drainage across the site.

Significance Criteria

8. ***Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

Impacts

The project site generally drains in a northwesterly direction toward the San Jacinto River, primarily in a sheet flow pattern. The northerly portion of the project site is within the 100-year floodplain. The Drainage Plan provides 100-year flood protection for the project site for the interim and ultimate condition as described below.

Interim Condition

The interim condition assumes that surrounding areas remain undeveloped (such as in the existing condition), and the on-site development of the Villages of San Jacinto and corresponding infrastructure is independently functional. This includes the construction of two interim facilities and the reconstruction of an earthen roadway east of the De Anza Drive and

Sanderson Avenue intersection. These interim drainage facilities are required to control and convey the interim flow rates originating from the off-site area. Interim facilities include Culvert V, which will provide 100-year flood protection for Bridge Street; Culvert E, located north of the intersection of Sanderson Avenue and the Casa Loma Canal.

The Specific Plan identifies the following conditions for development of the Villages of San Jacinto:

- Drainage and flood control facilities and improvements shall be provided in accordance with City of San Jacinto and Riverside County Flood Control and Water Conservation District (RCFC & WCD) requirements.
- Project drainage facilities shall be publicly maintained. The City of San Jacinto will maintain storm drain systems that are equal to or less than 36-inches in diameter and all roadway culverts. RCFC & WCD will maintain all open channels and subsurface storm drains greater than 36-inches in diameter.
- RCFC & WCD will maintain lines and grades for all open channels. The City of San Jacinto will be required to maintain all landscape features and appurtenances. Additionally, the City will maintain turf reinforcement mats that will be used for stability of channel invert erosion.
- All projects proposing construction activities including: clearing, grading, or excavation that results in the disturbance of at least five acres total land area, or activity which is part of a larger common plan of development of five acres or greater, shall obtain the appropriate NPDES construction permit and pay the appropriate fees. All development within the Specific Plan boundaries shall be subject to future requirements adopted by the City to implement the NPDES program. Mitigation measures may include, but are not limited to: covered storage of all outside storage facilities; vegetated swales; monitoring programs; etc.

Section 5.8, Water Quality and Hydrology, indicates that improvements to the stormwater collection system and installation of a new on-site drainage system would be necessary to provide adequate storm drainage within the Villages of San Jacinto (see *Figure 5.8-2, On-Site Drainage Facilities*). The Specific Plan incorporates policies regarding control of stormwater runoff to reduce the overall quantity of stormwater and the Plan includes several specified components to improve drainage conditions and to ensure that drainage facilitates are provided to adequately control runoff from the site.

Mitigation Measures

See Mitigation Measures in *Section 5.8.5, Water Quality and Hydrology,* for measures related to provision of adequate storm drainage facilities.

Residual Impact/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning areas which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services such as storm drainage are provided in conjunction with build-out of the development. With implementation of the mitigation measures in *Section 5.8.5, Water Quality and Hydrology Mitigation Measures*, impacts to stormwater drainage systems would be less than significant.

5.12.8 Domestic Water Supply

The following discussion is based in part on the previously referenced Water Supply Assessment Report (December 15, 2004), and a letter from EMWD confirming their previous conclusions (May 11, 2009).

Existing Conditions

Domestic water supply is provided to the City of San Jacinto by the Eastern Municipal Water District (EMWD) which provides domestic and agricultural water supply, wastewater collection and treatment service, and recycled water in a 555 square mile service area from Moreno Valley to Temecula, and from Hemet and San Jacinto to Good Hope and Mead Valley. The EMWD serves a population of approximately 675,000 in Western Riverside County and generally provides approximately 110 million gallons of water per day for domestic and agricultural supplies and for other water agencies in the area (Eastern Municipal Water District, http://www.emwd.org/news/Insights/Insights4-09.pdf, accessed May 5, 2009). Water resources used to sustain the existing agricultural operations is provided primarily as recycled water by the EMWD, which is supplemented by groundwater produced by three on-site wells for which there are no restrictions on private use. Currently, irrigation for the turf farm operation consists of a combination of 95% reclaimed water and 5% groundwater.

The City is aware that some time has passed since the project's Water Supply Assessment (WSA) was adopted (December 15, 2004); therefore, the City has confirmed with EMWD that its WSA conclusions are still valid (letter dated May 11, 2009). The original WSA and confirmation letter are contained in Appendix K. The City has also taken into account other developments in water supply that may affect the project area and has provided this analysis below.

Delta Smelt: Kempthorne Case and New FWS Biological Opinion

On May 25, 2007, the United States District Court for the Eastern District of California ruled that the biological opinion prepared by the United States Fish and Wildlife Service (FWS) concerning the effects of long-term operations of the State Water Project (SWP) and the federal Central Valley Project (CVP) upon delta smelt was invalid under the federal Endangered Species Act. (Natural Resources Defense Council v. Kempthorne, et al., USDC Case No. 05-CV-1207-OWW.) On December 14, 2007, the court issued an Interim Remedial Order and Findings of Fact and Conclusions of Law requiring that the SWP and CVP operate according to certain specified criteria until a new biological opinion for the delta smelt was issued. Based on estimates prepared by the California Department of Water Resources (DWR), MWD estimated that for the year 2008, it would be subject to reductions in SWP supplies of up to a 30% as a result of the Kempthorne order, depending on prevailing hydrologic conditions and migratory status of the delta smelt.

On December 15, 2008, the FWS issued a new B.O. regarding the effects of CVP and SWP operations on delta smelt. According to preliminary information published DWR, which operates the SWP, the new B.O. will continue reductions in SWP and CVP exports from the Delta that were in effect since December 2007 under the federal court order in Kempthorne. DWR has estimated that under average water year conditions, the "most likely" result of the new B.O. is a 1% increase in the amount of available SWP supplies in comparison to the Kempthorne restrictions, although a worst-case scenario could result in a 13% decrease in available supplies. Under dry water year conditions, DWR states the "most likely" result of the new B.O. is the exact same type of potential restrictions as set forth in Kempthorne, although restrictions could possibly increase by 21% under a worst-case scenario. (See www.water.ca.gov/news/newsreleases/2008/121508swpimpacts.pdf.) As with the Kempthorne order, potential water supply restrictions under the new B.O. are dependent on various factors that cannot be predicted with a high degree of certainty, including hydrologic conditions, migratory and reproductive patterns of delta smelt, and other factors affecting delta smelt abundance in the Delta.

Due to a number of alleged scientific and other deficiencies in the new B.O., water agencies holding contracts to receive SWP supplies from DWR, among others, filed complaints in the Federal District Court for the Eastern District of California challenging the B.O. (See, *San Luis Delta-Mendota Water Authority et al. v. Salazar et al.*, Case No. 1:09-cv-407 (E.D. Cal., filed Mar. 3, 2009); *State Water Contractors v. Salazar, et al.*, Case No. 1:09-CV-422 (E.D. Cal., filed Mar. 4, 2009); *Coalition for a Sustainable Delta et al. v. United States Fish and Wildlife Service et al.*, Case No. 1:09-cv-480 (E.D. Cal., filed Mar. 12, 2009; amended complaint filed May 28, 2009); *Metropolitan Water District v. United States Fish and Wildlife Service*, Case No. 1:09-CV-631 (E.D. Cal., filed Apr. 8, 2009); and *Stewart & Jasper Orchards et al. v. United*

States Fish and Wildlife Service et al., Case No. 1:09-cv-892 (E.D. Cal., filed May 21, 2009)) These litigation matters challenging the validity of the new B.O. give rise to the additional possibility that SWP delivery reductions as set forth by the *Kempthorne* order could be put back in place pending final legal resolution of the new B.O. In light of these various factors, the degree to which SWP deliveries may be reduced under the new B.O. for delta smelt remains somewhat speculative at this time.

Salmon/Anadromous Species: Gutierrez Case and New NMFS Biological Opinion

SWP and CVP operations have also been challenged in a separate litigation matter, entitled *Pacific Coast Federation of Fishermen's Association / Institute for Fisheries Resources, et al. v. Gutierrez, et al*., (USDC Case No. 1:06-CV-00245-OWW). In October 2004, the National Marine Fisheries Service (NMFS) issued a "no jeopardy" determination and biological opinion (B.O.) analyzing impacts to threatened winter and spring-run salmon and steelhead trout in connection with SWP and CVP operations in the Delta through the year 2030. As with the *Kempthorne* case above, the project/action evaluated in the NMFS B.O. included current and future Delta pumping operations under the Operations and Criteria Plan (OCAP). In August 2005, several environmental plaintiff groups filed suit in federal court against NMFS and the Secretary of Commerce challenging the validity of the B.O. Several public agencies that hold contracts to receive water from the CVP and SWP intervened in the action. The plaintiffs later filed an amended complaint and thereafter the case was stayed for a period of time while the parties attempted to negotiate a settlement of the issues. The stay was later lifted and, in May 2007, the plaintiffs filed a motion for summary judgment to invalidate the B.O. without a trial. Similar to the situation discussed above in the *Kempthorne* case, NMFS and the Bureau of Reclamation decided, notwithstanding the outcome of the litigation, to reinitiate ESA Section 7 consultation regarding how the projects affect the protected anadromous species. Thus, the two agencies are now preparing the necessary documentation to produce a new B.O. A hearing on the summary judgment motions in the *Gutierrez* case was held on October 3, 2007, and on April 16, 2008, the Court issued its decision invalidating the NMFS B.O. for failing to comply with the federal ESA. As with *Kempthorne*, the Court did not vacate the B.O., meaning that CVP and SWP operations are authorized to continue pending the preparation of a new B.O. and any interim requirements the Court may impose. Proceedings were scheduled thereafter to determine whether interim restrictions such as those ordered in the *Kempthorne* case would be required pending the new B.O. On July 18, 2008, Judge Wanger issued Findings of Fact and Conclusions of Law which determined, among other things, that additional water supply restrictions beyond those required in *Kempthorne* (and now the new B.O.) are not required at this time. The Court again reached the same conclusion in a subsequent decision dated October 21, 2008.

On June 4, 2009, NMFS issued a new B.O. regarding the effects of CVP and SWP operations on protected salmon, steelhead, green sturgeon, and resident killer whales. According to draft

information published by DWR, NMFS has calculated that the B.O. has the potential to reduce combined CVP and SWP deliveries from the Delta by 5 to 7%, while DWR has initially estimated that average year reductions have the potential to range closer to 10%, in addition to restrictions imposed under the FWS B.O. for delta smelt. (See, http://www.water.ca.gov/news/newsreleases/2009/060409salmon.pdf.) As with the FWS B.O. for delta smelt and the Incidental Take Permit for longfin smelt, potential water supply restrictions under the NMFS B.O. are dependent on various factors that cannot be predicted with a high degree of certainty, including hydrologic conditions in the Delta region, migratory and reproductive patterns of protected anadromous fish, and other factors affecting the abundance of those species in the Delta. In June 2009, legal challenges were filed against the NMFS B.O. in the United States District Court for the Eastern District of California alleging, among other things, that the water supply restrictions set forth in the B.O. were established in violation of the federal Endangered Species, the federal Administrative Procedures Act, and other laws. (See, e.g., *San Luis & Delta Mendota Water Authority, et al. v. Locke, et al.*, Case No. 1:09-CV-01053-OWW-DLB; *Stockton East Water District v. United States National Oceanic and Atmospheric Administration, et al.*, Case No. 1:09-CV-01090-OWW-DLB.) The above-mentioned cases and other potential litigation that could be filed against the NMFS B.O. call into question whether the water supply restrictions in the B.O. can be imposed against the SWP. For these reasons, the degree to which SWP deliveries may be reduced under the new NMFS B.O. species remains speculative at this time.

Longfin Smelt: California Department of Fish and Game Incidental Take Permit

Another factor having the potential to affect the availability and reliability of SWP supplies is the March 4, 2009, decision by the California Fish and Game Commission (Commission) that listing the longfin smelt as a "threatened" species is warranted under the California Endangered Species Act (CESA). The longfin smelt is a small pelagic fish species, related to the delta smelt, whose habitat includes the Sacramento-San Joaquin Delta, among other areas along the West Coast. Under CESA, a threatened species is a native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future absent special protection and management efforts. CESA sets forth a general prohibition against the take of a threatened species except as otherwise authorized under CESA. One such authorization is provided by California Fish and Game Code section 2081, wherein the California Department of Fish and Game (DFG) may authorize the incidental taking of a threatened species in connection with an otherwise lawful activity through the issuance of a permit. On February 29, 2009, DFG issued Incidental Take Permit No. 2081-2009-001-03 (Permit) to DWR as the owner and operator of the SWP. The Permit applies to the ongoing and long-term operation of the SWP's facilities in the Delta, including Clifton Court Forebay, the John E. Skinner Fish Facility, the Harvey O. Banks Pumping Plant and the North Bay Aqueduct,

and authorizes DWR to incidentally take longfin smelt in connection with its operation of the SWP, provided the terms and conditions of the Permit are satisfied. The Permit imposes operating restrictions on the SWP facilities that are based in large part on the restrictions imposed on the SWP by the new B.O. issued by FWS for delta smelt (see above). As with the B.O. for delta smelt, potential water supply restrictions under the Permit are dependent on various factors that cannot be predicted with a high degree of certainty, including hydrologic conditions in the Delta region, migratory and reproductive patterns of longfin smelt, and other factors affecting longfin smelt abundance in the Delta. DWR has not indicated whether any particular reductions in SWP exports are likely to result from the Permit. Due to a number of alleged scientific and other deficiencies in the Permit, an organization of water agencies holding contracts to receive SWP supplies from DWR has filed a complaint in Sacramento County Superior Court challenging the Permit. (See, *State Water Contractors v. California Dept. of Fish and Game, et al*., Sac. Sup. Ct. Case No. 34-2009-80000203.) That case has brought DFG's ability to enforce the Permit into question. In light of the foregoing factors, potential reductions in SWP supplies resulting from DFG's Incidental Take Permit for longfin smelt remain speculative at this time.

SWP Supply Reliability: DWR 2007 SWP Delivery Reliability Report

While various factors can affect the availability and reliability of imported water supplies from the State Water Project (SWP), the likelihood of those supplies being available to MWD over the short, intermediate and long-term periods during normal, single-dry and multiple-dry year hydrologic cycles have been extensively analyzed and addressed by the California Department of Water Resources (DWR). In fact, commencing in 2003 and every two years thereafter, DWR prepares a SWP Delivery Reliability Report that is intended to assist local agencies, cities and counties in conducting water supply analyses to demonstrate whether their water supplies are sufficient for development projects subject to the CEQA review process. DWR's most recent 2007 Final SWP Delivery Reliability Report (DWR Reliability Report) was published in August 2008.

According to the DWR Reliability Report, the long-term average delivery of contractual amounts of SWP Table A supply is expected to range from 63% under current (2007) conditions to between 66 and 69% under future (2027) conditions. (DWR Reliability Report, pp. 44-45, 51-52, 55-56, 78.) Within that long-term average, SWP Table A deliveries can range from 6% (single dry year) to 90% of contractual amounts under current conditions (DWR Reliability Report, p. 44), and from 6 to 7% (single dry year) to 100% of contractual amounts under future conditions. (DWR reliability Report, pp. 51, 55-56.) The analyses provided in the DWR Reliability Report are based upon 82 years of historical records for rainfall and runoff that have been adjusted to reflect the current and future levels of development in the sources areas by analyzing land use patterns and projecting future land and water uses. (DWR Reliability Report, p. 20.) Of key

importance, the studies utilized in the DWR Reliability Report for current through future conditions (20-year projection) assume and account for current facility and institutional limitations facing the SWP, such as: water quality issues; fishery protections; export curtailments and other requirements under State Board Water Rights Decision 1641; the Vernalis Adaptive Management Plan (VAMP) as described in the 2004 Operations Criteria and Plan (OCAP); recent court-ordered Delta flow targets in Old and Middle Rivers to protect listed fish species; and potential effects of Delta levee failures and other seismic or flood events. (See, e.g., DWR Reliability Report, pp. 8, 16, 18-21, 27, 30, 32, 35, 37-39, Appendices A and B.)

In addition, DWR's long-term SWP delivery reliability analyses incorporate assumptions to account for potential supply shortfalls related to global climate change factors. (Ibid.) The DWR Reliability Report accounts for potential affects of future climate change on SWP deliveries through the year 2050 by examining four climate change scenarios: weak temperature warming and weak precipitation increase in California under model PCM; modest warming and modest drying under model PCM; modest warming and modest drying under model GFDL v. 2.0; and weak temperature warming and weak precipitation increase in California under model GFDL v. 2.0. (See DWR Reliability Report, pp. 1, 17, 27, 37-39, 43, Appendices A and B.) Thus, the effects of these institutional, administrative and court-ordered reductions in SWP exports, as well as the potential effects of long-term global climate change, have been extensively analyzed and accounted for in the supply forecasts set forth by DWR's 2007 Final SWP Delivery Reliability Report.

The 29 SWP Contractors and water agencies throughout California utilize the DWR Reliability Report in their water supply analyses, planning and reporting obligations. Indeed, both MWD's Regional UWMP and EMWD's 2005 UWMP acknowledge that SWP entitlements differ from actual SWP deliveries made available to SWP Contractors. (See, MWD Regional UWMP, pp. III-41 to III-50; EMWD 2005 UWMP, pp. 32-35.) SWP Contractors, including MWD, generally anticipate that the variability of SWP supplies may increase in the future as the Contractors request their maximum Table A amounts and as system-wide issues such as Delta exports are resolved. At the same time, however, SWP Contractors such as MWD who utilize groundwater basins to recharge portions of their SWP deliveries, as well as other exchange and transfer arrangements, can plan to receive long-term average deliveries of 66 to 69% of their SWP Table A allotments. (2007 DWR Reliability Report, pp. 39-40.) As indicated above, MWD has incorporated DWR's SWP reliability studies and analyzed several other key factors in developing its conservative estimate of long-term SWP deliveries. (MWD Regional UWMP, pp. III-41 to III-50.)

Drought Conditions: Regional Water Supply Planning, Statewide Drought Declarations, and Water Agency Responses

In its role as the supplemental water supplier to Southern California, MWD faces ongoing challenges in meeting the region's need for reliable, high-quality water supplies. (MWD Regional UWMP, p. II-1.) Increased environmental regulations and competition for water from outside the region have resulted in changes in delivery patterns and timing of availability of imported water supplies. (Id.) Because of competing needs and uses associated with these resources, and because of concerns related to regional water operations, MWD has undertaken a number of planning initiatives over the past ten years. MWD's Regional UWMP discusses and analyzes those efforts. Particularly important to MWD's mission is its coordinated approach to regional planning through the Integrated Resources Plan (IRP). The outcome of the IRP process was a "Preferred Resource Mix" which would ensure water supply reliability to MWD and its member agencies reliability. As part of the IRP, MWD has developed an overall reliability analysis in its computer-based model referred to as the IRPSIM, which evaluates the reliability of its water supplies, including supplies available from the SWP, the Colorado River, water transfers and exchanges, and other sources. (See, MWD Regional UWMP, pp. II-1 to II-15.) The IRPSIM is based on 70 years of historical hydrology (from 1922 to 1991) to allow it to estimate water surplus and shortage over a 20-year period and beyond. The model has allowed MWD to analyze the reliability of deliveries to its member agencies during worst-case single year and multiple year drought events. The results of MWD's modeling indicate that it can maintain reliable supplies to meet all member agencies' full-service demands without interruption throughout the 2005 to 2030 time period, including under drought conditions. (MWD Regional UWMP, pp. II-2/3, 11, 15.) Detailed analyses regarding MWD's supply projections are also set forth in Appendix A of MWD's Regional UWMP. As detailed in those analyses, MWD's overall supply and delivery reliability is based not just on Colorado River and SWP supplies, but also on conservation programs, groundwater storage programs, and water transfer and exchange programs.

A key component of MWD's water supply strategy is its Water Surplus and Drought Management Plan (WSDM). The purpose of the WSDM is to provide policy guidance and help manage regional water supplies to achieve the reliability goals of the IRP, where MWD seeks to maximize management of wet year supplies and minimize adverse impacts of water shortages to retail customers. Supporting principles of the WSDM include the encouragement of efficient water use and economical local resource programs, coordinated operations with member agencies to make as much surplus water as possible available for use in dry years, and the pursuit of innovative transfer and banking programs to secure more imported water for use in dry years. The WSDM contains the following considerations that would go into any equitable allocation of imported water: impact on retail customers and regional economy; investments in local

resources, including recycling and conservation; population growth; changes and/or losses in local supplies; participation in MWD's non-firm, interruptible programs; and investment in MWD facilities. The WSDM distinguishes between surpluses, shortages, severe shortages, and extreme shortages. Within the WSDM, each year MWD evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to avoid extreme shortage scenarios to the maximum extent possible and minimize adverse impacts to retail customers if an extreme shortage occurs. The sequencing outlined in the WSDM reflects anticipated responses based on detailed modeling of MWD's existing and expected water supply resource mix. When MWD must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition. Under most stages of shortage, MWD is still able to meet all end-use demands for water. For more severe shortage conditions, the WSDM shows that MWD will meet demands by withdrawing water from storage. Under worsening shortage conditions, MWD may undertake additional shortage management steps, including issuing public calls for extraordinary conservation, including the curtailment of Interim Agricultural Water Program deliveries in accordance with their discounted rates, exercising water transfer options, or open market water purchases. In an extreme shortage scenario, MWD may be required to implement a plan to allocate available supply fairly and efficiently among its full-service customers, which allocations are to be based on and enforced through rate surcharges where member agencies will be required to pay more for deliveries exceeding their respective allotments. (MWD RUWMP, pp. II-15/16.) The benefits of aggressive water conservation and public education efforts are also detailed in MWD's RUWMP. (See MWD 2005 RUWMP, pp. III-5 through III-21.)

On February 12, 2008, MWD adopted a Water Supply Allocation Plan (WSAP) as a component of its WSDM. As indicated above, the WSDM guides MWD's supply actions under both wet and dry conditions for achieving overall water supply reliability to its member agencies, including EMWD. The WSDM outlines various water supply conditions and corresponding actions MWD may undertake in response to serious water shortages. Under Condition 1, MWD issues a Water Supply Watch and encourages local agencies to implement voluntary dry-year conservation measures and utilize regional storage reserves. Under Condition 2, MWD issues a Water Supply Alert and calls for cities, counties, its member agencies and all other retail water providers to implement extraordinary conservation through drought ordinances and other measures to mitigate the use of storage reserves. Under Condition 3, MWD may implement its WSAP, which allocates available water supplies among member agencies based on factors such as impacts on retail customers, population and growth of particular member agencies, the availability of recycled water and other local supplies, conservation efforts, participation in MWD's interruptible water supply programs, and investment in MWD's facilities.

On June 4, 2008, the Governor of California proclaimed a statewide drought due to record-low rainfall in spring 2008 and court-ordered restrictions on Delta exports as discussed above. (Executive Order S-06-08.) Soon thereafter, the Governor proclaimed a state of drought emergency to exist within the Counties of Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern. (Proclamation dated June 12, 2008.) In response, MWD determined it was not necessary to implement its Water Supply Allocation Plan but, rather, on June 10, 2008 declared a Condition 2 water scenario and issued a Water Supply Alert, calling on local agencies and residents to take immediate steps for conserving water. On February 27, 2009, the Governor declared a statewide water supply emergency to combat California's third consecutive year of drought. (Proclamation dated February 27, 2009.) Relatively soon thereafter, on April 14, 2009, MWD's Board of Directors implemented its WSAP at a Regional Shortage Level 2 with the goal of reducing regional demand for wholesale water deliveries by 10%. This marks the first time MWD has implemented the WSAP since it was approved in February 2008 after a seven-month development process. The WSAP will go into effect on July 1, 2009, and has the potential to increase the cost of MWD water supplies to particular member agencies.

The WSAP outlines a three step process for determining each member agency's "allocation year" supply during a period of shortage. First, base period local supplies, wholesale demands and retail demands are calculated by averaging data compiled during a three-year base period which MWD established as 2004 through 2006. Base period local supplies are the average annual supplies generated by groundwater production, groundwater recovery, Los Angeles Aqueduct supply (for the Los Angeles Department of Water and Power), surface water production, and other imported supplies, but do not include non-potable recycled water production. Under the Plan, base period wholesale demand includes full-service water deliveries, seawater barrier, seasonal shift, and surface storage operating agreement demands. The base period retail demand is calculated by adding base period local supplies and wholesale demand. Base period demand figures are then used to estimate allocation year retail demands, local supplies and, ultimately, wholesale demands. Notably, total retail demands for the allocation period are calculated by adjusting the base period retail demands for growth. The growth adjustment is calculated using the estimated actual annual rate of population growth at the county level, as determined by the California Department of Finance. Similarly, allocation year local supplies are estimated using the base year local supplies, adding average in-lieu deliveries received during the base period and planned or scheduled increases in supply over the base year, and subtracting losses of local supply due to conditions such as hydrology or water quality. Allocation year wholesale demand, which serves as the basis of a member agency's ultimate allocation, is then calculated by subtracting allocation year local supplies from retail demands.

Extraordinary increases in production over the base year, defined as increases that occur solely due to the circumstances in that year such as purchasing water transfers or overproducing

groundwater yield, are not included in the allocation year local supplies during a Regional Shortage Level 1 or 2 and, therefore, do not reduce allocation year wholesale demand. In years where MWD declares a Regional Shortage Level 3 or above, only a fraction of an agency's extraordinary increase in production will be included in the allocation year local supplies which, in turn, will influence the agency's allocation year wholesale demand. In the final step, the allocation year wholesale demand is converted into a water supply allocation. Actual allocations will be adjusted with credits based upon an agency's past conservation efforts and relative dependence upon MWD water deliveries.

Allocations under the WSAP ultimately are achieved through a penalty rate structure enforced by MWD. If a member agency exceeds its allocation, penalty rates and charges will apply for water deliveries to the agency in excess of the allocation. MWD will track agency water use on a monthly basis and any applicable penalties are to be assessed at the end of an allocation year. Thus, member agencies are not subject to penalties on the basis of a high demand month but, rather, only if their total usage between July 1, 2009, and June 30, 2010, exceeds their total annual allocation. Penalties will be assessed through an ascending block structure that imposes a lower penalty for minor overuse and a higher penalty for higher exceedance of an agency's water supply allocation. The Plan provides for an allocation appeals process which may be used to address miscalculated base period supplies, unforeseen loss or gain in local supply, population growth rates, and other issues affecting an agency's allocation. As indicated above, MWD has implemented its WSAP at a Regional Shortage Level 2 with the goal of reducing wholesale demands within its service area, maintaining storage reserves and decreasing the risk of additional supply allocations in the future.

EMWD has taken numerous steps to prepare itself and its customers for the potential scenario where MWD may implement its WSAP. Through these steps, EMWD has been able to achieve extraordinary water conservation and demand management on an agency-wide basis such that MWD's recent allocation is not expected to result in an actual reduction in MWD water deliveries to EMWD. Rather, EMWD has sought to markedly change the manner in which water is used within its territory as a means of controlling the amount of additional imported supply it may need from MWD during the allocation period. The key components of EMWD's demand management strategy are discussed below.

EMWD recently adopted Ordinance No. 72.24 (February 4, 2009) establishing aggressive new requirements to achieve water use efficiency within its service territory. Indeed, Ordinance No. 72.24 states that the following water efficiency requirements shall apply to all existing and future customers: (a) refrain from hosing down driveways and other hard surfaces, except for health or sanitary reasons and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off devise or a low-volume, high-pressure cleaning machine equipped to recycle any water used; (b) repair faucets, toilets, pipes and other

potential sources of water leaks; (c) irrigate landscape only between 9:00 p.m. and 6:00 a.m., although this provision does not apply when (i) manually watering during the establishment period of a new landscape, (ii) temperatures are predicted to fall below freezing, or (iii) for very short periods of time for the express purpose of adjusting or repairing an irrigation system; (d) refrain from watering or irrigating of any lawn, landscape or other vegetated area with potable water using a landscape irrigation system or watering device that is not continuously attended unless it is limited to no more than fifteen minutes watering per day per station, although this time limitation can be extended for (i) landscape irrigation systems that exclusively use very low flow drip irrigation systems when no emitter produces more than two gallons of water per hour, or (ii) whether based controllers or stream rotor sprinklers that meet a 70% efficiency, provided, however, that over-watering is not permitted in any case; (e) adjust and operate all landscape irrigation systems in a manner which will maximize irrigation efficiency and avoid over watering or watering of hardscape and the resulting runoff; (f) refrain from watering or irrigating any lawn, landscape or other vegetated area that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch; (g) do not use decorative fountains unless they are equipped with a recycling system; (h) do not allow water to run while washing vehicles, instead use a bucket or similar container and/or a handheld hose equipped with a positive self-closing water shut-off device to avoid run off into gutters, streets or alleys; (i) when installing new landscaping, plant low-water demand trees and plants and do not incorporate non-functional turf areas; and (j) refrain from water during rain. (EMWD Ordinance No. 72.24(1)(a)-(j).)

Another notable feature of EMWD's Ordinance No. 72.24 is its enforcement of the agency's tiered rate structure based on water budgets that apply to single-family, multi-family and landscape accounts that receive water from EMWD's domestic water system. Under Ordinance 72.24, four tiers are used to encourage efficient water use by customer groups and discourage the wasteful types of water uses identified above in Section 1 of the Ordinance. EMWD's Tier 1 Rate applies to an indoor water budget that is based on the gallons of water needed per person, per day. The Tier 2 Rate applies to an outdoor water budget that is based on square footage of landscape, actually daily ET, and a conservation factors, where (i) the default conservation factor for meters installed prior to September 1, 2008, is 1.0; (ii) the default conservation factor for meters installed after September 1, 2008, is 0.80 unless a lower ET adjustment factor is specified in the current State of California Model Water Efficiency Landscape Ordinance or the County of Riverside Water Efficient Landscape Requirements Ordinance; and (iii) the conservation factor can be adjusted up to 1.25 for functional areas at the discretion of EMWD. The Tier 3 Rate is applied to excessive water use that is measured as a percentage of Tier 1 and Tier 2 budgets, where a significantly higher rate can be charged for such excessive use. The Tier 4 Rate is applied to wasteful water use that exceed the Tier 3 limits. This rate is extraordinarily higher to discourage waste. (EMWD Ordinance 72.24(2)(a)-(d).) These tiered rates are more specifically

set forth in EMWD Resolution 3352. Ordinance 72.24 also establishes a strict penalty structure for water runoff. (EMWD Ordinance 72.24(3)(a)-(b).)

In a press release dated April 9, 2009, EMWD announced that its first tiered-rate bills had been distributed. In February and March, shadow bills accompanied regular bills to give customers an idea how their bills would have fared under the tiered structure. With EMWD's traditional rate structure, water rates were set according to a single commodity rate, regardless of the volume used. Under the new structure, each of EMWD's residential customers were provided with water budgets designed to give them the water they need for both indoor and outdoor uses. Indoor water budgets are based on the number of residents in the household, each using 60 gallons per day. The default single family residential household budget is based on three people, and multifamily residential is two. This comprises Tier 1. Outdoor water budgets are set according to the property's estimated irrigated area, based on County parcel data (lot size) and GIS information (house footprint, garage/carport area and driveway). The default for irrigated areas is generally set at 3,000 square feet, or up to 6,000 square feet for large landscapes. The outdoor portion comprises Tier 2. Together, the indoor and outdoor tiers form a household's water budget. Unlike other one-size-fits-all tiered rate structures, EMWD's includes allowances for larger households and for weather so greater outdoor irrigation is included in the budget during the summer. As stated in the press release, the purpose of the tiered rate structure is not to force people to go without water, but to eliminate excessive or wasteful use. The shadow bills also confirmed that 80% of EMWD's customers kept within their first two tiers, their water budgets. If tiered rates had been in effect at that time, those customers would have paid 18% less than their fixed commodity rates. Increased budgets can be approved for changes in the number of people in a household, larger landscaping areas, increased needs for large animals, child care or for medical requirements. Justification can also be made for allowing swimming pools to be refilled once every five years.

As an addition water saving measure, Ordinance No. 72.24 establishes stringent requirements for new landscape meters. First, EMWD requires a separate dedicated meter for landscape areas greater than or equal to 3,000 square feet. Second, the Ordinance provides that the efficient use of water should be considered in the design of any new landscape area, where EMWD will calculate an Annual Maximum Allowable Water Budget (AMAWB) for customers that request a new account using the following limitations: (i) the AMAWB will be calculated using the area's reference ET, the size of the landscaped area, and a conservation factor; (ii) for non-functional areas (landscape areas primarily used for aesthetic purposes, such as front yards, median strips, and parkways), a conservation factor of 0.80 will be used unless a lower factor for adjusting ET is specified in the current State of California Model Water Efficiency Landscape Ordinance or the County of Riverside Water Efficient Landscape Requirements Ordinance; (iii) for functional areas (landscape areas that serve as a surface for high traffic activities, such as playing a sport or

group gatherings), a conservation factor of 1.25 will be used at the discretion of EMWD; (iv) reference ET is given in inches per year, may vary by areas across EMWD, and will be established by EMWD; and (v) the AMAWB will be used to estimate outdoor water used, where the actual outdoor water budget applied to the account will be based on actual daily ET. Third, prior to the issuance of a landscape meter, the new customer shall calculate a water budget for each landscaped area, which budget cannot exceed the AMAWB limits calculated by EMWD. (EMWD Ordinance 72.24(4)(a)-(c).)

In addition to the foregoing, EMWD has also adopted a Water Shortage Contingency Plan ("WSCP") as part of its UWMP to address circumstances of drought, supply reductions, failure of water distribution systems or other emergency situations. (See, EMWD 2005 UWMP, Appendix D.) In fact, on March 5, 2009, EMWD adopted Ordinance No. 117.2 to amend its WSCP and more aggressively regulate the use of non-essential potable water during shortage and extreme shortage level conditions. Ordinance No. 117.2 expressly provides that its purposes is to help conserve available water supplies, protect the integrity of water supply infrastructure, and to help implement EMWD's contingency plan for times of drought and water supply shortages. (EMWD Ordinance 117.2, Section I.) Another stated purpose of the Ordinance is to achieve coordination and implementation of MWD's WSAP (see discussion above). (Id., Section III.) The water shortage contingency measures of Ordinance 117.2 apply to all persons, customers and properties within EMWD that utilize potable water and are implemented depending on the declared water supply condition as follows: Stage 1 exists when water deficiencies are predicted to or actually range between 0 and less than 5% of available supply and/or capacity; Stage 2 exists when water deficiencies are predicted to or actually range from 5% up to 10% of available supply and/or capacity; Stage 3 exists when water deficiencies are predicted to or actually range from 10% up to 15% of available supply and/or capacity; Stage 4 exists when water deficiencies are predicted to or actually range from 15 to 25% of available supply and/or capacity and storage is not recovering; Stage 5 exists when water deficiencies are predicted to or actually range from 25 to 35% of available supply and/or capacity and storage is not recovering; Stage 6 exists when water deficiencies are predicted to or actually range from 35 to 50% of available supply and/or capacity and storage is not recovering; Stage 7 exists when water deficiencies are predicted to or actually exceed 50% of available supply and/or capacity and storage is not recovering. (EMWD Ordinance 117.2, Section VII.)

Under any such stage, EMWD may employ any or all of the following public notification procedures: (a) notify the general public and influential local decision-makers about existing water supply conditions, actions to be taken, what customer involvement is intended to achieve, and how actions are to be implemented; (b) the public at large will be informed of the existing water supply conditions and what responses are needed, information that can be disseminated through billing inserts, special mailings, telephone contact, email, roadway signage, water

conservation booths, speaker engagements, community association meetings, newsletters, and other public education programming; (c) all available forms of media should be employed, including public service announcements on radio and television, as well as press coverage in local newspapers; and (d) posting all pertinent information on EMWD's website.

During a Stage 1 shortage, residential and potable landscape customers, as well as commercial, industrial and institutional ("CII") users, are encouraged to achieve a voluntary 10% reduction in water use by implementing the above mentioned requirements of EMWD's Water Use Efficiency Ordinance (Ordinance 72.24). A voluntary 5% reduction in water use is imposed on agricultural use. During Stage 2 conditions, all water users are required on a mandatory basis to comply with Ordinance 72.24 water saving measures to avoid the assessment of penalties. A mandatory 5% reduction in water use is imposed on agricultural use.

During Stage 3 conditions, household, potable landscape, and CII customers are required to achieve a 25% reduction in outdoor use and elimination of wasteful water use. In addition, the following restrictions apply: (1) watering or irrigating of lawn, landscape or other vegetated areas with sprinklers are subject to (i) watering only three days per week from June through August, (ii) two days per week in September, October and March through May, and (iii) one day per week November through February; (2) all leaks, breaks or other malfunctions in the water user's plumbing or distribution system must be repaired within 72 hours; (3) refrain from filling or re-filling of ornamental lakes or ponds; (4) refrain from using potable water to wash or clean a vehicle, including but not limited to, any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not; and (5) maintain existing water levels on swimming pools or outdoor spas. Agricultural customers are required to achieve a 10% reduction in water use.

During Stage 4 conditions, household, potable landscape, and CII customers are required to achieve a 50% reduction in outdoor water use and eliminate wasteful water use. In addition to the Stage 3 requirements set forth above, further restrictions can be used to avoid water use penalties, including: (1) watering or irrigating of lawn, landscape or other vegetated areas with sprinklers are subject to (i) watering only two days per week from June through August and (ii) one day per week from September through May. Agricultural customers are required to achieve a 15% reduction in water use. During Stage 5 conditions, all customers are required to achieve a 50% reduction in outdoor water use in addition to Stage 4 restrictions, and residential and potable landscape customers must eliminate water use in excess of 15% above their total indoor and outdoor water budgets. Agricultural customers are required to achieve a 25% reduction in water use. During Stage 6 conditions, all customers are required to achieve a 50% reduction in outdoor water use in addition to Stage 4 restrictions, and residential and potable landscape customers must eliminate water use in excess of their total indoor and outdoor water budgets. Agricultural customers are required to achieve a 35% reduction in water use. During Stage 7 conditions, residential and potable landscape customers are required to eliminate outdoor water

use except for purposes of health and safety and avoid exceeding indoor water budgets. CII customers are required to eliminate outdoor water use except for purposes of health and safety. Agricultural customers are required to achieve a 50% reduction in water use. (EMWD Ordinance 117.2, Sections IX–XI.)

As indicated by Ordinance No. 117.2, EMWD's implementation of water budgets and tier rate structures is intended to avoid the need for actually rationing community water supplies and preserve some latitude of choice with respect to how much potable water individual customers will use and how much customers are willing to pay for that water. (EMWD Ordinance 117.2, Section XII.) EMWD's approach and response to MWD's WSAP seeks to change the manner in which water is used within the agency, but it does not seek to physically curtail existing water deliveries or discourage new development. Recently, EMWD was declared to be in a Stage 1 water shortage condition where, as indicated above, all residential, potable landscape, and CII customers were encouraged to achieve a voluntary 10% reduction in water use by implementing the above mentioned requirements of EMWD's Water Use Efficiency Ordinance (Ordinance 72.24). On June 17, 2009, EMWD adopted Resolution No. 4918 to approve and authorize the declaration of Stage 2 conditions. The discussion above shows that during Stage 2 conditions, all water users are required on a mandatory basis to comply with Ordinance 72.24 water saving measures to avoid the assessment of penalties for wasteful uses of water.

Significance Criteria

9. ***Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?***

Impacts

As previously indicated, EMWD provides an average of approximately 110 million gallons per day to consumers and other water agencies. Approximately 80% of the EMWD potable water supply consists of imported water from the Metropolitan Water District of Southern California (MWD), with additional water supply obtained from local groundwater basins and recycled water produced by five regional water reclamation facilities. Water supply for the City and surrounding region is predominantly obtained through MWD from the State Water Project which conveys most water resources from Northern California and is supplemented by water delivered via the Colorado River Aqueduct. Additionally, the EMWD has developed a 3,000 acre feet per year seasonal storage demonstration program in which untreated State Water Project water is purchased from MWD during years of surplus which is then used to recharge local groundwater basins later to be used in-lieu of imported water. The seasonal storage program results in economic and resource management benefits for both the EMWD and MWD.

As a member agency that receives 80% of its water supply from MWD, the EMWD relies on MWD's ability to provide adequate water supply to meet existing and future demands to asses EMWD's ability to meet the demands of its specific service area. The Water Supply Assessment Report prepared by EMWD for the proposed Villages of San Jacinto Specific Plan, dated December 15, 2004, indicates that in March 2003 MWD prepared a Report on MWD's Water Supplies which finds that with existing and planned water supplies MWD will be able to provide 100% of its member agencies' project demand through the year 2030, including during periods of repeated drought conditions. In addition to the findings for adequate water supply through 2030 of MWD's Report on MWD's Water Supplies, EMWD's Water Supply Assessment Report relies on additional findings of 100% water supply reliability through 2025 provided in MWD's Update to the Integrated Resources Plan, dated July 13, 2004, which considers various changed conditions of Southern California including projections of demographic and economic information obtained from regional planning agencies, the Southern California Association of Governments (SCAG) and San Diego Association of Governments (SANDAG).

Eastern Municipal Water District (EMWD) prepared and adopted an Urban Water Management Plan (UWMP) pursuant to the requirements of the California Urban Water Management Planning Act. The most recent UWMP was approved by the EMWD Board of Directors on December 21, 2005. The UWMP describes how EMWD will address urban water demands and the efficient use of urban water supplies for a 5-year period and includes a discussion of the District's existing and planned water demand management measures, and the methods by which proposed measures will be implemented during the plan period. The Water Supply Assessment Report prepared by EMWD for the proposed development evaluates the estimated project water demand in relation to anticipated date of full build-out of the development and whether the anticipated demand will remain within the limits of the UWMP for the District.

EMWD's water supply assessment for the proposed Villages of San Jacinto initially assumed a maximum residential build out of 2,022 units. The assessment, therefore, provides a conservative estimate of projected water demand for the proposed residential use that would not exceed 1,016 units (or 1,329 units which includes 313 units should the school site be developed with residential uses). Therefore, the projected water demand is a worst-case estimate that would occur. According to the Water Supply Assessment Report, the proposed development at full build-out of the Villages of San Jacinto would result in an average projected water demand of 1,620 acre-feet/year. The assessment assumes a 4-year build out period with an initial water demand of 405 acre-feet per year in 2007, and the total projected water demand of 1,620 acre-feet/year occurring in 2011. The Water Supply Assessment Report indicates that the total projected water demand for the proposed development would remain within the limits of the projected demand of the District's current UWMP.

The Water Supply Assessment Report further indicates that, because EMWD is depending on MWD to supply water to meet future demand, and MWD has projected growth in its service area using anticipated growth information provided by SCAG, EMWD has concluded that it will be able to meet the projected water demand of the proposed development as well as existing and future uses beyond 2025. In addition, EMWD has concluded that it will be able to meet future water demand for the next 20 years in the event of drought given that MWD does not place restrictions on imported water resources on member agencies, and given that MWD has found that, based on water demand determined by regional growth projections, it would be able to meet all member agencies' projected supplemental demand with existing and planned water supplies through 2030 even with the occurrence of repeat drought conditions. A letter from EMWD dated May 11, 2009, confirms their previous conclusions in the December 15, 2004, Water Supply Assessment Report. Therefore, potential impacts associated water supply insufficiencies are considered less than significant.

The existing City water facilities and infrastructure that would serve the Villages of San Jacinto include a 12-inch water line that occurs within the Sanderson Avenue right-of-way just south of the project site. Extension of a 16-inch water line along the Sanderson right-of-way to Ramona Boulevard is currently underway. These existing facilities have sufficient capacity to serve the maximum level of development permitted under the Specific Plan to the point of connection/s that would be required to distribute water throughout the Specific Plan area. A new water distribution system would connect to the Sanderson Avenue line via 12-inch pipelines and would distribute potable water throughout the development area primarily via 8-inch lines within the proposed internal street network (see *Figure 5.12-3, Master Water Plan*).

The Specific Plan identifies the following conditions for development in the Villages of San Jacinto:

- All water and sewer lines will be designed per the Eastern Municipal Water District's Water and Sewer System Planning and Design Criteria dated July 2, 2007, and September 1, 2006, respectively.
- The infrastructure system and phasing shall be designed and installed consistent with the City of San Jacinto Engineering Department requirements.
- The Eastern Municipal Water District will manage the development of infrastructure for the project area.
- Water and sewer facilities shall be installed in accordance with the requirements and specifications of the San Jacinto Engineering Department and the Riverside County Health Department.

Based on a worst case scenario assuming the proposed high school is built and a total of 1,016 homes are built (the school would result in higher water consumption than the 313 dwelling units that would replace the school), the total projected water demand is 853,640 gallons per day (gpd) for the proposed development (based on factors from RBF Consulting, November 9, 2005). This demand is expected to remain within the limits of the District's projected regional demand as outlined in the December 15, 2004, Water Supply Assessment for the project and affirmed by the May 11, 2009, letter from EMWD. The proposed Specific Plan policies require that a written agreement with EMWD be executed which states that the provision of services shall be available prior to the recordation of any tract maps. The Specific Plan policies further require that new water facility infrastructure be developed in accordance with the City Engineering Department and Riverside County Health Department, and development would be manage by EMWD. Therefore, all necessary infrastructure would be appropriately designed and constructed to serve the proposed development. Therefore, impacts related to water services would be less than significant.

Mitigation Measures

None.

Residual Impact/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services such as domestic water supply are provided in conjunction with build-out of the development. Therefore, impacts to domestic water supply systems and supplies would be less than significant.

5.12.9 Solid Waste and Recycling

Existing Conditions

CR&R Stanton Division provides solid waste and recycling management services for the City of San Jacinto. Solid waste disposal for the City of San Jacinto is directed to the Lamb Canyon Landfill which is owned and operated by the Riverside County Waste Management Department (RCWMD). The Landfill also services the Cities of Beaumont, Banning and Hemet, and the unincorporated areas of Pine Cove, Idyllwild, Cherry Valley, Cabazon, Homeland, Romoland and Winchester.

The Lamb Canyon Landfill is a Class III solid waste disposal site consisting of 1,088 acres of total landfill permit area. In December 2003, the California Integrated Waste Management Board approved a request by RCWMD for a Revised Full Solid Waste Facilities Permit and adopted a

Mitigated Negative Declaration to permit an increase in the overall capacity of the fill from 23,601,595 cubic yards to 34,292,000 cubic yards to accommodate the fill's projected design capacity for year 2023. In addition, the revised permit allowed for an increase in the amount of daily received waste from 1,900 tons per day to 3,000 tons per day to accommodate an anticipated five-year growth period of the service area (California Integrated Waste Management Board Resolution 2003-504, December 16–17, 2003).

The City is mandated by the California Integrated Waste Management Board (CIWMB) to divert 50% of its waste stream away from landfills through source reduction, recycling, and composting activities (AB939). Information obtained on the CIWMB website, indicates that the City of San Jacinto met the waste diversion standard with a 51% diversion rate as of the most recent available reporting year of 2006 (CIWMB, http://www.ciwmb.ca.gov, accessed on May 6, 2009).

Significance Criteria

10. ***Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?***

11. ***Would the project comply with federal, state, and local statues and regulations related to solid waste?***

Impacts

Anticipated uses in the Villages of San Jacinto are typical of urban areas, and would not violate any federal, state, or local statutes or regulations related to solid waste.

As discussed previously, the Lamb Canyon Landfill, which is regulated by the CIWMB, approved a request by the RCWMD to permit an increase in the overall capacity of the fill from 23,601,595 cubic yards to 34,292,000 cubic yards to accommodate the fill's projected necessary design capacity to adequately serve residents of Riverside County through year 2023. The CIWMB also permitted an increase in the amount of daily received waste from 1,900 tons per day to 3,000 tons per day to accommodate an anticipated five-year growth period of the service area (California Integrated Waste Management Board Resolution 2003-504, December 16–17, 2003).

According to personnel of RCWMD, the department does not consider projected population and development growth rates of the service area to determine future waste generation. The fill capacity needed to meet future needs of the service area is due to various factors that affect the amount of solid waste that is actually received at the facility such as required waste diversion programs (AB 939) and construction/demolition materials associated with new development. Likewise, the County does not have a particular threshold to define a significant project-specific

impact to the solid waste system. The RCWMD, as an alternative, determines the landfill's estimated future capacity needs based on historical data that has documented an average 4% increase rate in waste disposal received by the fill (Ma, personal communication, December 3, 2004). Given the 4% growth rate of solid waste anticipated to be received by the landfill and the recent approved expansion of the fill to accommodate the anticipated growth rate for the service area through 2023, the proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.

Other factors to consider in evaluating the proposed project's potential impacts relative to waste generation include construction debris, recycling efforts, and potential hazardous waste generation. Because the project site is primarily vacant with the exception of a limited number of out buildings associated with current agricultural operations, development of the proposed project is not anticipated to result in an exceptionally large amount of construction waste generation that may otherwise result from large demolition activities of existing structures. Construction waste generation would be equivalent to that normally associated with new development and, therefore, would not substantially affect the landfill's capacity threshold to accommodate the service area. Therefore, potential impacts associated with solid waste generation and disposal is considered less than significant.

To ensure that the development of the proposed Specific Plan is maintained in compliance with the efforts of the City of San Jacinto to continue to meet the mandate of AB 393, a number of mitigation measures have been identified to facilitate appropriate waste generation minimization and recycling efforts, (see *Section 5.12.5, Mitigation Measures, Mitigation Measures 5.12-d through 5.12-f*).

Finally, CR&R Sanitary Service has indicated that it can serve future development in the Villages of San Jacinto area without the need to expand its Resource Recovery Center. Therefore, potential impacts associated with solid waste disposal services are considered less than significant.

Mitigation Measures

5.12-d Demolition and/or excess construction materials shall be separated on site for reuse/recycling or proper disposal (e.g., concrete asphalt). During grading and construction, separate bins for recycling of construction materials and brush shall be provided on site.

5.12-e Landscaping shall be designed and located to utilize drought tolerant species, minimize irrigation, and to reduce green waste generation.

5.12-f The developer shall develop and submit a Solid Waste Management Plan to be reviewed and approved by the City Public Works Solid Waste Division and Planning and Development, and shall include:

- Provision of space and/or bins for the storage of recyclable materials within the project site,
- Methods of waste collection,
- Information programs to future residents regarding disposal of hazardous wastes.

Residual Impact/Level of Significance after Mitigation

The proposed Villages of San Jacinto Specific Plan includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate solid waste facilities are provided in conjunction with build-out of the development. With implementation of the additional mitigation measures included above, impacts to solid waste facilities and providers would be less than significant.

5.13 HAZARDS/RISK OF UPSET

5.13.1 Introduction/Methodology

The focus of this section is to outline existing hazards present on site, regulatory guidelines related to hazard assessment and clean-up if necessary and how the proposed project may have an impact on identified hazards or create new hazards to the surrounding community once constructed.

The following analysis is based on the October 10, 2002, *Phase I Environmental Site Assessment Report* prepared by Gradient Engineers, Inc. This report is contained in *Appendix L* to this EIR. Methods used to survey and test the site are contained therein.

5.13.2 Existing Conditions

The Phase I Environmental Site Assessment reported one residential structure, one large warehouse, one small warehouse, a storage shed, two office trailers, three groundwater wells (one domestic, two irrigation), shelter areas for cows and equipment storage areas on site. A detention basin is located in the southwest corner of the site. As of a May 1, 2009, site visit, the only remaining structures were the abandoned residence which had deteriorated significantly from the time of the Phase I Environmental Site Assessment and shade structures associated with a former cattle operation (no cattle are currently present at the site). *Figure 5.13-1, Hazardous Materials Site Map* and *Figure 5.13-2, Hazardous Materials Detailed Site Map* show the location of each area described above.

On-Site Hazardous Material History

At the time of the survey for the Phase I Environmental Site Assessment, the project site was used as a sod farm and a heifer raising facility. Since 1949 (date of first available records), the property was used for agricultural purposes. In 1980, a heifer farm was established on site. By 1997, part of the property was converted into a sod farm. Quality Turf has leased a portion of the property for production of sod since 1997. Approximately twenty acres of the property has been leased for heifer raising activities since approximately 1978. However, the heifer raising facility was recently removed from the site, along with the manure which was converted to compost. The surrounding area consists of rural agricultural land uses. Agricultural land is located to the north and east while vacant land and a chicken ranch are located west of the project site. The San Jacinto Valley Regional Water Reclamation Facility is located to the south of the site.

One of the former land owners supplied the Phase I investigator with records detailing the removal of three Underground Storage Tanks (USTs). In 1999, two 1,000-gallon and one 10,000-gallon gasoline USTs were removed from the area southwest of the large warehouse. The

area where these tanks were formerly located was over-excavated and approximately 120 tons of contaminated soil transported off site for treatment.

Total petroleum hydrocarbons in the gas range (TPHg), benzene, toluene, ethylbenzene, xylenes and methyl tertiary butyl ether (MTBE). In October 2000, soil in this area of the property was retested for the above contaminants. In December 2000, a vapor extraction well was set up near the former tank locations to determine whether identifiable levels of petroleum hydrocarbons still existed. Contaminant level measurements of each sampling period are summarized in *Table 5.13-1, Historic UST Soil Contaminant Levels*.

Table 5.13-1
Historic UST Soil Contaminant Levels

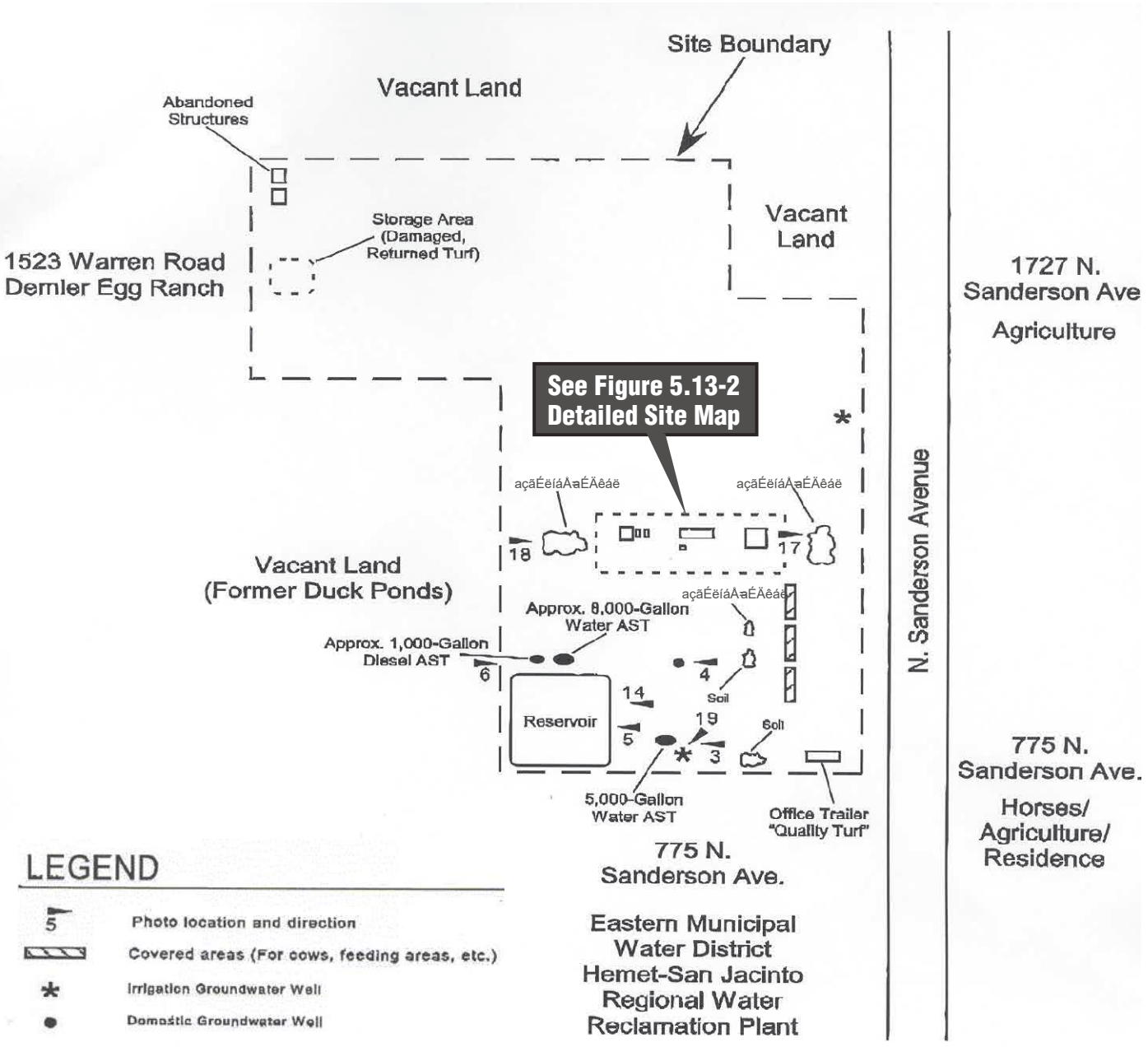
Petroleum Hydrocarbon Tested	Testing Period		
	1999 (during UST removal)	October 2000	December 2000 (vapor measurements)
TPH-g	5,290 mg/kg	2,710 mg/kg	Significant levels not detected
Benzene	36.8 mg/kg	Not Measured	Significant levels not detected
Toluene	638 mg/kg	131 mg/kg	Significant levels not detected
Ethylbenzene	200 mg/kg	Not Measured	Significant levels not detected
Xylenes	352 mg/kg	486 mg/kg	Significant levels not detected
MTBE	377 mg/kg	169 mg/kg	Significant levels not detected

SOURCE: Gradient Engineers Inc, October 2002, p. 5.

Groundwater wells were also drilled to determine the depth of groundwater, and if appropriate, measure the level of contaminants. Groundwater was not encountered at 70 feet below ground surface and was expected to exist approximately 120 feet below ground surface. In December 2000, the Regional Water Quality Control Board recognized that the lack of identifiable vapors from the vapor test well indicated that remaining soil in the immediate area would not pose a threat to groundwater resources.

On December 26, 2001, the RWQCB issued a case closure summary and "no further action" letter for the previous underground storage tank issue. That said, the letter's case closure summary states "corrective action should be reviewed if the land use changes."

A review of aerial photographs indicates that a windmill was historically located at the northwest corner of the site.



SITE MAP
APN 431-020-005
APN 431-020-006
APN 431-020-015

SOURCE: GRADIENT ENGINEERS, INC., OCTOBER 2002

Villages of San Jacinto EIR
Hazardous Materials Site Map

FIGURE
5.13-1

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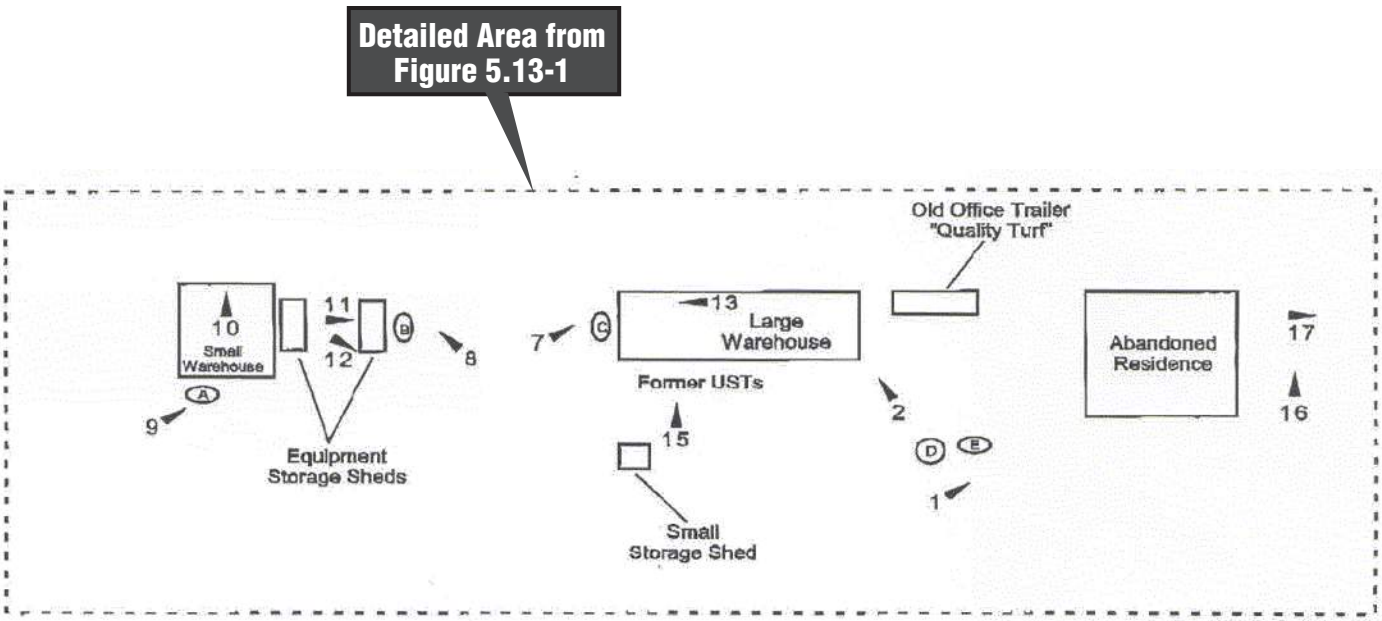

LEGEND

5	Photo location and direction
A	500-Gallon Waste Oil AST
B	Empty 8,000-Gallon AST (Formerly contained diesel fuel)
C	6,500-Gallon Diesel Fuel AST
D	10-15,000-Gallon Water AST
E	1,500-Gallon Water AST

DETAILED SITE MAP
APN 431-020-005
APN 431-020-006
APN 431-020-015

SOURCE: GRADIENT ENGINEERS, INC., OCTOBER 2002

Villages of San Jacinto EIR

Hazardous Materials Detailed Site Map

FIGURE 5.13-2

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On-Site Hazardous Material Current Presence

As indicated on *Figure 5.13-1* and *5.13-2*, in addition to the structures present on the site, the site reconnaissance noted one 5,000-gallon, one 8,000-gallon, and one 15,000-gallon tank. One 1,500-gallon aboveground water storage tank was also observed. Three diesel fuel above ground storage tanks were also observed on site. Stained and discolored soil was observed beneath the diesel tanks.

Mr. Ralph Daily, manager of the Quality Turf Farm operation, provided a list of hazardous chemicals used for sod farm operations. These chemicals include diesel fuel, waste oil, drained used oil filters, pesticides and herbicides, oil and hydraulic fluids. Oily staining was observed on the concrete pads on the equipment associated with the groundwater irrigation well located east of the reservoir. The floor within the equipment shed was observed to be stained with an oily substance beneath the three 55-gallon drums. The ground beneath the floor was not accessible/observable during the Phase I site reconnaissance.

Visual evidence of Polychlorinated Biphyenyls (PCBs) was not observed on site during the Phase I Environmental Site Assessment visit, however, transformers were observed on poles throughout the property. Staining was not observed beneath these transformers.

Petroleum stained soil was observed beneath the diesel above ground storage tank located northwest of the reservoir, near the irrigation groundwater well located southeast of the reservoir, and on the floor of the equipment shed, beneath three oil containing 55-gallon drums.

Debris, including old equipment, water heaters, trash, etc., was observed in several piles throughout the site (see *Figure 5.13-1*, "cultural debris"). Several mounds of soil were observed on site. According to Mr. Daily, the soil piles were generated from on-site activities and were piled as such for storage.

Two septic systems are located on site. One is located near the residential structures, its exact location unknown and the other northeast of the larger warehouse. One existing reservoir is located on site. This reservoir contains reclaimed water from the nearby San Jacinto Valley Regional Water Reclamation Facility and is used for sod farm irrigation. Historic aerial photographs document previous reservoirs, however during the Phase I Environmental Site Assessment, these reservoirs were no longer located on the property.

Three groundwater wells are located on site. One is used for domestic water while the other two are used for irrigation. According to Mr. Daily, the depth of the domestic water well is approximately 150 feet below ground surface while the irrigation wells range from 300 to 400 feet below ground surface. Oil, gas production or groundwater monitoring wells were not

observed or reported at or near the site. The vapor extraction well noted above was abandoned in 2002.

An asbestos building material and lead-based paint assessments were not performed for the project site.

Off-Site Hazardous Material History/Presence

A search on the First Search Report Environmental Database Report System was conducted to determine presence of any nearby hazards outside of the property limit boundaries. The following databases were searched: Federal National Priorities List (NPL), Federal Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), Federal Resource Conservation Recovery Act (RCRA) Notifiers List, Emergency Response Notification System (ERNS), Toxic Release Inventory System (TRIS), Department of Toxic Substances Control Sites (CALSITES), Solid Waste Landfill Facilities, Underground Storage Tank (UST) sites, Leaking Underground Storage Tank (LUST) sites, and unmapped listings. A description of each list's content is included in Section 4.1.2 of the Phase I Environmental Site Assessment included as *Appendix L* to this EIR.

The above regulatory database lists were reviewed for cases pertaining to leaking USTs and ASTs, hazardous waste sites and abandoned sites within the specified radii of standards established by the American Society for Testing and Materials (ASTM). The First Search Report did not indicate the presence of any facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater beneath the proposed project site.

The site's location on several local databases was also searched. The following local databases were searched: Riverside County Department of Environmental Health, Riverside County Fire Department, California Regional Water Quality Control Board (Santa Ana Region), Department of Toxic Substances Control and South Coast Air Quality Management District.

In 1990, the State of California conducted a radon survey across the state. The results of the survey indicate that the testing area within which Riverside County is located, is below the U.S. EPA radon action level.

5.13.3 Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on hazards/risk of upset if it:

1. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
8. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

5.13.4 Impacts

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction of the proposed project would involve the transport of gasoline and other potentially hazardous material to the project site for the sole purpose of equipment fueling. However, once project construction is complete, the transport, use or disposal of hazardous materials would be limited to household cleaning products, landscaping chemicals and fertilizers, and other substances associated with residential and recreation (park) uses and such items that may be available for resale in future commercial uses. Therefore, significant impacts are not anticipated to occur.

Would the project create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Hazardous materials potentially found at the site are related to the historic use of fertilizers, herbicides and pesticides; potential methane production related to former cattle feed lot; petroleum residues; household debris; and asbestos in older buildings.

Due to the historic use of approximately 20 acres of the property as a heifer raising farm, the presence of manure may result in significant environmental impacts related to methane gas exposure. In order to reduce potential impacts to a level below significance, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-a*).

As indicated in *Section 5.13.3*, the vapor extraction test well installed in December 2000 to monitor residual contaminants left from the previous underground storage tanks did not indicate a significant presence of petroleum hydrocarbons in the soil. Any remnant petroleum hydrocarbons remaining in the soil are not extensive enough to pose a threat to nearby groundwater. The issuance of the Regional Water Quality Control Board's "no further action" letter indicates that hazardous materials previously present on the site have been removed to a level that no longer poses a threat to the environment. Therefore, while the project site contains historic environmental hazards, these hazards have been removed and would no longer pose significant health risks to the public or environment. That said, the Regional Water Quality Control Board and Riverside County Department of Health Services will be notified of the change in use and regulatory procedures may be required to ensure that the site is safe for reuse (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-b*).

Historic windmills were often powered by diesel fuel. The diesel fuel source was often stored in underground storage tanks. During the Phase I Site Assessment, diesel storage tanks were not noted nor did they appear on federal or state databases within the vicinity of the old windmill. That said, often underground storage tanks are unreported and therefore could be discovered during grading. If an underground storage tank or stained soil or soil with a petroleum hydrocarbon odor is uncovered, a potentially significant impact could occur. In order to reduce potential impacts related to undocumented underground storage tanks or contaminated soil, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-c*).

According to Mr. Daily, when the sod is harvested, a portion of the soil is harvested along with the sod. Pesticides and herbicides are normally found in the upper one to two feet of soil, therefore, with the continual harvesting of the sod, it is unlikely that significant pesticide, herbicide or fertilizer residue remains in the soil or represent an environmental concern to development of the site. Early pesticide and/or herbicide use would have degraded into the soil

over the years and would also not result in an existing environmental concern. Furthermore, the types of pesticides/herbicides used for current sod operations are not an environmental concern.

Visual evidence of Polychlorinated Biphyenyls (PCBs) was not observed on site during the Phase I Environmental Site Assessment visit, however, transformers were observed on poles throughout the property. Staining was not observed beneath these transformers. Therefore contamination from transformer activity on site is not expected. Therefore, a less than significant impact would occur.

Petroleum stained soil was observed beneath the diesel above ground storage tank located northwest of the reservoir, near the irrigation groundwater well located southwest of the reservoir and on the floor of the equipment shed, beneath three oil containing 55-gallon drums. In order to avoid potential exposure of the environment or the public to potential contaminants in these areas, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-d*).

Debris, including old equipment, water heaters, trash, etc., was observed in several piles throughout the site. In order to avoid potential significant impacts related to improper disposal of debris piles, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-e*).

Two septic systems are located on site. In order to reduce potential impacts related to biohazard contamination as a result of septic tank residue, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-f*).

Once the project is developed, domestic water will come from imported water sources from Eastern Municipal Water District rather than on-site groundwater supplies. In order to close the three on-site groundwater wells, and any additional wells that are discovered during site development, without resulting in potentially significant impacts to the environment, namely local groundwater sources, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-g*).

In 1990, the State of California conducted a radon survey across the state. The results of the survey indicate that the testing area within which Riverside County is located, is below the U.S. EPA radon action level. Therefore, the potential for elevated radon levels at the site appear to be low.

Due to the age of many on-site buildings, the potential for asbestos-laden material exists on site. In order to reduce any impacts related to asbestos hazards, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-h*).

Due to the age of many on-site buildings, the potential for lead-based paint materials exists on site. In order to reduce any impacts related to lead-based paint hazards, mitigation is provided (see *Section 5.13.5, Mitigation Measures, Mitigation Measure 5.13-i*).

Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

There are no existing schools within one-quarter mile of the site, but the project includes a planning area for a potential high school. However, the project does not include any proposed land uses which would result in the release or handling of hazardous or acutely hazardous materials.

Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or environment?

As indicated in the second impact response above, a number of hazardous conditions may exist on the project site due to historical uses. All of these potential impacts have been reduced to a less than significant level with recommended mitigation. As discussed above under Section 5.13.2, a search of federal databases was conducted to determine presence of any nearby hazards outside of the property limit boundaries which did not indicate the presence of any facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater beneath the proposed project site.

For a project within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The project would not subject users to safety hazards associated with public or private airports, since no airports are located within two miles of the project site.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

In order to reduce the potential for construction traffic conflicts which may include emergency evacuation plans, a traffic control plan shall be developed to the satisfaction of the City Engineer, as a standard condition of the project.

Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project site is not located adjacent to wildland areas. The project site is surrounded by mainly by agricultural land uses, scattered residential and the water reclamation facility located to the south. As such, the project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.

5.13.5 Mitigation Measures

5.13-a In order to ensure that methane hazards do not exist on the 20 acre portion of the site formerly used for heifer raising activities, the Riverside County's Methane Investigation Protocol shall be followed during and after site preparation. After grading of the 20 acres, methane gas sampling and any associated mitigation mechanism installation shall occur in accordance with the most recent Riverside County Department of Environmental Health protocols.

5.13-b The Regional Water Quality Control Board and Riverside County Department of Health Services shall be notified of potential site reuse in accordance with the December 26, 2001 "no further action" letter provided for the remediated leaking underground storage tanks. These agencies may require additional processing or testing depending on the ultimate reuse of the specific area contaminated. In order to ensure that regulatory compliance has been met, on-site soils shall be tested prior to grading to determine the presence of contaminants. Testing results will help determine if permissible levels of contaminants have been exceeded. If levels have been exceeded, impacted soils shall be remediated in accordance with Riverside County Department of Health Service protocol.

5.13-c The former windmill site shall be flagged prior to site grading. During site grading near the former windmill site, a qualified hazardous materials specialist shall monitor grading activities. If an underground storage tank or petroleum hydrocarbon odor-laden soil is uncovered near the old windmill site, grading and site work shall cease and the Regional Water Quality Control Board and Riverside County Department of Health Services notified. A remediation plan shall be developed to ensure that all contaminated soil and structures are removed, handled and disposed of in accordance with existing state and local regulations. Sampling in the area of impacted soils shall continue until contaminant levels reach an acceptable risk.

5.13-d In order to mitigate for potential hazards associated with petroleum stained soil beneath diesel storage tanks and on the floor of the equipment shed beneath 55-gallon oil storing drums, collection of surface and near surface samples by a qualified hazardous materials

specialist must occur. Following removal of the equipment shed, observations will be made for any stained soil beneath the shed. If stained areas are observed, surface and near surface samples shall be collected. Testing for contaminant levels must occur and an assessment of significance under state and local hazardous material regulations must follow. Once contaminant levels are determined, the Regional Water Quality Control Board and Riverside County Department of Environmental Health must be contacted to determine the proper mitigation method prior to site redevelopment. Any soil and other materials contaminated with hazardous materials may be considered hazardous waste and therefore must be disposed of in accordance with federal, state and local regulations.

5.13-e During removal of debris piles, a qualified hazardous materials specialist shall be on site. The hazardous materials specialist will conduct a site assessment of debris pile content and direct disposal accordingly. All waste products will be disposed of in accordance with state and local laws.

5.13-f In order to mitigate for potential hazards associated with existing septic tanks on site, the construction contractor shall remove the tanks and residue material in accordance with Riverside County Department of Environmental Health protocol. The project applicant will then be required to provide proof of septic tank removal to the City prior to issuance of building permits.

5.13-g In order to prevent groundwater contamination, the three on-site groundwater wells and vapor monitoring well, and any additional wells uncovered during site development, shall be abandoned and decommissioned in accordance with Regional Water Quality Control Board and Riverside County Department of Health protocols. The project applicant will be required to provide proof of well decommissioning to the City prior to issuance of building permits.

5.13-h Prior to demolition of on-site buildings, an asbestos survey shall be performed by a certified asbestos abatement contractor. Findings in the survey shall be used to determine what precautions shall be taken during demolition activities. If asbestos is present, removal shall occur in accordance with Riverside County Department of Environmental Health protocol.

5.13-i All building material suspected to contain lead-based paint shall be tested prior to demolition. If lead-based paints are present, removal shall occur in accordance with Riverside County Department of Environmental Health protocol.

5.13.6 Residual Impacts/Level of Significance after Mitigation

Incorporation of the proposed mitigation measures would reduce any potential impacts to a level below significance.

SECTION 6.0
CUMULATIVE IMPACTS

6.1 INTRODUCTION/PURPOSE

In many cases, the impact of a single project may not be significant, but when combined with other projects, the "cumulative" impact may be significant. Section 15355 of the CEQA Guidelines defines "cumulative impacts" as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines Section 15130(b) states that "the discussion [of cumulative impacts] need not provide as great of detail as is provided of the effects attributable to the project alone." Section 15130(b) further states that a cumulative impacts discussion should be guided by the standards of practicality and reasonableness.

Cumulative impacts can occur from the interactive effects of a single project. For example, the combination of noise and dust generated during construction activities can be additive and can have a greater impact than either noise or dust alone. However, substantial cumulative impacts more often result from the combined effect of past, present and future projects that are located in proximity to the project under review. For example, the wastewater treatment demand generated by a project may not be significant when analyzed alone, however, when analyzed in combination with the wastewater demands of approved or proposed projects, the wastewater demands may exceed the resource capabilities of the service agency, resulting in a significant cumulative impact. Therefore, it is important for a cumulative impacts analysis to be viewed over time and in conjunction with other related past, present and reasonably foreseeable future developments which may have impacts that might compound or interrelate with those of the project under review.

6.2 CUMULATIVE FORECASTING METHODOLOGY

Section 15130 (b)(1)(A) of the CEQA Guidelines allows for the preparation of a list of past, present, and reasonably anticipated future project as a viable method of determining cumulative impacts. This discussion utilizes that approach: an initial list and description of all related projects followed by a discussion of the effects that the proposed project may have on each environmental category of concern, such as traffic, noise, or biology. Consistent with CEQA, this discussion is guided by the standards of practicality and reasonableness.

6.3 LIST OF RELATED PROJECTS

This section of the analysis provides a list of past, present, and reasonably foreseeable future projects. Several development proposals, City projects and public infrastructure projects have been submitted for consideration or have been recently approved by local government agencies

in proximity to the proposed project that together with the proposed project would result in an increase in urban development/construction-related environmental impacts. To analyze cumulative impacts, the western San Jacinto area will serve as the study area which includes land along the western city limits to the general State Street area to the east (some projects east of State Street are included consistent with the traffic analysis as discussed below). Esplanade Avenue makes up the southern boundary and the northern city limits and areas adjacent to Ramona Expressway the northern boundary. The list of cumulative projects was compiled throughout the EIR preparation process (late 2004 to spring 2009). The existing list was updated in April 2009 in association with development of the most recent traffic report for the project (*Villages of San Jacinto Traffic Impact Analysis*, Urban Crossroads, April 24, 2009, included in *Appendix H* of this report). This list is similar to those contained in *Table 5.9-4, 2023 Cumulative Project Trip Generation*. However, some of the smaller projects and public infrastructure projects were not included in the traffic report. However, these projects have been included in the table below.

General project description information for each cumulatively considerable project is contained in *Table 6.0-1, Villages of San Jacinto Cumulative Projects List*. The location of each project is depicted on *Figure 6.0-1, Cumulative Projects.*

Table 6.0-1
Villages of San Jacinto Cumulative Projects List

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
Urban Development Projects					
SP 1-01	1	west of Warren Road	in planning process (April 2009)	490 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project.
TR – 31037	2	west of Ramona Boulevard	in planning process (April 2009)	131 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31282	2	west of Ramona Boulevard	in planning process (April 2009)	274 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31154	2	west of Ramona Boulevard	in planning process (April 2009)	135 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31900	2	west of Ramona Boulevard	in planning process (April 2009)	112 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 33072	2	west of Ramona Boulevard	in planning process (April 2009)	140 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 33138	2	west of Ramona Boulevard	in planning process (April 2009)	28 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
VTR – 31384	2	west of Ramona Boulevard	in planning process (April 2009)	48 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 33249	2	west of Ramona Boulevard	in planning process (April 2009)	25 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 34364	2	west of Ramona Boulevard	in planning process (April 2009)	8 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30814	3	northeast corner of North Sanderson Avenue/Cottonwood Avenue Intersection	in planning process (April 2009)	155 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30481	3	northeast corner of North Sanderson Avenue/Cottonwood Avenue Intersection	in planning process (April 2009)	126 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project

Table 6.0-1 (Continued)

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
TR – 31555	3	northeast corner of North Sanderson Avenue/Cottonwood Avenue Intersection	in planning process (April 2009)	115 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30813	3	northeast corner of North Sanderson Avenue/Cottonwood Avenue Intersection	in planning process (April 2009)	186 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30335	3	northeast corner of North Sanderson Avenue/Cottonwood Avenue Intersection	in planning process (April 2009)	69 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30944	3	northeast corner of North Sanderson Avenue/Cottonwood Avenue Intersection	in planning process (April 2009)	102 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
VTR – 31097	4	northwest corner of North State Street/Cottonwood Avenue Intersection	in planning process (April 2009)	214 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31293	4	northwest corner of North State Street/Cottonwood Avenue Intersection	in planning process (April 2009)	100 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 29384	4	northwest corner of North State Street/Cottonwood Avenue Intersection	in planning process (April 2009)	39 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31246	4	northwest corner of North State Street/Cottonwood Avenue Intersection	in planning process (April 2009)	128 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30878	5	South of Cottonwood Avenue, east of Sanderson Avenue	in planning process (April 2009)	170 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32250	6	South of Cottonwood Avenue, east of Sanderson Avenue	in planning process (April 2009)	53 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project

Table 6.0-1 (Continued)

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
TR – 30559	6	South of Cottonwood Avenue, east of Sanderson Avenue	in planning process (April 2009)	20 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31929	6	South of Cottonwood Avenue, east of Sanderson Avenue	in planning process (April 2009)	78 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
VPM 31281	7A	South of Ramona Expressway, north of project site	in planning process (April 2009)	500 TSF commercial 62.5 TSF industrial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
PM 31522	7B	South of Ramona Expressway, north of project site	in planning process (April 2009)	200 TSF commercial 250 TSF industrial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
Bahan Hopkins	7C	Northeast of intersection of Ramona Expressway, Sanderson Avenue	in planning process (April 2009)	1,100 TSF commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SJ 106, LLC	7D	Northeast of intersection of Ramona Expressway, Sanderson Avenue	in planning process (April 2009)	250 TSF commercial 321 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
Target Center SP-1-08	7E	southeast of intersection of Ramona Expressway, Sanderson Avenue	in planning process (April 2009)	771 TSF commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
McCleish Group	7F	South of Ramona Expressway, north of project site	in planning process (April 2009)	200 TSF commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30603	8	north of Esplanade Avenue east of Lyon Avenue	in planning process (April 2009)	203 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 22665	8	west of North Sanderson Avenue immediately east of the northeast corner of the proposed project	in planning process (April 2009)	147 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 29917	9	East of State Street	in planning process (April 2009)	134 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31794	9	East of State Street	in planning process (April 2009)	62 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32518	9	East of State Street	in planning process (April 2009)	34 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project

Table 6.0-1 (Continued)

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
TR – 31544	9	East of State Street	in planning process (April 2009)	135 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 29992	10	east of State Street, north of Blodgett Street	in planning process (April 2009)	30 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30884	10	east of North Ramona Boulevard and west of Ramona Expressway	in planning process (April 2009)	14 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 33509	10	south of Cottonwood Avenue and east of Lyon Avenue	in planning process (April 2009)	37 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
VTR – 30484	11	East of State Street	in planning process (April 2009)	117 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31566	11	East of State Street	in planning process (April 2009)	61 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32053	12	East of State Street	in planning process (April 2009)	178 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32053	12	East of State Street	in planning process (April 2009)	108 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30644	13	East of State Street	in planning process (April 2009)	66 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31035	13	East of State Street	in planning process (April 2009)	77 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32376	13	East of State Street	in planning process (April 2009)	337 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31886	14	North of Ramona Boulevard	in planning process (April 2009)	321 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32843	14	North of Ramona Boulevard	in planning process (April 2009)	143 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
PM 30532	14	North of Ramona Boulevard	in planning process (April 2009)	2 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32555	14	North of Ramona Boulevard	in planning process (April 2009)	12 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project

Table 6.0-1 (Continued)

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
SP 1-03	15	West of Gilman Springs Road	in planning process (April 2009)	580 single-family residential units	Urban Crossroads. East of State Street April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 32080	15	West of Gilman Springs Road	in planning process (April 2009)	53 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 29341	15	West of Gilman Springs Road	in planning process (April 2009)	251 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30597	16	Southwest of Sanderson Avenue and Cottonwood Avenue intersection	in planning process (April 2009)	116 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31855	16	Southwest of Sanderson Avenue and Cottonwood Avenue intersection	in planning process (April 2009)	161 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31855	17	East of State Street	in planning process (April 2009)	126 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 31855	17	East of State Street	in planning process (April 2009)	192 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
Kasbergen Hafliger Property	17	East of State Street	in planning process (April 2009)	147 single-family residential units 30 TSF commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SP 1-02	18	Northwest of Warren Road and Esplanade Avenue intersection	in planning process (April 2009)	613 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR – 30828	19	West of Sanderson Avenue, south of Cottonwood Avenue	in planning process (April 2009)	293 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR- 31544	20	East of Sanderson Avenue, south of Ramona Boulevard	in planning process (April 2009)	134 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TTM 32155	21	West of Sanderson Avenue, south of Cottonwood Avenue	in planning process (April 2009)	253 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR- 33408	22	East of Sanderson Avenue, south of Ramona Boulevard	in planning process (April 2009)	210 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project

Table 6.0-1 (Continued)

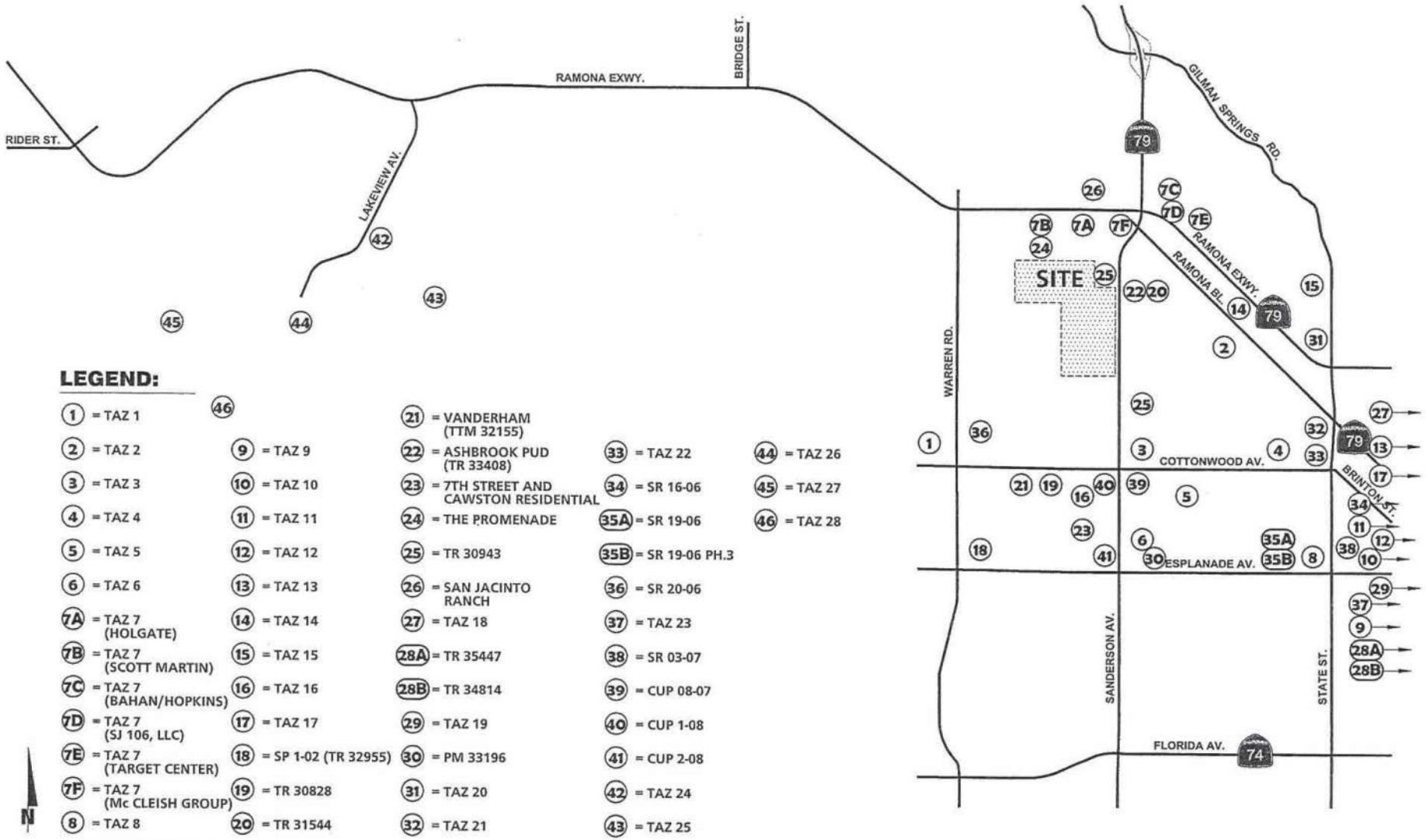
Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
Cawston Residential	23	West of Sanderson Avenue, south of Cottonwood Avenue	in planning process (April 2009)	128 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
The Promenade	24	Just north of project site south of Ramona Expressway	in planning process (April 2009)	600 Apartments 39 TSF office 40 TSF retail	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR- 30943	25	Northeast of project site west of Sanderson Avenue, south of Ramona Expressway	in planning process (April 2009)	210 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SP 1-07	26	North of Ramona Expressway, north of project site	in planning process (April 2009)	228 single-family residential units 1,008 Condo residential units 174 TSF commercial 31 TSF office	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
PM 33196	30	Northeast of intersection of Sanderson Avenue and Esplanade Avenue.	in planning process (April 2009)	118 TSF commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SR 10-06	33	Northwest corner of State Street and Cottonwood Avenue intersection	in planning process (April 2009)	8.2 TSF Commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SR 04-07	33	Northwest corner of State Street and Cottonwood Avenue intersection	in planning process (April 2009)	21.5 TSF Commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SR 16-06	34	East of State Street	in planning process (April 2009)	12.2 TSF Medical Office	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SR 19-06	35B	West of State Street, north of Esplanade Avenue	in planning process (April 2009)	74 TSF Medical Office	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
SR 20-06	36	Northeast of intersection of Warren Road and Cottonwood Avenue	in planning process (April 2009)	64 TSF General Office	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project

Table 6.0-1 (Continued)

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
SR 03-07	38	East of State Street, north of Esplanade Avenue	in planning process (April 2009)	13.3 TSF Commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
CUP 08-07	39	Southeast of intersection of Cottonwood Avenue and Sanderson Avenue	in planning process (April 2009)	171 TSF Commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
CUP 1-08	40	Southwest of intersection of Cottonwood Avenue and Sanderson Avenue	in planning process (April 2009)	141 TSF Commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
CUP 2-08	41	Northwest of intersection of Sanderson Avenue and Cottonwood Avenue	in planning process (April 2009)	134 TSF Commercial	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR-30915 TR-32165 TR-32764	42	East of Lakeview Avenue, south of Ramona Expressway	in planning process (April 2009)	419 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR-33177 TR-33178	43	East of Lakeview Avenue, south of Ramona Expressway	in planning process (April 2009)	33 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR-29315	45	West of Lakeview Avenue, north of Nuevo Road	in planning process (April 2009)	327 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
TR-31583	46	South of Nuevo Road	in planning process (April 2009)	171 single-family residential units	Urban Crossroads. April 2009. Traffic Analysis for Villages of San Jacinto Project
Public Infrastructure					
Eastern Municipal Water District – San Jacinto Valley Regional Water Reclamation Facility Agriculture Groundwater Exchange	Not on Map	South of proposed project limits east to San Jacinto River pump station and south to citrus fields.	Pending	construction of a pipeline and pump station to replace groundwater with up to 7,000 acre-feet of recycled water for citrus irrigation.	www.emwd.org

Table 6.0-1 (Continued)

Project Name	Map Indicator	Location	Status	Units/Square Footage	Reference
RCTC/Riverside County – SR 79 Realignment	Not on Map	Gilman Springs Road to Domenigoni Parkway	Draft EIR/EIS expected to be circulated late 2009 with construction expected to begin by 2011.	realignment of existing highway (linear facility)	www.rctc.org
RCTC/Riverside County – Mid County Parkway Project	Not on Map	Ramona Expressway from its intersection with SR 79 to Cajalco Road to its intersection with I-15	Draft EIR/EIS expected to be circulated late 2009 with construction expected to begin by 2012.	32-mile east-west limited access route connecting Corona with San Jacinto	www.rctc.org
Sanderson Avenue and Ramona Expwy. Intersection enhancements	Not on Map	Sanderson Avenue/Ramona Expwy. intersection	Scheduled construction: summer 2009	Intersection capacity enhancements and signal modification	San Jacinto, City of. 2008-2009 Capital Improvement Program
Sanderson Avenue/Cottonwood Avenue	Not on Map	Street widening and improvements	Scheduled construction fall/winter 2009	roadway improvements	San Jacinto, City of. 2008-2009 Capital Improvement Program
Kirby Street/Cottonwood Avenue Traffic Signal	Not on Map	Intersection of Kirby Street and Cottonwood Avenue	Pending	traffic signal installation	San Jacinto, City of. 2008-2009 Capital Improvement Program
Hewitt Street Storm Drain Line	Not on Map	Hewitt Street from Commonwealth Avenue to Park Avenue	In Design	storm drain pipeline (linear facility)	San Jacinto, City of. 2008-2009 Capital Improvement Program
Line G Flood Control project	Not on Map	De Anza Drive from Palm Avenue to Lyon Avenue	Pending	storm drain pipeline (linear facility)	San Jacinto, City of. 2008-2009 Capital Improvement Program
San Jacinto River Levee	Not on Map	From existing USACE levee to west of Sanderson Avenue	Construction Pending final engineering and environmental	roadway rehabilitation (linear facility)	San Jacinto, City of. 2008-2009 Capital Improvement Program



SOURCE: URBAN CROSSROADS

Villages of San Jacinto EIR

Cumulative Projects

FIGURE 6.0-1

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6.4 IMPACTS TO ENVIRONMENTAL FACTORS

Land Use Planning and Zoning

This project, when combined with the others planned within the western portion of the City of San Jacinto, would result in a large increase in suburban land uses adjacent to existing agricultural land uses. However, this area will continue to convert to urban-type uses consistent with the General Plan, which would ultimately alleviate potential land use conflicts between existing agricultural uses and planned development. Therefore, the cumulative impact of land uses would not be incompatible with the surrounding mixture of land uses planned within the area. This portion of the City, when combined with the other projects outlined in *Table 6.0-1* would be consistent with the City of San Jacinto General Plan adopted on May 4, 2006, and the latest General Plan Land Use Map approved in February 2009 which reflects the future direction of land use form envisioned for this portion of the City. Analysis of individual projects as they are submitted to the City will ensure compatibility with applicable plans and policies.

Agricultural Resources

The proposed project would result in significant, unmitigable impacts to agricultural resources. When combined with the other surrounding projects which also involve conversion of agricultural resources into suburban uses, a significant decrease in agricultural land use within the City of San Jacinto would occur. In summary, the project, when combined with many of the cumulatively considerable projects listed in *Table 6.0-1*, would contribute to a significant, unmitigable cumulative impact to agricultural resources. As discussed in *Section 5.3, Agricultural Resources*, the City's General Plan EIR (January 2006) discusses a number of reasons mitigation for loss of agriculture is infeasible. Rising land costs to replace agricultural lands, increasing water costs, labor costs, urbanization and environmental regulations all contribute to ongoing conversion of farmland. Without property owner cooperation and substantial financial incentives, it is infeasible to provide permanent on or off-site mitigation to replace converted farmland.

Landform Alteration and Aesthetics

The proposed project will contribute to the gradual change in visual character of the Sanderson Avenue corridor and the western San Jacinto Valley. The project represents a transition from a rural and agricultural area to a landscape that can be characterized as suburban in nature. These visual changes will be most evident from Sanderson Avenue and other major roadways which have sweeping views of the project site. However, neither the project, nor cumulative development would represent a substantial degradation in visual quality of designated scenic resources such as the Lakeview Mountains or other unique topographic features or result in a substantial impediment to scenic views provided such development is consistent with planned

land uses in the vicinity of the project and with General Plan development and design guidelines. Therefore, cumulative impacts related to visual resources are not anticipated.

Biological Resources

Although the project will result in minimal direct impacts to biological resources, development of this project, combined with the others described above would contribute to the increase in human presence within the western San Jacinto Valley. Continued development within the western areas of the City would extend urban land uses into vacant areas characterized by natural and/or agriculturally utilized habitats that are used by the region's sensitive plant and wildlife species. That said, the project is consistent with the Western Riverside County MSHCP, which is, in effect, an attempt at a cumulative/big-picture approach to mitigating the impacts of increased urban development on the region's plant and wildlife species. Analysis of individual projects for consistency with the MSHCP will provide mitigation for biological resources, including payment of development fees to support implementation of the MSHCP and will reduce cumulative impacts to less-than-significant levels.

Cultural Resources

Any potentially significant cultural resource impacts associated with development on surrounding projects would be site-specific and can be mitigated on a project-by-project basis. Therefore, since individual projects would be fully mitigated, residual cumulative impacts to the region would not occur. Therefore, the cumulative effect when considering all these projects combined would result in a less than significant cumulative impact to cultural resources.

Geology/Soils

Most geology and soil hazards associated with development on surrounding projects would be site-specific and can be mitigated on a project-by-project basis. Such hazards include exposure of people or structures to rupture of an earthquake fault, liquefaction, landslides, unstable geologic units, and expansive soils. The individual project mitigation for these hazards will ensure that there are no residual cumulative impacts. There is potential for a cumulative impact of all related projects on soil erosion in the project area. However, the City of San Jacinto requires construction Best Management Practices which include soil stabilization and erosion control techniques. Therefore, no significant residual cumulative impacts related to geology and soils resources would occur.

Paleontological Resources

As with other cultural resources, all significant paleontological resources associated with this and other projects will be mitigated on a project-by-project basis. Because each project would be

required to fully mitigate for any potential paleontological resources, residual cumulative impacts to regional paleontological resources would not occur.

Water Quality and Hydrology

Runoff from project construction areas and parking lot and landscape irrigation systems will contribute to the incremental increase in urban runoff to the San Jacinto River system. However, compliance with Regional Water Quality Control Board requirements of attenuating all project drainage on site to ensure that post construction discharge does not exceed existing quantities, ensures that both a project-specific and cumulative increase to regional drainage (and therefore potential flooding of downstream systems) is avoided. Further, by ensuring that project mitigation measures (which are in the form of construction, design, and operational best management practices) are incorporated, any runoff does not result in a localized water quality contamination issue. Further, because all surrounding projects are regulated under the same City and Regional Water Quality Control Board standards, they too will be required to attenuate all drainage on site (to maintain pre development flow quantities) and incorporate water quality design features to prevent cumulative impacts to local drainage systems or water quality.

Further, although the City does not have control over it, a regional drainage master plan, referred to as the San Jacinto Master Drainage Plan (MDP) is being planned to provide a regional stormwater conveyance system for the western San Jacinto area. This regional drainage system will also help appropriately convey and/or attenuate drainage generated by future western San Jacinto urban development. This future facility would help with cumulative drainage issues in this region. However, as indicated above, the absence of this facility is not resulting in a project-specific or cumulative impact to drainage because all existing projects in the planning process are being required to attenuate all flows on site in the interim basis.

Transportation, Circulation and Access

Implementation of the mitigation measures included in *Section 5.9.5, Mitigation Measures*, would ensure that regional traffic conditions do not dip below an acceptable LOS (LOS D) for existing plus project conditions. However, without completion of the Mid County Parkway and SR-79 projects, the project would contribute to a cumulative significant impact. Mitigation proposed for this significant cumulative impact is infeasible due to exceedance of General Plan roadway criteria (i.e., triple left turn lanes at Warren Road and Ramona Expressway, and extensive improvements required along Sanderson Avenue) and the uncertainty of obtaining adequate right-of-way for such measures. Therefore, because the City can not guarantee that regional improvements would be implemented prior to completion of the project, a significant unmitigable cumulative traffic impact would occur. That said, it should be noted that the unacceptable LOS conditions would occur with or without the project under cumulative

conditions in the absence of the Mid County Parkway and SR-79 improvements. Significant cumulative impacts can not be mitigated; therefore, significant cumulative impacts would occur as a result of the proposed project and many other cumulatively considerable projects depicted on *Figure 6.0-1*.

Air Quality

Regional Air Quality

Implementation of the project would result in short-term impacts to air quality associated with construction and long-term impacts associated with increased vehicle traffic to and from the site as well as energy use. Buildout of the proposed project would occur from 2011 to 2033, with the nonresidential land uses constructed during the last 10 years. As the proposed construction would occur over a 22-year time period, there is the potential that additional construction activity associated with future projects in the vicinity of the proposed project could occur concurrently and cumulatively impact the same sensitive receptors. Construction schedules for potential future projects are currently unknown; therefore, potential impacts to sensitive receptors that might be located within an area of overlap between emissions from two simultaneous projects are speculative. The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (Title 14, California Code of Regulations, Section 15145). This analysis is nonetheless provided in an effort to provide good faith analysis and comply with CEQA's information disclosure requirements. Air pollutant emissions associated with construction activity of future projects would be reduced through the implementation of mitigation measures required by the South Coast Air Quality Management District (SCAQMD). Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced as all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD. As indicated in Section 5.10, the application of architectural coatings (exterior/interior paint and other finishings) would produce VOC emissions that would exceed the SCAQMD's established quantitative significance threshold. As VOC is a precursor to ozone, construction of the proposed project along with other nearby projects would contribute to the South Coast Air Basin’s (SCAB) ozone nonattainment designation. The maximum 24-hour PM_{10} and $PM_{2.5}$ concentrations are anticipated to exceed the LST at the maximally impacted sensitive receptor in the vicinity of the project site during project construction. Fugitive dust, as well as vehicle and equipment exhaust, generated during project construction would also contribute to the SCAB nonattainment designation for PM_{10} and $PM_{2.5}$.

Operations of the project would produce VOC, NO_x, CO, SO_x, PM_{10} and $PM_{2.5}$ emissions from all combined proposed residential and nonresidential project land uses. The projected operational emissions from both area source and vehicular emissions are substantially above the SCAQMD

significance criteria for all pollutants except SO_x. Long-term operational air quality impacts are considered significant and unmitigable, even with application of all feasible mitigation measures. The cumulative effect of the proposed project and other projects in the vicinity would incrementally contribute to the SCAB's levels of O_3, NO_2, CO, PM_{10}, and $PM_{2.5}$. The location of the project within a nonattainment area for ozone PM_{10}, and $PM_{2.5}$, when combined with other foreseeable projects within the area would result in significant, unmitigable cumulative air quality impacts from both a short and long term perspective even with incorporation of all feasible area source and vehicular source mitigation measures. Because feasible mitigation measures consist of many emission reduction strategies (i.e., architectural design features, encouragement of alternative transportation, etc.), most of which help reduce emissions, current technology doesn't allow for a complete reduction of emissions given the types of development proposed. Therefore despite the City's efforts to require all feasible mitigation, significant unmitigable impacts would remain.

Global Climate Change

The project would also contribute to the overall production of greenhouse gas (GHG) emissions during construction and operation. As stated in *Section 5.10.4*, the proposed project's contribution to state, national, and GHG emission inventories and the resultant effect on global climate should be evaluated on a cumulative basis. The proposed project would generate GHG emissions, which would contribute to potential cumulative impacts of GHG emissions on global climate.

Under Section 15065 of the CEQA Guidelines, an EIR must discuss cumulative impacts if a project would have a cumulatively considerable effect on a resource, where "cumulatively considerable" is defined as "…the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." However, as Section 15064(h)(4) states, "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the fact that the proposed project would result in emissions of GHGs (chiefly carbon dioxide), and that global GHG emissions contribute to the greenhouse effect and the resultant impacts on global climate, does not mean that the proposed project would have a cumulatively considerable contribution to impacts on global climate. The potential contribution of the project to this cumulative impact is evaluated relative to whether the project could impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32.

The proposed project is evaluated with respect to the California Air Resources Board's (CARB) Climate Change Scoping Plan, which established the state's framework for meeting the goals of

AB 32. Many of the Scoping Plan measures to be adopted in the next several years will reduce GHG emissions from all development projects and their users in California. For example, adoption of the Low Carbon Fuel Standard and more stringent energy conservation standards would apply to all motor vehicle users and owners of homes and commercial properties, including those of the proposed project. Given that the GHG reduction goal of AB 32 (i.e., reduction of emissions to 1990 levels by 2020) would require a statewide reduction of approximately 30% from "business as usual" (i.e., the emissions that would occur in the absence of any regulation of GHG emissions), a large portion of a specific project's GHG emissions will result from statewide measures. Nonetheless, each development project should incorporate measures intend to achieve the goals of AB 32.

The Specific Plan incorporates several design features that reduce indirect emissions of GHGs by reducing vehicle trips and conserving water that would otherwise be consumed by the proposed project:

- Incorporates commercial (retail) and mixed-use (office/retail) components to improve jobs/housing balance and reduce vehicle trips.
- Incorporates public and private on-site recreational facilities
- Provides drought-tolerant and water-efficient landscaping for the community to reduce waste usage.
- Incorporates recycled water from Eastern Municipal Water District to supply the lake and irrigate landscaping to minimize the use of potable water.

By incorporating the commercial and mixed-use components of the proposed project, the project's residents will be able to use retail services and take advantage of job opportunities within proximity to the residential development. Thus, motor vehicle trips and their associated GHG emissions would be reduced relative to a project that would not include these nonresidential uses. The traffic impact analysis estimated that 5,020 trips are captured internally by the project for trips between the residential and commercial/mixed-use components. If these trips were required to go to off-site commercial and mixed-use locations, they would generate a minimum of 6,693 metric tons of carbon dioxide equivalent (CO_2E) of GHGs. This amount would be even larger if the project residents were required to drive farther to such uses, which would be likely given the lack of retail and commercial development in proximity to the proposed project. Additionally, there are on-site recreational facilities which would further reduce the need for longer vehicle trips associated with such uses at another location.

The use of recycled water to supply the lake and for landscape irrigation will reduce the GHG emissions associated with electricity needed for conveyance, treatment, and distribution of potable water. The estimated amount of water needed to supply the lake and irrigation of

common landscaping area (e.g., parks and greenbelts) is 402 acre-feet per year. Using recycled water would offset an equivalent amount of potable water, which would result in the generation of 1,137 metric tons CO_2E of GHG emissions from electricity for conveyance, treatment, and distribution.

Together, the incorporation of commercial/mixed-use components and use of recycled water would reduce the proposed project's GHG emissions by an estimated 7,830 metric tons CO_2E per year, or 14%, relative to the business-as-usual scenario.

In addition, the Specific Plan would reduce GHG emissions associated with vehicle trips by encouraging pedestrian and bicycle activity within the community. The project would include a 9.6-acre network of paseos and pathways linking the Beach Club and lake to all of the residential neighborhoods, commercial and mixed use areas, and the recreational amenities including the neighborhood parks and the Community Park. Neighborhood design will maximize pedestrian access to the paseo system by providing that a minimum of 50% of the streets terminate in cul-de-sacs that access the paseos.

The following design guidelines have been incorporated into the Energy Efficiency Guidelines in the Villages of San Jacinto Specific Plan to help reduce vehicle trips, electrical and natural gas usage, and conserve water, all of which would reduce the proposed project's GHG emissions.

Energy Efficiency

1. All buildings shall employ passive heating and cooling design strategies to the extent practical.
2. Shading of windows and entrance locations with a combination of structural elements and landscape materials will reduce heat gain and lower the temperature around each house.
3. Consider installing natural lighting systems such as skylights and interior transom windows to reduce energy consumption in commercial, office and municipal structures.
4. When appropriate to the architectural style, consider constructing light colored roof, which absorb less heat, reduce solar heat gain, and reduce use of mechanical cooling systems.
5. Use energy-efficient appliances and programmable thermostats to reduce the amount of consumed energy and reduce utility bills.
6. Automatic devices to turn off lights after business hours shall be used to the extent feasible in the commercial and business park land uses. Similarly, install timers on outdoor lighting to limit operating hours.

7. Install fluorescent bulbs in all indoor and outdoor fixtures unless unsuitable for the application.
8. Offer homebuyers the option of a natural gas stove, which reduces the consumption of electricity.
9. Use of passive solar energy minimizes the consumption of electricity. If possible, offer additional energy conservation features as homebuyer options, including but not limited to:
    a. Photovoltaic panels for electrical power needs of home.
    b. Photovoltaic landscape lighting, gate openers, water features.
    c. Solar water heating system.

Water Conservation

1. Drought tolerant and native plants are required as part of the plant palette, as required by Riverside County Ordinance No. 859.
2. Use a drip irrigation system and/or zoned irrigation system with a rain sensor shutoff feature.
3. Consider xeriscape landscape treatments instead of lawns. Where lawns or gardens are proposed, incorporate detention grading and/or construct as a swale to allow for maximum detention and control of stormwater flows.
4. Utilize water efficient faucets, high-efficiency toilets (HETs), and water-conserving shower heads in residential homes.

Landfill Waste

1. During building construction, use long-lasting products, such as engineered lumber and durable, non-combustible flooring, siding, and roofing materials, if feasible.
2. Consider the use of sustainable building materials for use during building design and construction.

Pedestrian Activity and Bicycle Paths

1. Provide on-site improvements, such as sidewalks or pedestrian walkways, to promote on-site pedestrian activity and reduce the amount of vehicle trips within the community.
2. Provide a pedestrian access network and pedestrian facilities to internally link all uses and connect to all existing/planned external streets and public facilities.

3. Provide a designated bicycle route connecting all units, on-site bicycle parking facilities, and all streets contiguous with the community.
4. Design traffic calming elements to encourage walking and biking.

Implementation of these design guidelines would likely result in additional reductions in the GHG emissions from natural gas and electrical usage. However, those emission reductions cannot be quantified because the guidelines do not provide sufficient detail to compute the actual reductions in natural gas and electrical usage.

The Climate Change Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32. The Scoping Plan recommendations serve as statewide strategies to reduce the state's existing GHG emissions and proposed project's contributions. Although a framework for the adoption of specific regulations and measures, the Scoping Plan is the current state's plan to reduce GHG emissions. *Table 6.0-2, Project Consistency with Scoping Plan GHG Emission Reduction Strategies*, highlights measures to be developed under the Scoping Plan that would be applicable to the proposed project or its users. The proposed project's consistency with the applicable Scoping Plan measures is assessed.

Table 6.0-2
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Pavley Motor Vehicle Standards (AB 1493)	T-1	The proposed project's residents and employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Limit High GWP Use in Consumer Products	H-4	The proposed project's residents would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Motor Vehicle Air Conditioning Systems – Reduction from Non-Professional Servicing	H-1	The proposed project's residents would be prohibited from performing air conditioning repairs and required to use professional servicing.
Tire Pressure Program	T-4	Motor vehicles driven by project residents and employees would maintain proper tire pressure when their vehicles are serviced.
Low Carbon Fuel Standard	T-2	Motor vehicles driven by project residents and employees would use compliant fuels in the future.
Water Use Efficiency	W-1	The Specific Plan includes measures to minimize water use and maximize efficiency.
Water Recycling	W-2	The proposed project will use recycled water for the lake and irrigation of common landscaped areas.
Solar Water Heating (AB 1470)	CR-2	The Specific Plan includes an energy efficiency guideline to offer home purchasers the option of installing solar hot water heaters.
Million Solar Roofs	E-4	The Specific Plan includes an energy efficiency to offer home purchasers the option of installing photovoltaic panels for electrical power needs.

Table 6.0-2 (Continued)

Scoping Plan Measure	Measure Number	Project Consistency
Green Buildings	GB-1	The proposed project will be required to be constructed in compliance with state or local green building standards in effect at the time of building construction.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by the proposed project's residents and employees would comply with the leak test requirements during smog checks.
Renewable Portfolios Standard (33% by 2020)	E-3	The electricity used by residents and businesses in the proposed project will benefit from reduced GHG emissions resulting from increased use of renewable energy sources.
Energy Efficiency Measures (Electricity)	E-1	The proposed project will comply with energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Natural Gas)	CR-1	The proposed project will comply with energy efficiency standards for natural gas appliances and other devices at the time of building construction.
Greening Public Schools	GB-1	The proposed school would meet green building standards that are in effect at the time of design and construction.
Greening New Residential and Commercial Construction	GB-1	The proposed project's residential and commercial buildings would meet green building standards that are in effect at the time of design and construction.
Greening Existing Homes and Commercial Buildings	GB-1	The proposed project's residential and commercial buildings would meet retrofit standards when they become effective.

SOURCE: CARB 2009.

In addition to the strategies being developed under the Climate Change Scoping Plan, the Attorney General and others have recommended mitigation measures that can be applied to a project to reduce its GHG contribution. The Attorney General's list (Office of the California Attorney General 2008) includes many of the measures that are project design features or are incorporated into the Specific Plan's Energy Efficiency Guidelines. These include, but are not limited to, the following:

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.
- Install light colored “cool” roofs, cool pavements, and strategically placed shade trees
- Install energy efficient heating and cooling systems, appliances and equipment, and control systems.
- Limit the hours of operation of outdoor lighting.

- Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning.
- Create water-efficient landscapes.
- Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
- Use reclaimed water for landscape irrigation in new developments and on public property. Install the infrastructure to deliver and use reclaimed water.
- Design buildings to be water-efficient. Install water-efficient fixtures and appliances.
- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods.
- Preserve and create open space and parks.
- Create travel routes that ensure that destinations may be reached conveniently by public transportation, bicycling or walking.
- Incorporate bicycle lanes and routes into street systems, new subdivisions, and large developments
- Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) published *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (CAPCOA 2008). This white paper is "intended as a resource, not a guidance document. It is not intended, and should not be interpreted, to dictate the manner in which an air district or lead agency chooses to address greenhouse gas emissions in the context of its review of projects under CEQA" (CAPCOA 2008). However, this document provides an extensive list of potential GHG mitigation measures; however, many of them would be only implementable by the users of the proposed project and not enforceable by the City or the applicant. Again, many of them, as listed below, are project design features or incorporated into the Energy Efficiency Guidelines:

- Bike parking
- Proximity to bike path/bike lanes
- Pedestrian network
- Orientation to existing/planned transit, bikeway, or pedestrian corridor
- Suburban mixed use

- No wood-burning fireplaces or stoves
- Energy efficient appliances
- Shading mechanisms
- Programmable thermostats
- Passive heating and cooling systems.

Based on the analysis in *Table 6.0-2*, the proposed project would substantially reduce its contribution to GHG emissions and global climate due to its consistency with the strategies and measures in the Scoping Plan, as well as mitigation measures suggested by the Attorney General and CAPCOA. In addition, the proposed project would result in GHG emissions of approximately 49,650 metric tons per year (0.05 million metric tons) as shown in *Table 5.10-13*, which is 14% below the level that would have been emitted under a business-as-usual scenario. Furthermore, compared to the estimated GHG for all sources in California (423 million metric tons, excluding out-of-state electrical generation, in 2004), the project would result in a contribution of approximately 0.012% to California's GHG emissions inventory without accounting for the implementation of statewide emissions that would reduce both the project's and the state's emission inventories. In light of the project's consistency with the Scoping Plan and other suggested measures through its design features and Energy Efficiency Guidelines and its substantial reduction from business as usual, it is concluded that the proposed project would not impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32. Therefore, the proposed project would not result in a cumulatively considerable contribution to global climate change, and this cumulative impact would be less than significant.

Noise

Cumulative noise impacts are discussed in terms of traffic related noise and a general increase in urbanization in an area. A project specific contribution to cumulative traffic noise would be evaluated on an individual basis, and if significant impacts are identified (e.g., non-compliance with noise standards) then mitigation requirements would be imposed. In the long term, the increase in traffic noise from the proposed project and cumulative developments (i.e., General Plan build-out) is calculated to range from 5 to 7 dB, which is a noticeable change in the noise environment. The noise increase associated with traffic from cumulative developments is therefore considered potentially significant. However, the project's contribution to cumulatively significant traffic noise impacts is less than significant (1 dB or less increase, which by itself is not a discernible increase). Consequently, mitigation is not required for the project's contribution to off-site noise impacts associated with General Plan build-out traffic volumes but is required

for the cumulatively significant impact, Mitigation to address this significant cumulative noise impact is included in Section 5.11.5, Mitigation Measures, Mitigation Measure 5.11-a.

Public Services and Utilities

The project would involve an incremental increase in demand for public facilities. As described in *Section 5.12, Public Services and Utilities*, consistency and contribution to City public facility fee structures would eliminate adverse cumulative impacts on local sewer, water, police and fire services. The proposed project includes development standards that would apply to all future build-out of the planning area which specifically includes development elements and/or policies and measures to ensure that adequate public facilities and services are provided in conjunction with build-out of the development.

Hazards/Risk of Upset

Potential hazards associated with development of the project and development of surrounding projects would be site-specific and can be mitigated on a project-by-project basis. Each project is required to ensure that no hazardous conditions exist at the project site or that the project itself would not result in a hazard to the public or the environment. The proposed project could potentially result in significant hazard impacts, however mitigation has been provided which would reduce project-specific impacts to a level below significance. Because all projects are required to fully mitigate any on-site hazards, residual cumulative impacts related to hazards/risk of upset would not occur.

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SECTION 7.0
EFFECTS FOUND NOT TO BE SIGNIFICANT

7.1 INTRODUCTION/PURPOSE

Section 15128 of the CEQA Guidelines requires that an EIR briefly describe any potential environmental effects that were determined not to be significant during the initial project scoping and, therefore, were not discussed in detail in the EIR.

Several subjects required to be analyzed under CEQA were determined not to be potentially significant during Initial Study preparation and during the public scoping period. Therefore, these environmental issues have not been analyzed in the EIR and have received no further consideration.

7.2 ISSUES FOUND NOT TO BE SIGNIFICANT

Mineral Resources

The main mineral resource recovery areas within western Riverside County are in the Temescal Wash area, the Santa Ana River Valley, and sporadic pockets dotted throughout the lowland areas. Valuable sand, gravel, and crushed rock resources, which are extremely important to the local and regional construction industry, are located within these areas. The project is located within a "MRZ-3" designation in the Riverside County General Plan Open Space Element. "MRZ-3" indicates that there are significant mineral deposits within the area; however, the significance of the deposits have yet to be determined (County of Riverside 2003, p. OS-26 and Figure OS-5).

The project site is underlain by alluvial materials composed of inter-bedded sands and silts (Leighton and Associates 2004). Mineral resources are generally composed of gravels and rock materials. The site, therefore, does not support mineral resources that are considered to be of high value.

Population and Housing

The CEQA Appendix G Checklist includes two basic questions related to population and housing: (1) Will the project induce substantial population growth in an area, either directly or indirectly, and (2) Will the project displace substantial numbers of people or residences, necessitating the construction of replacement housing elsewhere? The first question relates to the project's growth inducing nature; therefore, this issue is discussed in *Section 8.0, Growth Inducing Impacts*. The second question relates to displacement, which is an "Effect Found Not to be Significant" and is therefore discussed below.

One unoccupied residence is currently located on the project site. The project would therefore involve the removal of this dwelling. The loss of one residence would be sufficiently offset by the construction of up to 1,329 new residential units on the site. Therefore, significant impacts related to population and housing displacement would not occur.

Noise

The CEQA Appendix G Checklist includes two questions related to noise, which were not discussed in *Section 5.11, Noise*: (1) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise, and (2) For a project within the vicinity if a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? The project is not located within 2 miles of a public airport or private use airport. Therefore, impacts associated with aircraft noise to people residing on the project site would not occur.

SECTION 8.0
GROWTH INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines mandate that the growth inducing nature of the proposed project be discussed. This CEQA Guideline states the growth inducing analysis is intended to address the potential for the project to "foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Further, as discussed in *Section 7.0, Effects Found Not Significant*, the CEQA Appendix G Checklist (Population and Housing) also mandates that a CEQA document speak to the project's likelihood to induce substantial population growth in an area, either directly (for example, by proposing new homes or businesses) or indirectly (for example, through extension of roads or other infrastructure).

A project may be distinguished as either facilitating planned growth or inducing unplanned growth. Facilitating growth is relating to the establishment of direct employment, population or housing growth that would occur within a project site. Inducing growth is related to lowering or removing barriers to growth or by creating an amenity or facility that attracts new population/economic activity. For purposes of this EIR analysis, a significant growth inducement impact would occur if the project, and all associated infrastructure improvements, directly or indirectly remove obstacles to growth such that the induced growth would significantly burden existing community services, the environment or cause a demand for General Plan Amendments.

The large-scale nature of the project would contribute substantial funding for roadway and utility infrastructure improvements needed to accommodate growth planned in the western portion of the City of San Jacinto. The project would not contribute excess infrastructure capacity that would induce growth in surrounding areas, but would rather help accommodate the continued population influx in western Riverside County over the next several decades. Improvements to transportation, utilities and public service infrastructure as part of the project would help alleviate existing infrastructure deficiencies and accommodate planned growth, but would not result in a significant amount of unplanned growth to the area. For example, water and sewer pipelines in North Sanderson Avenue are already sized appropriately to service the site, the project would not result in an extension of large-capacity pipeline network beyond what is already in place that could then facilitate easy connections by other planned developments within the area. Similarly, while the project would result in a General Plan Amendment, significant growth inducing impacts to land use would not occur as this project site and the surrounding land is planned for urban uses. No features of the proposed project, on its own, would encourage or enhance the likelihood of growth in the surrounding areas other than anticipated under the applicable general plan. Therefore, while the project will induce planned population growth in the area, it will not induce growth in the area that is not already planned and permitted under the City's General Plan. Therefore growth inducing impacts would not occur.

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SECTION 9.0
SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

9.1 Significant Effects Which Cannot be Avoided

Section 15126.2(b) of the CEQA Guidelines requires an EIR to identify significant environmental effects that cannot be avoided if the proposed project is implemented. As discussed in this EIR, implementation of the proposed project would result in significant project impacts to agriculture and air quality and contribute to a significant unavoidable impact for cumulative traffic conditions. As discussed in Section 5.3, Agricultural Resources, there is no feasible mitigation to replace agricultural resources and this impact will therefore remain significant and unavoidable. Even with application of feasible mitigation measures, significant unavoidable air quality impacts will occur due to application of architectural coatings, potential CO "hotspots," and projected operational emissions from both area source and vehicular emissions. Because the City can not guarantee that the MCP and SR 79 projects would be in place prior to project build-out, the project would contribute to a significant, unavoidable cumulative impact to regional traffic service levels in the absence of these facilities.

9.2 Significant Irreversible Environmental Changes Which Would be Caused by the Project Should it be Implemented

CEQA Section 15126.2(c) requires the evaluation of the uses of nonrenewable resources during the initial and continued phases of a project when a large commitment of such resources makes removal or non-removal or non-use thereafter unlikely. Approval of the proposed development of the site from an agricultural operation to a residential/commercial/business park community commits the area to urban uses. The project would permanently remove approximately 475.1 acres of land from local agricultural production. However, the change in use is both planned and projected. The proposed project would require commitment of nonrenewable resources associated with construction and long-term operation, including but not limited to, lumber and other related forest products, sand, gravel and concrete, asphalt, petrochemical construction materials, steel, copper, lead and other metals, water, fuels and energy. Use of these resources would represent an incremental effect on the regional consumption of these commodities. Implementation of the Villages of San Jacinto project would involve consumption of energy resources, such as electricity and natural gas, derived from non-renewable sources such as fossil fuels.

The predominant irreversible environmental change that would occur as a result of the project would be continuation of planned commitment of land resources to urban/developed uses. This would constitute a permanent change. Once construction occurs, reversal of the land to its

original condition is nearly impossible. Other permanent changes would include more traffic and hence noise, permanent landform alteration, increased human presence in the area and the transition from a rural to urban development. Irreversible commitments of energy resources would occur with the proposed project. These resources would include electricity, natural gas, potable water and building materials.

The CEQA Guidelines require that an EIR identify "feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Title 14, California Code of Regulations, Section 15126.4(a)(1)). Examples of energy conservation measures are provided in Appendix F of the State CEQA Guidelines (Section 15126.4(a)(1)(C)). The proposed project will consume energy in several different forms: gasoline and diesel fuels for motor vehicles; natural gas for water and space heating and cooking; electricity to operate lighting, heating and air conditioning systems, water transport including water for landscaping, and other uses.

Appendix F, Energy Conservation, of the CEQA Guidelines, recommends that EIRs include a discussion of the potentially significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see also Public Resources Code Section 21100(b)(3)). Appendix F also states that mitigation measures may include siting, orientation, and design to minimize energy consumption, including transportation energy, water conservation and solid-waste reduction; the potential for reducing peak energy demand; alternate fuels (particularly renewable ones) or energy systems; energy conservation which could result from recycling efforts; and other potential measures to reduce wasteful, inefficient and unnecessary consumption of energy during construction, operation, maintenance and/or removal.

The Specific Plan identifies elements in the site planning, design and construction phases that would be implemented to achieve a high level of energy efficient performance. Following standard planning and building practices typically ensures compliance with building code requirements and issuances of the necessary permits; however, implementation of the Specific Plan’s Energy Efficient Guidelines are intended to reduce energy use even further, thereby reduce operating costs and contributing to the reduction in environmental impacts associated with air quality, hydrology, water quality, hazards, and utilities. The Specific Plan’s Energy Efficient Guidelines, summarized below, are consistent with Appendix F recommended mitigation measures.

The Energy Efficiency Guidelines include the following strategies to minimize the energy demands of the proposed project:

- Passive heating and cooling design strategies such as orientation
- Natural ventilation, including cross-ventilation in residential units

- High insulation values, energy efficient windows including high performance glass
- Light-colored roofing and exterior walls
- Window shading through strategically placed landscaping
- Landscaping that provides shading during appropriate seasons
- Natural lighting systems such as skylights and interior transom windows in commercial, office and municipal structures
- Energy-efficient appliances and programmable thermostats.

The Specific Plan also includes water conservation strategies that would reduce water demand and the associated electrical consumption for water transport and distribution. The water conservation strategies include:

- Utilization of water-efficient faucets, high-efficiency toilets (HETs), and water-conserving shower heads in residential homes
- Drought tolerant and native plants, as required as part of the plant palette in the Specific Plan
- Installation of xeriscape landscape treatments instead of lawns
- Drip irrigation systems and/or zoned irrigation systems with a rain sensor shutoff feature
- Use of reclaimed waste water for irrigation of community landscaping.

In addition to water conservation, smart landscaping practices included in the Specific Plan would also reduce the reliance on mechanical cooling systems and the associated electrical consumption. Shade-producing trees planted in accordance with the Specific Plan's Shade Standards, would minimize the heat island effect, while permeable materials reduce the amount of heat absorbed and re-radiated from the surface and prevent additional solar heat gain surrounding residences. The Specific Plan also includes improvements to the existing street network to promote on-site bicycle and pedestrian activity and reduce the amount of vehicle trips and associated motor vehicle fuel use within the community. These improvements include:

- Development of sidewalks or pedestrian walkways
- Pedestrian access network and pedestrian facilities to internally link all uses and connect to all existing/planned external streets and public facilities
- Designated bicycle route connecting all units, on-site bicycle parking facilities, and all streets contiguous with the community
- Traffic calming elements to encourage walking and biking.

In addition to the Specific Plan's Energy Efficient Guidelines, the commercial/mixed-use elements of the proposed project would reduce total vehicle-miles traveled and associated motor vehicle fuel use. As commercial and retail uses would be within close distance to residential uses, trip lengths would be reduced. Development of commercial uses within walking or bicycling distance of residences would help to reduce reliance on motor vehicles. Although the implementation of the proposed project would involve consumption of energy resources, such as electricity and natural gas, derived from non-renewable sources such as fossil fuels, the project incorporates energy conservation strategies that would reduce the project's incremental effect on regional energy consumption.

SECTION 10.0
PROJECT ALTERNATIVES

CEQA requires that an EIR evaluate a "reasonable" range of alternatives. According to the CEQA Guidelines, "…an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (Cal. Code Regs., Title 14, Section 15126.6(a)). Specifically, the Guidelines require the analysis of the No Project Alternative and alternatives which would be "capable of avoiding or substantially lessening any significant effects of the project" (Cal. Code Regs., Title 14, Section 15126.6(b)). It also requires a discussion of why other alternatives were rejected if they were considered in developing the proposed project and still would meet the project objectives. Although an exhaustive analysis is not necessary, an EIR "must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (Cal. Code Regs., Title 14, Section 15126.6(a)).

Pursuant to the guidelines stated above, a range of alternatives to the proposed project are considered and evaluated in this EIR. These alternatives were developed in the course of project planning, environmental review, and public hearings. The discussion in this section provides:

In order to summarize these project alternatives, as suggested in CEQA Section 15126.6(d), a matrix has been prepared to summarize and compare the impacts of each project alternative.

10.1 ALTERNATIVES CONSIDERED BUT REJECTED

The following alternative was eliminated from further consideration.

10.1.1 Alternative Site Location

Off-site alternative locations were considered as part of the alternatives process. Per CEQA Guidelines Section 15126.6(f)(2)(A), the key question and first step in analysis of the off-site location is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location.

It should be noted that the availability of an alternative site does not in and of itself reduce impact potential. It is expected that developing a similar project would result in a similar array of project impacts and would simply transfer this impact potential to areas surrounding the alternate site location. For these reasons, an alternate site location would not necessarily be preferred over the proposed project site.

Project Description

Due to the undeveloped nature and existing land use designations found throughout much of the areas surrounding the project vicinity, suitable sites exist for this type/scale of development in the surrounding area.

Environmental Analysis

Because of the type, number of units and densities proposed, a similar amount of land would be required to accommodate the project at a different location. Depending on the location of this alternative, it would be expected to result in similar impacts to aesthetics, biological resources, cultural resources, geology/soils hazards and hazardous materials, hydrology and water quality, land use and planning, noise and public services to that of the proposed project at its present location, and would require a similar level of mitigation to reduce identified impacts to less than significant levels. If an alternative site included important farmland as designated by the California Resources Agency, it would result in a similar direct unavoidable impact due to loss of agricultural resources. An alternative location would also have unavoidable air quality impacts due to application of architectural coatings, potential CO "hotspots," and projected operational emissions from both area source and vehicular emissions. It would also likely have significant urban/rural land use conflicts between the planned development and existing agricultural uses in the area. The trip generation associated with the project would be the same; therefore, the alternative site location would be expected to contribute to a significant unavoidable impact for cumulative traffic conditions if the MCP and SR 79 projects are not in place upon completion.

Consideration/Elimination

Per CEQA Guidelines Section 15126.6 (f)(1), "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)." The applicant cannot reasonably acquire, control, or otherwise have access to an alternative site; therefore, an alternative site is infeasible. Additionally, since project related impacts would be similar for surrounding area properties, project development on an alternative site would simply shift impacts from one area to another, without the benefit of removing any significant unavoidable impacts.

10.2 ALTERNATIVES UNDER CONSIDERATION

Three alternatives were deemed appropriate for analysis in this EIR section. Because it was initially determined that the "Reduced Density" and "Existing General Plan Designation"

alternatives could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects, these two alternatives are analyzed. While the third alternative, "No Project/No Development" would not likely meet most of the project objectives, CEQA requires that this scenario also be analyzed. Inclusion of the No Project/No Development alternative provides the public/decision makers with a reasonable range of choices and allows comparison of impacts of approving the proposed project with the impacts of not approving the proposed project.

Each alternative is analyzed for potential environmental effects including Landform Alteration/Aesthetics, Agricultural Resources, Biological Resources, Geology and Soils, Cultural Resources, Paleontological Resources, Hydrology and Water Quality, Transportation, Circulation and Access, Air Quality, Noise, Public Utilities and Services and Hazards/Risk of Upset. Due to the lack of significant Land Use/Planning impacts, this issue is not discussed in this alternatives analysis. After each environmental issue is analyzed, a consideration/elimination discussion follows. This discussion relates to the project's feasibility as well as the project's relationship to the project objectives included in *Section 3.0, Project Description*.

CEQA Section 15126.6(c) indicates that a project alternative should meet "most" of the basic objectives of the project. In an attempt to provide an equal analysis factor, "most" is met if over eight of the twelve project objectives are met (roughly two thirds). To determine feasibility, site suitability, economic viability, availability of infrastructure, general plan consistency and other regulatory/planning limitations were considered.

10.2.1 No Project/No Development Alternative

Project Description

The No Project/No Development Alternative assumes that the project site would not be developed and the existing land uses (agricultural operations) present would remain.

Environmental Analysis

Landform Alteration and Aesthetics

The No Project/No Development Alternative would maintain existing aesthetic conditions on the site and would continue to contribute to the existing agricultural nature of the western San Jacinto Valley area. However, none of the proposed landscape improvements along adjacent roadways would occur without project development.

Agricultural Resources

The No Project/No Development Alternative would result in the continuance of agricultural resource use on the project site. Significant, unmitigable impacts to agricultural resources (such as would occur with the proposed project) would be avoided. The persistence of agricultural use on the site would maintain the non-conforming use on the site as the site is planned for residential and commercial land uses in the existing General Plan Planned Land Use Map. Due to the existing residential General Plan designation, it is reasonable to assume that future development proposals will be brought forward for this project site. Therefore, the No Project/No Development alternative may not ensure that agricultural resources remain on site well into the future.

Biological Resources

The No Project/No Development Alternative would not result in any direct impacts to on-site biological resources. All impacts to biological resources present on site would be avoided.

Geology and Soils

Potential geologic impacts related to seismically induced earth movement would be avoided under the No Project/No Development Alternative. The existing faults located on site would continue to exist and not pose a risk to structures due to the undeveloped nature of the site.

Cultural Resources

This alternative would not involve disturbing any subsurface material that could potentially support cultural resources beyond existing agricultural activities. It is not possible to predict the type of agricultural use that would remain on the project site; if future agricultural uses were to occur on site which required excavation or heavy land disturbance, if present, cultural resources may be impacted.

Paleontological Resources

This alternative would not involve disturbing any subsurface geologic formations that could potentially support paleontological resources as would the proposed project. It is not possible to predict the type of agricultural use that would remain on the project site; if future agricultural uses were to occur on site which required excavation or heavy land disturbance, if present, paleontological resources may be impacted.

Water Resources and Water Quality

Potential impacts associated with increased urban runoff, such as the introduction of petroleum products from paved surfaces would be avoided under the No Project/No Development Alternative. However, structural systems are not currently in place to control the pollutants associated with the existing land uses. Based on the proximity of the site to the San Jacinto River, potential hazards to runoff and water quality from the existing agricultural uses may be present. Further, no development on the site would eliminate the potential for contribution to the City's overall master drainage plan/infrastructure construction within the western San Jacinto area.

Transportation, Circulation and Access

This alternative would not promote additional trips along North Sanderson, Cawston Avenue, Odell Avenue and other nearby roadways such as SR 79, State Street, Ramona Expressway, SR 74 and Ramona Boulevard. It should be noted that the no project alternative would not assist the City of San Jacinto in completing circulation infrastructure in this growing area of the City due to the elimination of proposed improvements being made by the applicant and by no contribution of TUMF fees from project development.

Air Quality

The No Project/No Development Alternative would avoid the air quality impacts associated with site grading, construction, vehicular emissions and building operations.

Noise

Noise impacts associated with the proposed project would be avoided by the No Project/No Redevelopment Alternative. However, as the western portion of the City of San Jacinto continues to be built-out and development/traffic increases along North Sanderson Avenue, Cawston Avenue, Odell Avenue and other surrounding streets, the ambient noise setting within the area will increase regardless of project implementation. The project's elimination would not necessarily improve the existing and future noise environment.

Public Services and Utilities

The elimination of development on this site would reduce the demand for local public services and facility capacity and would also not provide for expansion of infrastructure.

Hazards/Risk of Upset

The potential for additional hazards and the risk of upset of unknown hazards would not occur under this alternative. While implementation of the No Project/No Development alternative would not disturb soils on site that may result in a release of contaminants, it would also not result in the beneficial effect of cleanup on the site.

Relationship to Project Objectives

The No Project/No Development Alternative WOULD meet the following project objectives:

- Consider topographic, geologic, hydrologic, and environmental opportunities and constraints to create a design which safely accommodates seismic and hydrologic hazards.

This alternative would NOT meet the following project objectives (explanations follow each objective and have been *italicized*):

- Provide for the establishment of a master-planned community through implementation of a Specific Plan, consisting of a maximum of 1,329 dwelling units, which is consistent with the scale and character of planned land uses in surrounding areas.

This alternative would result in continuing agricultural use and vacant fallow land that would not result in establishment of a master-planned community.

- Provide a variety of detached single-family lot sizes in traditional and non-traditional subdivision layouts that offer a wide range of affordability to meet the changing economic and demographic profile of the City of San Jacinto.

This alternative would not result in any new housing opportunities.

- Provide public and private recreational amenities for the benefit of residents of this community and of the City of San Jacinto.

There would be no new recreational amenities associated with this alternative.

- Provide drought-tolerant and water-efficient landscaping for the community.

No new landscaping of any kind would be provided under this alternative.

- Incorporate recycled water from EMWD to supply the lake and irrigate landscaping to minimize the use of potable water.

The agricultural uses on site would presumably continue to use primarily recycled water.

- Provide development opportunities for municipal, office, professional, and neighborhood retail commercial land uses within the community to support the economic growth of the City and to reduce the reliance of automobile use within the surrounding community.

The no project alternative would not provide any these development opportunities and would not reduce the length of automobile trips in the surrounding community.

- Provide a system of public and community facilities within residential neighborhoods to support development in an efficient and timely manner.

None of the public and community amenities would be provided under this alternative.

- Provide a development with unified design elements, such as architecture, landscaping, color palette, paving, walls, fencing, signage, and entry treatments.

This alternative would not allow an opportunity to provide any such design elements as the project would not be implemented.

- Develop an environment that is visually attractive, efficient, and effectively organized, which includes a pleasing landscape palette.

No new landscaping of any kind or any developed environment would be provided under this alternative.

- Integrate the project with the character of the surrounding community and establish development that results in logical, coordinated growth.

- Establish a circulation system that meets projected traffic volumes and accommodates a variety of transportation modes and encourages alternatives to automobile use within the community.

The no project alternative does not provide circulation improvements or encourage alternative transportation modes.

10.2.2 Existing General Plan Designation Alternative

Project Description

As shown on Figure 5.1-3, General Plan Comparison vs. Proposed Specific Plan, existing General Plan designations establish 136.5 acres of low density residential and 239.5 acres of medium density residential. This would allow for a maximum of 2,390 medium density dwellings (10 du/ac maximum) and up to 682 low density dwellings (5 du/ac maximum) for a total of 3,072 dwelling units under the existing General Plan. This compares with the proposed project which would result in 657 medium density dwellings and 359 low density dwellings for a total of 1,016 dwellings. Therefore, this alternative could result in more than three times the number of dwellings proposed under the project. This alternative would also provide 54.4 acres of commercial uses along Sanderson Avenue as opposed to a combined 49 acres of commercial and mixed uses under the project. This alternative results in fewer acres of open space/parks (44.7 as opposed to 110.5 under the project) and does not provide for a future high school on site.

Environmental Analysis

Landform Alteration and Aesthetics

This alternative would represent a similar change in urban land use as it would also appear as a developed suburban neighborhood in the western San Jacinto Valley. However, it does not provide as many transitions between land uses and would not guarantee the extensive open space amenities, street landscaping and landscaped trails that provide a visual buffer between land uses. Therefore, this alternative is viewed as slightly inferior to the project, but it is expected that significant visual impacts could be mitigated.

Agricultural Resources

This alternative would be similar to the proposed project in that it would eliminate agricultural land use from the project site.

Biological Resources

This alternative would result in similar impacts as the proposed project as it would eliminate existing biological resources on site. This project alternative does not provide for fewer impacts to biological resources compared to the proposed project.

Geology and Soils

Similar impacts related to seismic hazards would occur under this project alternative. It is anticipated that similar mitigation measures would be imposed and similar to the proposed project, result in all significant impacts being mitigated.

Cultural Resources

Because the presence of undiscovered cultural resources is unknown for both this and the proposed project alternative, risk of significant impacts would be the same as the proposed project. It is anticipated that similar mitigation measures would be imposed as for the proposed project which would result in all significant impacts being mitigated.

Paleontological Resources

Because the presence of paleontological resources is unknown for both this and the proposed project alternative, risk of significant impacts would be the same as the proposed project. It is anticipated that similar mitigation measures would be imposed and similar to the proposed project, result in all significant impacts being mitigated.

Water Resources and Water Quality

Similar water quality impacts would result under this alternative as described for the proposed project. The project site would likely be susceptible to the same flooding and groundwater hazards as outlined for the proposed project. It is anticipated that application of mitigation measures such as those required of the proposed project would have similar impact reducing effects for this alternative.

Transportation, Circulation and Access

Due to the increase in the number of dwelling units, the existing General Plan land use scenario would result in higher traffic volumes from a greater number of residents and more intensive construction phase as compared to the proposed project. Therefore, there is no guarantee that this alternative could mitigate all significant traffic impacts and is therefore viewed as inferior to the proposed project.

Air Quality

Due to three times more dwelling units allowed under this alternative, the existing General Plan land use scenario would result in higher traffic volumes and result in higher air quality impacts compared to the proposed project. Also, the application of architectural coatings would contribute higher overall VOC emissions and would be expected to exceed the daily threshold

for a greater number of days. Therefore, this alternative is viewed as environmentally inferior to the project due to anticipated greater air quality impacts.

Noise

Although similar noise levels would be expected, due to the increase in number of dwelling units, the length of the construction period is likely to be longer under this alternative. Also, the increased traffic volumes associated with the greater number of dwellings can be expected to result in higher noise levels on surrounding roadways as compared to the project. Therefore, this alternative is viewed as environmentally inferior to the project due to anticipated greater noise impacts.

Public Services and Utilities

Due to the more intensive land use anticipated with this alternative, additional new residents would likely result in increased demand on public utilities and services including police, fire, water, wastewater, solid waste disposal, etc. While it is assumed that an increase in demand for these services could be off-set by mitigation, a greater impact to public services and utilities would likely result from the proposed alternative.

Hazards/Risk of Upset

Similar hazards would result under this alternative as anticipated for the proposed project. Hazardous materials would need to be disposed of and any remaining soil hazards remediated. Further, hazards associated with former cattle raising areas would be the same type as anticipated for the proposed project.

Relationship to Project Objectives

The Existing Zoning/General Plan Designation alternative WOULD meet the following project objectives:

- Provide drought-tolerant and water-efficient landscaping for the community.
- Consider topographic, geologic, hydrologic, and environmental opportunities and constraints to create a design that safely accommodates seismic and hydrologic hazards.
- Reinforce the community identity of the project through control of project design elements such as architecture, landscaping, color palette, paving, walls, fencing, signage and entry treatments.
- Develop an environment that is visually attractive, efficient, and effectively organized, which includes a pleasing landscape palette.

- Integrate the project with the character of the surrounding community and establish development that results in logical, coordinated growth.
- Provide a system of public and community facilities within residential neighborhoods to support development in an efficient and timely manner.
- Provide a development with unified design elements, such as architecture, landscaping, color palette, paving, walls, fencing, signage, and entry treatments.

All of the above objectives would likely be required under a different Specific Plan for the project site, while utilizing all of the General Plan designations.

This alternative would NOT meet the following project objectives (explanations follow each objective and have been *italicized*):

- Provide for the establishment of a master-planned community through implementation of a Specific Plan, consisting of a maximum of 1,329 dwelling units, which is consistent with the scale and character of planned uses in surrounding areas.

Part of this objective would be met in that the City requires a Specific Plan to be prepared for projects over 100 acres. However, the number of dwelling units would be much greater than what is proposed for the project.

- Provide a variety of detached single-family lot sizes in traditional subdivision layouts that are marketable within the evolving economic and demographic profile of the City of San Jacinto.

This alternative could result in only two housing types that utilize the maximum allowable density range.

- Provide public and private recreational amenities for the benefit of residents of this community and of the City of San Jacinto.

The General Plan allows for a variety of recreational uses under the Open Space Recreation designation, but this alternative would not necessarily result in such uses being available to the public.

- Incorporate recycled water from EMWD to supply the lake and irrigate landscaping to minimize the use of potable water.

There is no guarantee that this alternative would accommodate a lake. However, it is likely that any landscaping could use recycled water, thus meeting part of this objective.

- Provide development opportunities for municipal, office, professional, and neighborhood retail commercial land uses within the community to support the economic growth of the City and to reduce the reliance of automobile use within the surrounding community.

This alternative does not allow for development of municipal, office, and professional land uses.

- Establish a circulation system that meets projected traffic volumes and accommodates a variety of transportation modes and encourages alternatives to automobile use within the community.

There is no guarantee that the circulation system associated with this alternative could adequately accommodate the projected increase in traffic volumes.

10.2.3 Reduced Density Alternative

Project Description

This project alternative would involve the development of a low density housing tract with approximately 1-acre lots. Due to drainage and infrastructure needs, this alternative would consist of approximately 350 single-family homes (on approximately 350 acres), 41 acres of parks, 27 acres of greenbelts, 14 acres of drainage basin, 18 acres of lake surfaces, 18 acres of roadways and a 3 acre clubhouse. Due to the existing nature of the site topography, this project alternative would be prepared, graded and designed in a similar fashion as the proposed project.

Environmental Analysis

Landform Alteration and Aesthetics

This alternative would represent a similar change in urban land use as the proposed alternative but would be less intense. This alternative would appear as a developed suburban neighborhood in the western San Jacinto Valley in place of the existing agricultural setting.

Agricultural Resources

This alternative would be similar to the proposed project in that it would eliminate agricultural land use from the project site. This project alternative does not provide for reduced impacts to agricultural resources because it proposes development over the entire site.

Biological Resources

This alternative would result in similar impacts as the proposed project. All significant impacts of the project are mitigated through project-specific mitigation, and therefore the alternative does

not offer mitigation that is necessary to reduce significant impacts to less than significant levels. The project's relationship with the Western Riverside MSHCP would be similar as described for the proposed project.

Geology and Soils

Similar impacts related to seismic hazards would occur under this project alternative. It is anticipated that similar mitigation measures would be imposed and similar to the proposed project, result in all significant impacts being mitigated.

Cultural Resources

Because the presence of undiscovered cultural resources is unknown for both this and the proposed project alternative, risk of significant impacts would be the same as the proposed project. It is anticipated that similar mitigation measures would be imposed as for the proposed project which would result in all significant impacts being mitigated.

Paleontological Resources

Because the presence of paleontological resources is unknown for both this and the proposed project alternative, risk of significant impacts would be the same as the proposed project. It is anticipated that similar mitigation measures would be imposed and would similarly result in all significant impacts being mitigated.

Water Resources and Water Quality

Similar water quality impacts would result under this alternative as described for the proposed project. The project site would likely be susceptible to the same flooding and groundwater hazards as outlined for the proposed project. It is anticipated that application of mitigation measures such as those required of the proposed project would have similar impact reducing effects for this alternative. However, this alternative is not inherently less impactive from a drainage/run-off and urban pollutant perspective than the proposed project due to less intensity of land use. Therefore, it is likely that this project alternative would reduce potential water quality impacts compared to the proposed project.

Transportation, Circulation and Access

Similar to the proposed project, this alternative would likely necessitate reconfiguration of several intersections; however, certain mitigation measures (intersection improvements) may not be necessary due to the elimination of the school, commercial/mixed uses and 666 fewer housing units as compared with the project. While directional splits of traffic for this alternative would be

different than those of the proposed project, this alternative would result in substantially less traffic to surrounding roadways.

Air Quality

Because of the South Coast Air Basin's non-attainment status for several criteria pollutants, air quality impacts, although less in quantity, would still occur under this reduced density scenario. Therefore, this alternative would not substantially reduce impacts to air quality due to fewer mobile source emissions. Short term air quality impacts related to application of architectural coatings could be substantially reduced under this alternative. However, impacts to air quality would likely remain at a significant, unmitigable level due to contribution of long term vehicular emissions.

Noise

The reduction in traffic under this alternative would reduce overall traffic noise anticipated on Sanderson Avenue, Odell Avenue and other nearby streets. While the project itself wouldn't generate as much traffic-producing noise, it is likely that homes along both internal and external roadways would require analysis of anticipated noise levels at property lines, etc. It is therefore assumed that similar noise impacts to future property owners would occur and mitigation measures in the form of set-backs and noise attenuation walls would be necessary to mitigate any noise impact.

Public Services and Utilities

The demand on public facilities such as water and sewer service would be less under this alternative due to a smaller user group at the site. However, no significant impacts were identified for public services and facilities, and therefore, this alternative does not offer any substantial benefits in terms of impact reduction.

Hazards/Risk of Upset

Similar hazards would result under this alternative as anticipated for the proposed project. Hazardous materials would need to be disposed of and any remaining soil hazards remediated. Further, hazards associated with existing cattle raising areas would be the same type as anticipated for the proposed project.

Relationship to Project Objectives

The Reduced Density Alternative WOULD meet the following project objectives:

- Consider topographic, geologic, hydrologic, and environmental opportunities and constraints to create a design which safely accommodates seismic and hydrologic hazards.
- Develop an environment that is visually attractive, efficient, and effectively organized, which includes a pleasing landscape palette.
- Integrate the project with the character of the surrounding community and establish development that results in logical, coordinated growth.
- Establish a circulation system that meets projected traffic volumes and accommodates a variety of transportation modes.
- Provide drought-tolerant and water-efficient landscaping for the community.
- Incorporate recycled water from EMWD to supply the lake and irrigate landscaping to minimize the use of potable water.
- Provide public and private recreational amenities for the benefit of residents of this community and of the City of San Jacinto.
- Provide a system of public and community facilities within residential neighborhoods to support development in an efficient and timely manner.
- Provide a development with unified design elements, such as architecture, landscaping, color palette, paving, walls, fencing, signage, and entry treatments.

This alternative would NOT meet the following project objectives:

- Provide for the establishment of a master-planned community through implementation of a Specific Plan, consisting of a maximum of 1,329 dwelling units, which is consistent with the scale and character of planned uses in surrounding areas.

Part of this objective would be met in that the City requires a Specific Plan to be prepared for projects over 100 acres. However, the number of dwelling units would be much lower than what is proposed for the project.

- Implement housing-type diversity by providing a variety of detached single-family lot sizes in traditional and non-traditional subdivision layouts that offer a wide range of affordability to meet the changing economic and demographic profile of the City of San Jacinto.

This alternative would not meet this objective in that only one housing type would be provided.

- Provide development opportunities for municipal, office, professional, and neighborhood retail commercial land uses within the community to support the economic growth of the City and to reduce the reliance of automobile use within the surrounding community.

This alternative would not meet any of these objectives in that it would not provide any municipal, office, professional or retail commercial land uses.

10.3 COMPARATIVE ANALYSIS

A matrix displaying the major characteristics and significant environmental effects of each alternative is provided in *Table 10.0-1, Alternatives Summary*. The matrix also indicates whether the alternative would be feasible in terms of meeting the project objectives as defined in *Section 3.0, Project Description*, of this EIR.

Table 10.0-1
Alternatives Summary

Environmental Issue	Proposed Project	No Project/No Development	Existing General Plan Designation	Reduced Density
Landform Alteration/ Aesthetics	Mitigable Impacts	Reduced impacts due to lack of changed aesthetic nature	Similar, but does not provide as many transitions between land uses	Similar
Agricultural Resources	Unmitigable Impacts	No Impact	Similar	Similar
Biological Resources	Mitigable Impacts	No Impact	Similar	Similar
Geology and Soils	Mitigable Impacts	No Impact	Similar	Similar
Cultural Resources	Mitigable Impacts	No Impact	Similar	Similar
Paleontological Resources	Mitigable Impacts	No Impact	Similar	Similar
Water Quality/ Hydrology	Mitigable Impacts	No Impact	Similar	Similar but less impervious surface due to less intensity of land use.
Transportation/ Circulation/Access	Mitigable Project Impacts Unmitigable Cumulative Impacts	No traffic impacts, but would not facilitate City's goal of installing infrastructure in western San Jacinto	Similar, but would result in higher traffic volumes that may not be completely mitigated.	Less impacts due to less overall trips
Air Quality	Unmitigable Impacts	No Impact	Greater Impacts	Less impacts but likely still significant and unmitigable due to non-attainment status of basin
Noise	Mitigable Impacts	No Impact	Greater Impacts	Similar

Table 10.0-1 (continued)

Environmental Issue	Proposed Project	No Project/No Development	Existing General Plan Designation	Reduced Density
Public Services/Utilities	Mitigable Impacts	No Impact	Similar, but water use and other utility use would be much higher under this alternative	Less impacts due to less demand for services
Hazards/Risk of Upset	Mitigable Impacts	No Impact	Similar	Similar
Meets Most Project Objectives?	Yes	No	No	No

Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative, other than the No Project Alternative, be identified in an EIR. As shown in *Table 10.0-1*, although the Reduced Density Alternative does not meet most of the project objectives, it would reduce traffic, noise, public services/utilities and air quality impacts when compared to the proposed project. Consequently, this alternative is considered the environmentally superior alternative. That said, as analyzed in this chapter, no substantial advantages are offered by the Reduced Density Alternative when compared to the proposed project since the project would mitigate all significant public services/utilities and noise impacts to less than significant levels. All other impacts associated with the Reduced Density Alternative would be similar to the proposed project, and would require a similar level of mitigation. As with the proposed project, the Reduced Density Alternative would contribute pollutants to the air basin which is currently in non-attainment status, therefore significant, unmitigable air quality impacts would remain. Furthermore the environmentally superior alternative would also contribute to a significant cumulative traffic impact if the MCP and SR-79 improvement projects are not in place when the project is completed.

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SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

N/A

PROJECT ALTERNATIVES

N/A

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Phase I Environmental Site Assessment

North Sanderson Avenue
Assessor's Parcel Numbers 432-030-006, 432-030-010, and 432-030-011
San Jacinto, California

October 25, 2021

Prepared for:

Shea Properties Management Company, Inc.

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Executive Summary

Shea Properties Management Company, Inc. (Shea, the User) retained Roux Associates, Inc. (Roux) to perform a Phase I Environmental Site Assessment (ESA) of the property located at west of North Sanderson Avenue, Assessor's Parcel Numbers (APNs) 432-030-006, 432-030-010, and 432-030-011 (the Site). Roux performed this Phase I ESA in general accordance with the American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-13) in an effort to identify, to the extent feasible, the presence of recognized environmental conditions (RECs) with respect to the Site as defined in ASTM E1527-13. Exceptions to, or deletions from, this practice are described in Section 8.1 of this report.

The Site consists of approximately 470 acres bound by North Sanderson Avenue to the east and is located east of Odel Avenue and south of Ramona Boulevard in a rural and agricultural area of San Jacinto, California. No addresses are currently assigned to the Site; however, 870 and 1380 North Sanderson Avenue have previously been used. Based on a review of historical sources, the Site was developed with a residential structure by 1901 with a workshop and two barns added by 1953. By 1949, the northeastern portion of the Site was developed for agricultural use, possibly row crops. Agricultural production extended to the remainder of the Site and remained until approximately 2012. Agricultural features added to the Site include water wells for domestic and irrigation use and small ponds. By 1978, 20 acres on the southeastern portion of the Site were developed with a heifer raising farm including corrals, water cisterns, and covered structures. A large pond (or water reservoir) was added to the southwestern corner of the Site by 1985. The heifer farm remained operational through at least 2006 became inactive by 2009. All the former structures, including all residential and agricultural support structures were demolished by 2012. The Site has since remained inactive and currently consists of vacant graded land with earthen roads.

On August 3, 2021, Roux visually assessed the Site during the site reconnaissance for potential RECs, including, but not limited to, potential underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyl (PCB)-containing equipment, hazardous materials storage or handling areas, containerized or bulk wastes, and visual indications of impacted soil.

Roux also performed a records review in an effort to identify RECs in connection with the Site. This records review addressed the Site and surrounding properties. Roux reviewed commercially available records associated with the Site and nearby properties to assess potential concerns associated with the migration of hazardous substances. The records review also included reasonably ascertainable historical data, which can be helpful in identifying the past uses of the Site and surrounding areas, as it may relate to the environmental condition of the Site.

Roux performed interviews and/or file reviews with various government agencies and other parties with possible knowledge of the Site and surrounding properties in an effort to identify current and past uses of the Site and surrounding areas, as they may relate to the environmental condition of the Site.

ASTM E 1527-13 defines a Recognized Environmental Condition (REC) as:

> "The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions."

A Controlled Recognized Environmental Condition (cREC) as:

> "A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)."

And a Historical Recognized Environmental Condition (hREC) as:

> "A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a *recognized* environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition."

The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

This Executive Summary provides a brief overview of the findings of this Phase I ESA. Although the Executive Summary is an integral part of a report, it does not substitute for reading the entire report or the appended or referenced documents in order to fully understand the findings and potential environmental concerns associated with the Site.

Based on the information obtained through the performance of this ESA, Roux identified the following RECs in connection with the current and historical operations at the Site or adjacent properties. To the extent possible, the locations of the RECs are shown in Figure 2. To avoid confusion, all RECs, cRECs, hRECs, and OEFs are numbered sequentially.

REC 1 – Former Heifer Farm. A southeastern portion of the Site, totaling approximately 20 acres in size, was formerly developed as a heifer raising farm from at least 1978 through 2002. The former heifer farm operations represented a REC due to the possible presence of methane from manure.

REC 2 - Petroleum-Stained Soil. During a reconnaissance of the Site conducted in 2002, petroleum-stained soil was observed beneath a diesel aboveground storage tank (AST) located northwest of the reservoir (pond), near the irrigation groundwater well located southwest of the reservoir, and on the floor of the equipment shed, beneath three oil-containing 55-gallon drums. Based on the storage of hazardous substances and petroleum products in uncovered ground areas and evidence of a release, the former chemical storage identified above represented a REC.

REC 3 - Pond. The Site is equipped with a pond located on the southwestern corner. According to aerial photographs, the pond was added between 1978 and 1985 and was likely used as part of the heifer ranch operations. According to a 2009 Environmental Impact Report (EIR), the reservoir contained reclaimed water from the neighboring San Jacinto Valley Regional Water Reclamation Facility related to irrigation for sod farming activities on-Site. It is unknown whether the pond also historically received wastewater from the on-Site ranch operations, was used for agricultural irrigation, or stored water treated with larvicide/repellant for mosquito control. The pond appeared unlined, allowing waters to infiltrate the ground and recharge the aquifer. Based on the historical agricultural use of the Site, the on-Site pond represents a REC.

REC 4 - Former Agricultural Applied Pesticide Area. Based on a review of historical sources, a portion of the Site was developed for agricultural use (row crops) as early as 1949 with increased agricultural development noted from at least 1978 to 2016. No indications of former row crops were observed on the Site. According to the EIR, a portion of the Site was developed as a sod farm from 1997 through at least 2002. Any residual pesticide, herbicide, or fertilizer residue in Site soils associated with sod farming was not identified as an environmental concern based on the removal of shallow soils during sod harvest. Agricultural production prior to 1997 at the Site is not currently known. However, it is likely that agricultural chemicals, such as pesticides, herbicides, and fertilizers, were used on-Site historically, and the potential for impacts from agricultural chemicals to on-Site soils is considered a REC.

Roux did not identify known or suspected cRECs in connection with the current and historical operations at the Site or adjacent properties.

Roux identified the following hRECs in connection with the current and historical operations at the Site or adjacent properties.

hREC 5 – Historical Underground Storage Tanks. Westra Dairy Farm, formerly located on-Site at 870 Sanderson Avenue, was identified as having a closed Leaking Underground Storage Tank (LUST) file. According to closure documents, the former on-Site dairy farm (or heifer ranch) had two 1,000-gallon gasoline USTs and one 10,000-gallon gasoline UST located south of a former workshop building in the southern portion of the Site. All three USTs were removed from the Site in December 1999 under direction of the County of Riverside. The tank area was over-excavated and approximately 120 tons of contaminated soil were removed and transported for off-Site disposal. In October 2000, a soil investigation identified total petroleum hydrocarbon (TPH) and volatile organic compounds (VOC) impacts below the former tanks to a depth of 35 feet bgs. In May 2001, a vapor extraction well was subsequently in the vicinity of the former tanks and a mobile soil vapor extraction system was used to extract and treat soil vapor. Soil samples do not appear to have been collected following the vapor extraction test. It is unknown if the SVE system operated outside of the 7-hour vapor extraction test as part of remediation for the impacted soils. A “No Further Action” letter was issued by the Santa Ana Regional Water Quality Control Board (SA-RWQCB) to the Westra Family Trust on December 26, 2001. The closure letter recommended that correction action should be reviewed if land use changes. According to the “No Further Action” letter, data from this investigation indicates that the residual petroleum hydrocarbons in soil are limited to an area with a 15-foot radius between 15 and 20 feet bgs and did not indicate a significant presence or source of petroleum hydrocarbons in the soil. Although a closure document was issued by the SA-RWQCB in 2001, the remaining petroleum hydrocarbon-impacted soil in the former LUST area is considered a hREC.

The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Other environmental features (OEFs) are environmental conditions that do not meet the definition of a REC, but which may warrant mention in a comprehensive Phase I ESA. Based on the subject Phase I ESA, Roux identified the following OEFs. To the extent possible, the locations of the OEFs are shown in Figure 2.

OEF 6 - Septic Systems. According to the EIR, the Site was equipped with two septic systems that historical sources suggest may have been in operation for many decades. The EIR stated the septic systems would be removed along with any residue material in accordance with Riverside County Department of Environmental Health (RCDEH) protocols. Based on the likely use of these systems for domestic waste only, the existing septic systems represent an OEF.

OEF 7 - Debris. Debris, including old equipment, water heaters, tires, and trash were observed in several piles throughout the site both in the 2002 Phase I ESA and during Site reconnaissance associated with the EIR. Several mounds of soil also were observed across the Site. According to the EIR, the soil piles were generated from on-Site activities and were piled for storage and eventual removal. The EIR recommended a qualified environmental professional be present on-Site during removal of debris piles to assess debris and stockpiled soils and direct disposal accordingly. Based on observations made during the Site reconnaissance, on-Site debris represent an OEF.

OEF 8 - Abandoned Drums. Two abandoned 55-gallon drums were observed during Roux' Site reconnaissance on August 3, 2021. The drums were observed on a concrete pad in the southeastern portion of the Site in the vicinity of the former heifer ranch area and appeared to contain unknown waste products. Minor to moderate staining was observed in the vicinity of these features. The staining was located on a paved area. It appears that the staining is surficial in nature and thus is not expected to represent a significant environmental concern.

1. Introduction

Roux Associates, Inc. (Roux) completed this Phase I Environmental Site Assessment (ESA) of the commercial property located at west of North Sanderson Avenue (the Site). The Site location is shown in Figure 1 and the Site and vicinity is shown in Figure 2. Roux performed this Phase I ESA in compliance with the scope and limitations of American Society for Testing Materials (ASTM) E1527-13 and the terms and conditions of Roux' proposal dated August 19, 2021. Roux conducted this Phase I ESA for the benefit of Shea Properties (Shea, the User).

The following sections of this report present our Phase I ESA findings and conclusions. A glossary containing terms and definitions presented in ASTM E1527-13 is included in Appendix A – Glossary of Terms. Other appendices presented at the end of the report include historical topographic maps, historical aerial photographs, regulatory records review documentation, applicable historical records, and personnel qualifications.

1.1 Purpose

The purpose of this Phase I ESA is to identify and report, to the extent feasible, recognized environmental conditions (RECs) with respect to the Site. Performing a Phase I ESA in general compliance with ASTM E 1527-13 may enable a User to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability. That is, the practice that constitutes one of the requirements for "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC Section 9601(35) (B).

1.2 Scope of Services

The scope of services for this Phase I ESA included, but was not limited to, the activities listed below.

- A review of reasonably ascertainable and practicably reviewable topographic maps, historical aerial photographs, and city directories, if available, to investigate past Site conditions;
- A review of specific government lists pursuant to ASTM Standard E 1527-13 regarding environmental activities for the Site and local area properties;
- A review of recorded land title records, building, assessors, and fire department records, for permits, citations, and reports connected to the Site that were reasonably ascertainable, practicably reviewable, and publicly available within reasonable time and cost;
- An inspection by an environmental professional to investigate the current use of the Site and to identify environmental concerns including but not limited to, the presence of hazardous substances or petroleum products, wastes, underground storage tanks (USTs), aboveground storage tanks (ASTs), or other environmental concerns;
- Interviews with available representatives of the owner of the Site, occupants, and local government officials by an environmental professional; and
- Preparation of this Phase I ESA report.

Roux initiated this Phase I ESA pursuant to receipt of written authorization to proceed on August 26, 2021.

1.3 Standard of Care

Roux conducted this Phase I ESA using a defined scope of services considered appropriate and agreed upon by all parties on the date the service was authorized, unless the scope of services or the methods used were later modified, in writing, and accepted by all parties prior to performance. Roux conducted this Phase I ESA in accordance with generally accepted practices in a manner consistent with that level of care exercised by other members of our profession in the same locality and under similar conditions of time and accessibility of improvements and information. No other representations, expressed or implied, and no warranty or guarantee is included or intended to be part of this Phase I ESA.

Please note that the scope of services performed in execution of this assessment may not be appropriate to satisfy the needs of other parties. We, therefore, are not responsible for independent conclusions, opinions, or recommendations of others based on our assessment. Furthermore, this Phase I ESA relates to the environmental conditions of the Site and does not address issues raised in transactions such as business risk, purchase of business entities, or interests therein, or of their assets, that may well involve environmental liabilities pertaining to properties previously owned or operated or other offsite liabilities.

Additionally, the findings of this Phase I ESA are based on Roux' observations, inquiries, and historical research using reasonably ascertainable and practically reviewable information obtained within reasonable time and cost constraints. Roux does not represent that this Phase I ESA is an exhaustive investigation that reflects the findings of all of the information available for the Site, nor is it representative of future Site conditions. If additional information is generated from the Site, it should be provided to Roux so that we may evaluate its impact on our conclusions. As such, activities or episodes that transpire subsequent to this Phase I ESA are not considered in this assessment. It is not intended that a Phase I ESA in accordance with ASTM E1527-13 be an exhaustive assessment of a property nor can it wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property.

1.4 Assumptions

This Phase I ESA Report, including the exhibits attached hereto, describes the results of Roux' investigation to identify the presence of *recognized environmental conditions* connected with the Site in accordance with ASTM E1527-13, as allowed by and consistent with the regulatory requirements of the All Appropriate Inquiry Rule, 40 CFR Part 312, Amendment to Standards and Practices for All Appropriate Inquires Under CERCLA, Final Rule, published December 30, 2013 (AAI Rule). Specifically, the preamble to the amended AAI Rule states:

> *The Environmental Protection Agency (EPA) today is taking final action to amend the standards and practices for conducting all appropriate inquiries under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to reference a standard practice recently made available by ASTM International, a widely recognized standards development organization. Specifically, this final rule amends the "All Appropriate Inquiries Rule" at 40 CFR Part 312 to reference ASTM International's E1527–13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" and make clear that persons conducting all appropriate inquiries may use the procedures included in this standard to comply with the All Appropriate Inquiries Rule*[1].

[1] Federal Register: December 30, 2013 (Volume 78, Number 250) Page 79319

One of the requirements that a person acquiring real property must meet in order to qualify for either the innocent landowner, contiguous owner, or bona fide prospective purchaser (collectively hereinafter "Prospective Purchaser") defense to liability under the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and the Small Business Liability Relief and Brownfields' Revitalization Act of 2002, 42 U.S.C. 9601-9675 (collectively referred to hereafter as "CERCLA") is that person must conduct all appropriate inquiries into the previous ownership and uses of the property in conformance with the AAI Rule (or the ASTM E1527-13) prior to acquisition of the property. The User has acknowledged that, under the AAI Rule, Roux' performance of this Phase I ESA in accordance with ASTM E1527-13 will not alone result in the User satisfying all requirements of the AAI Rule and will not in itself provide a defense to CERCLA liability. The User has acknowledged that the AAI Rule also requires that the Prospective Purchaser undertake certain additional inquiries and post-acquisition activities to satisfy the CERCLA AAI requirements. Accordingly, Roux makes no guarantees or warranties, expressed or implied, regarding this Phase I ESA, including without limitation, that this Phase I ESA will qualify the User for a defense to CERCLA liability.

Roux has performed this Phase I ESA in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. Professional judgments expressed herein are based on the facts currently available to Roux.

The AAI Rule requires, and the conclusions and recommendations stated herein represent, the application of a variety of engineering and technical disciplines to material facts and conditions associated with the Site. As such, these conclusions and recommendations are based on subjective interpretations and the exercise of discretion based on the facts available to Roux and conditions at the time of the performance of this Phase I ESA. Many of these facts and conditions are subject to change over time. Accordingly, the conclusions and recommendations must be considered within this context.

The User has agreed that Roux shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time this Phase I ESA was performed. To the extent practicable, Roux has identified data gaps, and has evaluated the potential significance of such data gaps. Recommendations to address those data gaps are presented herein and are based on the data available at the time of the performance of this Phase I ESA. Implementation of the recommendations may not fully address the data gaps, and the information obtained from execution of those recommendations may alter and/or modify the interpretation of the Site conditions and conclusions, herein. This Phase I ESA does not include consideration of matters specifically excluded by ASTM E1527-13, including but not limited to, asbestos-containing building materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, and mold unless specifically identified herein.

Roux has not collected any soil and/or groundwater samples on the Site for Phase I purposes, and is relying on information presented by others, often in preliminary, draft, or verbal form. By referencing this information, Roux does not accept responsibility for the accuracy of the underlying data, sampling methods, laboratory analysis, or documentation.

This Phase I ESA Report should not be considered a legal interpretation of existing environmental laws and regulations. This Phase I ESA was conducted with a reasonable degree of inquiry to identify *recognized environmental conditions*, but uncertainty is not eliminated. No Phase I ESA can wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property.

The Phase I ESA process is intended to reduce, but not eliminate, the uncertainty involved with identifying *recognized environmental conditions*.

This Phase I ESA Report is not an appraisal or value judgment of the Site. The User has agreed that Roux shall not be liable for any use of this Phase I ESA Report as an appraisal or value judgment of the Site.

This Phase I ESA Report has been prepared for the exclusive use of the User for specific application to the Site covered by this Phase I ESA Report. The User has agreed that any third-party use of this Phase I ESA Report, upon disclosure by the User, is the sole responsibility and at the sole liability of the User.

1.5 User Reliance

No additional parties may use the information contained in this report without obtaining the written permission of Roux or the User. Roux' duties and obligations extend to the User and to no other party. Roux' duties and obligations to the User are not transferable to persons, corporations, or organizations without the express written consent of the User and Roux. The User may rely upon the information provided in this Phase I ESA report for a period of 180 days from the date of issue. After 180 days, this Phase I ESA should be updated in accordance with ASTM guidance. Roux will not be liable for any consequential damages arising from the use of this report for other than its intended purpose, for use of this report beyond 180 days of its issue date, or from unauthorized use by third parties.

This Phase I ESA report must be read and interpreted as a whole and can only be considered representative of the conditions of the Site as of the date of our site reconnaissance described herein. Roux makes no representation whatsoever concerning the condition of the Site beyond the date of our site reconnaissance described herein. Individual sections and appendices of this report are dependent on the balance of this report, and on the terms, conditions, and stipulations contained in the proposal and written amendments accepted by Roux.

2. Site Description

2.1 Site Location and Description

Site Information	
Site Name	Shea San Jacinto
Street Address(es)	No current address; Historically used 870 and 1380 North Sanderson Avenue
City	City of San Jacinto
County	Riverside
State	California
Location	West of North Sanderson Avenue, east of Odel Avenue and south of Ramona Boulevard
Assessor's Parcel Number (APN)	432-030-006, 432-030-010, and 432-030-011
Site Acreage (per Riverside County Assessor Website)	Approximately 470 acres
Site Occupant(s)	None; currently unoccupied
Onsite Operations	None; formerly operated as sod farm and heifer raising farm
Description of Onsite Structures	None; Site consists of vacant land and is equipped with remnant cisterns, concrete building foundations, and a pond (water reservoir)
Site Paving	Unpaved vacant graded land with areas overgrown with weeds and native desert brush
Site Grading	Graded to drain at a gentle slope roughly oriented to the north
Site Vicinity	Rural and agricultural

Refer to Section 5.0 for a detailed description of the current condition of the Site and operations.

2.2 Vicinity General Characteristics

The facilities and improvements which are located immediately adjacent to the Site are provided in the following table.

Direction from Site	Improvements / Use (Addresses)
North	Records Road and vacant and/or agricultural land
East	North Sanderson Avenue, followed by vacant and/or agricultural land and California Equine Retirement Foundation (805 North Sanderson Avenue)
South	San Jacinto Valley Regional Water Reclamation Facility (770 North Sanderson Avenue)
Southwest	Residence and vacant and/or agricultural land
West	Demler Farms (1455 North Warren Road)

2.3 Past Use of the Site

Based on a review of historical sources, the Site was developed with a residential structure by 1901 with a workshop and two barns added by 1953. By 1949, the northeastern portion of the Site was developed for agricultural use, possibly row crops. Agricultural production extended to the remainder of the Site and remained until approximately 2012. Agricultural features added to the Site include water wells for domestic and irrigation use and small ponds. By 1978, 20 acres on the southeastern portion of the Site were developed with a heifer raising farm including corrals, water cisterns, and covered structures. A large pond (or water reservoir) was added to the southwestern corner of the Site by 1985. The heifer farm remained operational through at least 2006 became inactive by 2009. All the former structures, including all residential and agricultural support structures were demolished by 2012. The Site has since remained inactive and currently consists of vacant graded land with earthen roads.

2.4 Physical Setting

Roux obtained and reviewed published, reasonably ascertainable information concerning the physical setting of the Site. The following is a summary of the information reviewed from those physical setting sources.

Physical Setting Summary	
United States Geological Survey (USGS) Topographic Map	Lakeview, California Quadrangle
Approximate Site Elevation / Source	1460 to 1490 feet above mean sea level (msl) / Lakeview, California (2012) 7.5-minute quadrangle topographic map published by the USGS
Nearest Surface Water Features / Approximate Distance	San Jacinto Reservoir, an unlined stormwater drainage pond / 0.3 mile east of the Site
Regional Geology / Source	Quaternary deposits: alluvium, lake, playa and terrace, consolidated and semi-consolidated / California Department of Conservation, 2010 Geologic Map of California
Site Topography / Source	Generally flat with a gradual slope to the east-northeast / Site observation and USGS topographic map
Hydrogeological Region / Source	Located along the eastern portion of the San Jacinto Groundwater Basin / *California Department of Water Resources Bulletin 118, Update 2003 and Interim Update 2016*
Depth to Groundwater / Source	Greater than 70 feet bgs / Previous Site investigation (ATC, 2000) 11 to 13 feet bgs (perched) / Monitoring well installation report for a facility approximately 0.6 mile northeast of the Site (Leighton, 2009)
Groundwater Gradient Direction / Source	Northeast / Groundwater monitoring data for a facility approximately 0.6 mile northeast of the Site (Leighton, 2009)
Onsite Soil	Unconsolidated sands and gravel from the surface to 70 feet bgs (ATC, 2000)

3. Sources of Information

Sources of information utilized in preparing this Phase I ESA report included historical topographic maps; historical aerial photographs; a walkover survey of the Site and adjoining properties; in-person discussions with User and tenant personnel; a review of records available at selected local and state regulatory agencies; a review of databases maintained by local, state, and federal government agencies; and other records available from commercial and online sources.

3.1 Historical Sources

To help understand the history of the Site and past land uses, historical sources were obtained from Environmental Data Resources, Inc. (EDR), of Shelton, Connecticut. The sources and locations within the Appendices are provided in the table below.

EDR Historical Sources		
Historical Range	**Source**	**Appendix**
1901 - 2012	U.S. Geological Survey Topographic Maps	B
1938 - 2016	EDR Aerial Photographs “Decade Package”	C
No Available Coverage	EDR “Certified Sanborn® Map Report”	D
1971 - 2017	EDR “City Directory Image Report”	E

3.2 Site Reconnaissance

On August 3, 2021, Roux personnel conducted a reconnaissance of the Site and surrounding areas. Roux visually and/or physically observed adjoining properties from reasonably accessible locations on the Site and public thoroughfares. Photographs documenting Roux’ Site Reconnaissance are provided in Appendix G.

3.3 Regulatory Agencies

Roux contacted governmental agencies for reasonably ascertainable information concerning environmental conditions at the Site. Roux contacted or reviewed information from the agencies provided in the following table. Refer to Appendix G – Pertinent Historical Documentation for copies of the records reviewed. A summary of the information gathered from the regulatory agencies is provided in the table and details regarding the records were incorporated into applicable sections as noted.

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
Federal				
U.S. Environmental Protection Agency (EPA) – FOIAonline	07/29/2021	08/02/2021	No records were associated with the Site	N/A
U.S EPA MyProperty Database	07/29/2021	N/A	No records were associated with the Site.	N/A
National Pipeline Mapping System (NPMS) Online Database	07/29/2021	N/A	No records were associated with the Site.	N/A
State				
State Water Resources Control Board (SWRCB): GeoTracker Online Database	07/29/2021	N/A	A LUST case at Westra Dairy Farm in 2001 was associated with 870 N Sanderson Avenue.	6.0
SWRCB: Storm Water Multiple Application and Report Tracking System (SMARTS) Online Database	07/29/2021	N/A	No records were associated with the Site.	N/A
Department of Toxic Substances Control (DTSC)	07/29/2021	07/30/2021	No additional records were identified through this request – the DTSC referred to available documents on EnviroStor and the HWTS database	N/A
DTSC: EnviroStor Online Database	07/29/2021	N/A	A listing for the proposed high school as associated with the Site. Representatives from the DTSC Cypress office informed Roux any records for the proposed high school not available online are no longer on file and have likely been purged.	8.1
DTSC: Hazardous Waste Tracking System (HWTS) Online Database	07/29/2021	N/A	One disposal record associated with the Western Family Trust is associated with 870 N Sanderson Avenue. This listing appears to be associated with removal of former underground tanks at the Site.	6.0

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
California Air Resources Board (CARB)	07/29/2021	08/02/2021	No records were associated with the Site.	N/A
California Office of Environmental Health Hazard Assessment (OEHHA)	07/29/2021	N/A	No response has been received as of this report date.	N/A
California EPA (CalEPA)	07/29/2021	N/A	No response has been received as of this report date.	N/A
CalEPA CalRecycle	07/29/2021	08/03/2021	No records were associated with the Site.	N/A
CalEPA CalRecycle Solid Waste Information System (SWIS) Online Database	07/29/2021	N/A	No records were associated with the Site.	N/A
California Geological Energy Management (CalGEM) Online Database	07/29/2021	N/A	No records were associated with the Site or vicinity.	N/A
County / Regional				
Santa Ana Regional Water Quality Control Board (SARWQCB)	07/29/2021	08/23/2021	Records provided by the SARWQCB for the Site are discussed below in Section 6.0.	6.0
South Coast Air Quality Management District (SCAQMD)	07/29/2021	7/30/2021	No records were associated with the Site.	N/A
SCAQMD Facility Information Detail (FIND) Online Database	07/29/2021	N/A	No records were associated with the Site.	N/A
County of Riverside Department of Environmental Health	07/29/2021	7/30/2021	No records were associated with the Site.	N/A
County of Riverside Department of Buildings and Safety	07/29/2021	08/04/2021	Records provided include permits for installation of electrical lines to barn, well, pumps dated between 1982 and 1991.	N/A
County of Riverside Fire Department	07/29/2021	N/A	No response has been received as of this report date.	N/A
City / Local				
City of San Jacinto City Clerk	07/29/2021	8/25/2021	Records have not been received as of this report date. According to the City Clerk's office, the request for records is still being processed.	N/A

3.3.1 California Department of Toxic Substances Control (DTSC)

A 61-acre portion of the Site is listed by the California DTSC as the "Proposed High School at the Villages of San Jacinto" (Global ID T60000906) at the intersection of Ramona Boulevard and Cawston Avenue. In 2008, the San Jacinto Unified School District filed for an Environmental Oversight Agreement with the DTSC for oversight of the preparation of a Preliminary Endangerment Assessment (PEA) at Site Assessor Parcel Numbers 432-030-006 and 432-030-010. Three pages of the PEA including the introduction and part of the executive summary are available on EnviroStor appended to a response to comments matrix; however, the full PEA document is not available online. According to the available PEA sections, soil samples were collected and analyzed for organochlorine pesticides and arsenic. The DTSC issued an Approval of PEA Report on September 17, 2008, and stated that neither a release of hazardous material nor the presence of a naturally occurring hazardous material posed a threat to public health or the environment. The case is currently marked as 'No Further Action' on EnviroStor as of September 24, 2008. According to EnviroStor records, the area assessed was limited to 61 acres that were planned for school redevelopment. Soil sampling for pesticides and metals does not appear to have been conducted on the remaining areas of the Site.

Roux contacted the DTSC Cypress office for copies of the PEA reports. Ms. Gloria Conti and Ms. Jone Barrio of the DTSC Cypress office informed Roux that no other pertinent records, including the PEA report, for the proposed high school are on file with the DTSC and have likely been purged. Ms. Jone Barrio informed Roux that a copy of an Environmental Impact Report (EIR) is available for review in the DTSC file room. Roux' inability to obtain a copy of the previous PEA report represents a data gap. Based the limited information available online for the PEA and NFA letter issued by the DTSC, this limitation is not expected to alter the findings of this assessment

3.4 Government Databases

To document potential sources of contamination at or near the Site, a government records search was conducted by EDR. The search included local, state, and federal records for the Site and for other properties within ASTM-standard distances of the Site. The records search is summarized in Section 7.0 and a copy of "The EDR Radius Map™ Report with GeoCheck®," dated July 30, 2021, is included in its entirety as Appendix F. As recommended by ASTM, all but a few of the databases searched were "current," i.e., had been updated within 90 days prior to the search date.

3.5 User Provided Information

ASTM E1527-13 provides that the User perform certain tasks. The purpose of this section is to present select User-provided information that can assist in identifying possible *recognized environmental conditions* in connection with the Site. According to ASTM E1527-13, these tasks do not require the technical expertise of an environmental professional and the environmental professional generally does not perform these tasks. Roux administered a questionnaire to the User at the beginning of this Phase I ESA to assist them with these tasks. The following sections outline the parts of the questionnaire that the User completed.

3.5.1 Environmental Liens or Activity and Use Limitations

The User indicated that they have no knowledge regarding environmental liens or activity and use limitations (engineering/institutional controls) with respect to the Site.

3.5.2 Specialized Knowledge

The User did not report any specialized knowledge related to the Site.

3.5.3 Valuation Reduction for Environmental Issues

The User indicated that they have no knowledge regarding valuation reduction for environmental issues.

3.5.4 Commonly Known or Reasonably Ascertainable Information

The User did not have any knowledge regarding commonly known or reasonable ascertainable information about the Site not otherwise addressed.

3.5.5 Obvious Indicators of the Presence or Likely Presence of Contamination of the Site

The User did not have any knowledge regarding obvious indicators of the presence or likely presence of contamination of the Site not otherwise addressed.

3.6 Interviews

On August 26, 2021, Roux attempted to reach an owner of the Site, Mr. Cal Westra, via telephone. Roux was informed that the phone number for Mr. Westra had been reassigned. Based on the information obtained from previous reports and historical sources available, this limitation is not expected to significant alter the findings of this assessment.

4. Site History

This section documents the history of the Site and describes current conditions and existing or former environmental features.

4.1 Site History

The history of the Site and, to a lesser extent, the surrounding area, including previous land use, has been compiled based on information from the exhaustive list of sources provided in Section 3.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Site Description**	**Vicinity Description**
Early Residential Development				
Pre-1900	No Sources Available			
1900s	1901	Historical Topographic Map: Elsinore / San Jacinto (15-minute)	Mostly vacant land located in a rural area of San Jacinto Viejo. Southern portion of the site is developed with a road and single structure likely used as a residence or homestead.	Adjacent sites appear as vacant land. Nearby arterial roads are to the west and north. Two unnamed streams are to the north.
1910s	No Sources Available			
1920s	No Sources Available			
1930s	1938	EDR Aerial Photograph	No significant changes from prior Site history except for addition of ancillary structures to residence or homestead on the southern portion of the Site.	No significant changes from prior history.
Agricultural Development				
1940s	1943	Historical Topographic Map: Perris / Banning (15-minute)	No significant changes from prior Site history.	No significant changes from prior history.
	1949	EDR Aerial Photograph	The northeastern portion of the Site was developed for agricultural use, possibly row crops. Three additional structures were added west of the existing residence in the southern portion and one small structure of unknown use was added on the northwestern corner of the Site	Agricultural development is noted to the northeast and east of the Site.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Site Description**	**Vicinity Description**
1950s	1953	EDR Aerial Photograph	Agricultural development has extended to the northern and central portions of the Site.	Increase agricultural development to the northeast and east of the Site.
		Historical Topographic Map: La Jolla (15-minute)	Three water wells, likely used for irrigation, were added to the Site.	Addition of unnamed road (later Sanderson Avenue) to the east and San Jacinto Reservoir and canal further to the southeast.
1960s	1961	EDR Aerial Photograph	Agricultural development throughout the Site increased.	No significant changes from prior history.
	1967	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	A fourth water well and two intermittent ponds were added to the Site.	Addition of duck ponds to the northeast and east, sewage disposal ponds to the south, several wells throughout the surrounding areas, and canal and aqueduct part of the nearby San Jacinto Reservoir.
1970s	1975	EDR Aerial Photograph	The two previous ponds were no longer present. Two windmills were depicted to the west of the Site in topographic maps, although no windmills were noted within the Site boundaries during review of historical aerial photographs	Addition of water reclamation plant adjacent to the south
	1978	EDR Aerial Photograph	A heifer farm, totaling approximately 20 acres, was operating on the southeastern portion of the Site. Discernable features include multiple enclosures (or corrals), and four covered structures.	Addition of ponds or other water features to the southwest and south.
	1979	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	No significant changes from prior Site history.	No significant changes from prior history.
1980s	1985	EDR Aerial Photograph	A presently existing water reservoir had been constructed in the southwestern corner of the Site. The remainder of the Site is developed for agricultural use including row crops or heifer farm.	Addition of dairy farms to the west.
	1989	EDR Aerial Photograph	No significant changes from prior Site history.	No significant changes from prior history.
1990s	1991	Building Permits	Site equipped with a residence, workshop, two barns, several corrals, and shade structures. The southern and central portions of the site were used for grain storage (or growth), oats, and alfalfa.	N/A

Summary of Historical Sources				
Decade	**Year**	**Source**	**Site Description**	**Vicinity Description**
	1996	EDR Aerial Photograph	No significant changes from prior Site history.	No significant changes from prior history.
2000s	2002	EDR Aerial Photograph	No significant changes from prior Site history.	No significant changes from prior history.
		Previous Reports	Site was reportedly occupied by one residential structure, two warehouses, a storage shed, two office trailers, and three groundwater wells (one domestic and two irrigation), covered areas for the cows (barn structures), and equipment storage areas	N/A
	2006	EDR Aerial Photograph	No significant changes from prior Site history.	Former ponds to the southwest have been redeveloped for agricultural use (row crops).
	2009	Previous Reports	A site visit was conducted in May 2009 as part of the EIR. The only reported structures observed on-Site were an abandoned residence and “shade structures”. The heifer farm operations were reportedly no longer active as of 2009.	N/A
		EDR Aerial Photograph	Two of the previous “shade structures” remain onsite. The majority of the Site appears vacant and may have no longer been developed for agricultural use.	No significant changes from prior history.
2010s	2012	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	No significant changes from prior Site history.	No significant changes from prior history.
		EDR Aerial Photograph	All the former structures have been demolished. Some agricultural features (light row crops) appear throughout the Site.	No significant changes from prior history.
2020s	2021	Site Reconnaissance	No significant changes from prior Site history.	No significant changes from prior history.

5. Current Site Conditions

A Roux representative, Mr. Connor Moore, conducted a reconnaissance of the Site and surrounding areas on August 3, 2021. Roux also visually and/or physically observed adjoining properties from reasonably accessible locations on the Site and public thoroughfares. During the Site reconnaissance, the weather was clear and the temperature was approximately 115° Fahrenheit. A photographic log summarizing the Site Reconnaissance is provided as Appendix G. The following sections summarize observations during the inspection.

5.1 Site Reconnaissance

The Site consists of approximately 470 acres of vacant land and is bound by North Sanderson Avenue to the east and is located east of Odel Avenue and south of Ramona Boulevard. No addresses are currently assigned to the Site; however, 870 and 1380 North Sanderson Avenue have previously been used for two of the parcels. The Site is undeveloped apart from unpaved farm roads and consists of vacant graded land. Graded areas across the Site are overgrown with weeds and native desert brush vegetation and do not appear to have been used for any purpose for many years.

Roux observed the Site from accessible road throughout the Site. Due to the size of the property and the vegetation present on site, isolated areas of the site may have not been accessible for direct observation during the Site reconnaissance.

5.2 Phase I ESA Observations

During Site reconnaissance, Roux personnel attempt to identify any environmental features that may be relevant in the context of the Phase I ESA. The features identified are summarized in the table below. Any such features are discussed in the following subsections.

Feature	Observed on the Site	Observed on an Adjacent Property
Areas of stressed vegetation		
Areas which receive flood or storm water from potentially contaminated areas		
Air Compressor Vent Discharges		
Chemical Storage and/or Use		
Drainage Swales and Culverts		
Discharge Areas		
Discolored or Spill Areas		
Drums (55 Gallons or Larger)	X	
Electrical Transformers	X	
Former Agricultural Applied Pesticide Area	X	

Feature	Observed on the Site	Observed on an Adjacent Property
Hydraulic Lifts		
Incinerators		
Landfills or Landfarms		
Loading and Unloading Areas		
Non-Contact Cooling Water Discharge		
Oil-Water Separator(s)		
Open Areas Away from Production Areas		
Process Area Sinks and Piping		
Rail Cars/Railroad Spurs		
Septic Systems Leach Fields or Seepage Pits		
Silos		
Sprayfields		
Storm Sewer and Spill Containment Collection System		
Storm Water Detention Pond	X	
Surface Impoundments and Lagoons		
Underground / Aboveground Storage Tanks and Associated Piping		
Waste Piles	X	
Wells	X	

5.2.1 Drums (55 Gallons or Larger)

Two abandoned 55-gallon drums were observed during Roux' Site reconnaissance on August 3, 2021. The drums were observed on a concrete pad in the southeastern portion of the Site in the vicinity of the former heifer ranch area and appeared to contain unknown waste products. Minor to moderate staining was observed in the vicinity of these features. The staining was located on a paved area. It appears that the staining is surficial in nature and thus is not expected to represent a significant environmental concern. As a best management practice, any abandoned drums should be removed from the Site and properly disposed.

5.2.2 Electrical Transformers

Roux personnel observed pole-mounted transformers at the Site. Staining was not observed at the base of the transformer poles. Based on the construction and appearance of the transformers, they did not appear to be wet-type, with the potential to contain PCBs. Roux does not consider the presence of these transformers to be an environmental concern.

5.2.3 Former Agricultural Applied Pesticide Area

Based on a review of historical sources, a portion of the Site was developed for agricultural use (row crops) as early as 1949 with increased agricultural development noted from at least 1978 to 2016. No indications of former row crops were observed on the Site. According to the EIR, a portion of the Site was developed as a sod farm from 1997 through at least 2002. Any residual pesticide, herbicide, or fertilizer residue in Site soils associated with sod farming was not identified as an environmental concern based on the removal of shallow soils during sod harvest. Agricultural production prior to 1997 at the Site is not currently known. However, it is likely that agricultural chemicals, such as pesticides, herbicides and fertilizers, were used on-Site historically, and the potential for impacts from agricultural chemicals to on-Site soils is considered a REC.

5.2.4 Storm Water Detention Pond

The Site is equipped with a drainage pond located on the southwestern corner. According to aerial photographs, the pond was added between 1978 and 1985 and was likely used as part of the heifer ranch operations. According to the EIR, the reservoir contained reclaimed water from the nearby San Jacinto Valley Regional Water Reclamation Facility related to irrigation for sod farming activities on-Site. It is unknown whether the pond also historically received wastewater from the on-Site ranch operations, was used for agricultural irrigation, or stored water treated with larvicide/repellant for mosquito control. The pond appeared unlined, allowing waters to infiltrate the ground and recharge the aquifer. Based on the historical agricultural use of the Site, the on-Site pond represents a REC.

5.2.5 Wells

According to topographic maps, the Site has been equipped with at least four groundwater wells located throughout the Site. During the 2002 Phase I ESA, a total of three wells, including one domestic production well and two irrigation wells, were observed on-site. Only one of the three wells noted during the 2002 Phase I ESA match a known well depicted in topographic maps. Two of the irrigation groundwater wells noted during the 2002 Phase I ESA were located during Roux' Site reconnaissance. According to the EIR, any known and discovered wells will be abandoned and decommissioned in accordance with SA-RWQCB and RCDEH protocols.

5.3 Vapor Intrusion

Roux performed a vapor migration/intrusion pathway assessment. Operation of the Site as a heifer raising farm constitutes a known source for potential vapor intrusion. No known sources for potential vapor intrusion were identified for any adjacent or nearby properties.

The former onsite operations have been identified elsewhere in this report as *recognized environmental conditions* or *other environmental features*.

6. Summary of Key Previous Investigations

The following sections provide a summary of previous environmental investigations at the Site, particularly in regard to the former gasoline and diesel USTs at the Site.

Westra Dairy Farm, located at 870 Sanderson Avenue, was identified in the GeoTracker database as having a closed Leaking Underground Storage Tank (LUST) file. According to records provided by the SA-RWQCB, the former on-Site dairy farm (or heifer ranch) had two 1,000-gallon gasoline USTs and one 10,000-gallon diesel UST. The locations of the former USTs as provided by these documents are included in Figure 2.

6.1 Site Investigation (ATC, 2000)

Under direction of the County of Riverside, two 1,000-gallon USTs and one 10,000-gallon USTs were removed from the Site in December 1999. The tank area was over-excavated and approximately 120 tons of hydrocarbon-impacted soil were removed and transported for off-Site disposal. ATC was retained to delineate the vertical and lateral extent of impacts to the soil.

In October 2000, three borings (S-1, S-2, and S-3) were drilled in the area of the former USTs to depths of 60 and 70 feet bgs. Groundwater was not encountered during this investigation. Soil samples were collected at 5-foot intervals starting at 15 feet bgs to the total depth of each boring. Soil samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPH-g) and diesel (TPH-d) and aromatic hydrocarbons. Selected samples collected at 15 feet from S-1 and S-3 were also analyzed for fuel oxygenates, alcohols, and semi-volatiles at the request of the SA-RWQCB.

Based on the analytical results of the soil sampling, ATC determined that the extent of the contamination was “very limited”, and the vertical extent reached below the former tanks to a depth of 35 feet.

6.2 Well Installation and Vapor Extraction Testing (Stratus, 2001)

In accordance with a workplan approved by the SA-RWQCB, Stratus installed one vapor extraction well (VE-1) to assess if any residual petroleum hydrocarbon source remained in the soil that would pose a threat to groundwater resources. VE-1 was installed to a terminal depth of 20 feet bgs and located on the northeastern corner of the former tank excavation. Soil samples were collected at 5-foot intervals and screened using a photoionization detector (PID).

Following the installation of the vapor extraction well in May 2001, a mobile soil vapor extraction (SVE) system was used to extract and treat soil vapors. A vapor extraction test was conducted for 7 hours and reportedly removed an estimated 9.55 pounds of vapor-phase hydrocarbons. Influent soil vapor samples were collected at the startup, mid-point, and end-point of the vapor extraction test and analyzed for volatile fuel hydrocarbons (VFH), benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tert-butyl ether (MTBE). Laboratory results of the end-point vapor sample identified VFH at 2,300 parts per million volume (ppmv), benzene at 17 ppmv, toluene at 57 ppmv, total xylenes at 24 ppmv, and MTBE at 270 ppmv. Soil samples do not appear to have been collected following the vapor extraction test. It is unknown if the SVE system operated outside of the 7-hour vapor extraction test as part of remediation for the impacted soils.

A “No Further Action” letter was issued by the SA-RWQCB to the Westra Family Trust on December 26, 2001. The closure letter recommended that correction action should be reviewed if land use changes. According to the “No Further Action” letter, data from this investigation indicates that the residual petroleum hydrocarbons in soil are limited to an area with a 15-foot radius between 15 and 20 feet bgs and did not

indicate a significant presence or source of petroleum hydrocarbons in the soil. At the request of the SA-RWQCB, the vapor extraction well at the Site (identified as a "study well") was properly sealed and abandoned by April 15, 2002.

Although a closure document was issued by the SA-RWQCB in 2001, the remaining petroleum hydrocarbon-impacted soil in the former LUST area is considered a hREC.

6.3 Draft Environmental Impact Report (Dudek, 2009)

Dudek prepared an Environmental Impact Report (EIR) for the City of San Jacinto for the proposed Villages of San Jacinto redevelopment project (the Site). The Villages of San Jacinto project consisted of mixed-use redevelopment of the Site including parks, residences, and a high school. Included in the EIR is a reference to a previous Phase I ESA prepared by Gradient Engineers, dated October 10, 2002. A copy of this report was not included in the appendices provided to Roux. Roux has requested a copy of the 2002 Phase I ESA from the City of San Jacinto; however, records have not been provided as of this writing. The following on-Site environmental hazards were identified in the EIR, particularly regarding the former agricultural operations and petroleum storage.

- **Former Heifer Farm**. A southeastern portion of the Site, totaling approximately 20 acres in size, was formerly developed as a heifer raising farm from at least 1978 through 2002. The former heifer farm operations represented a REC due to the possible presence of methane from manure. According to the EIR, the Riverside County's Methane Investigation Protocol would be followed in order to ensure that methane hazards do not exist on the 20-acre portion of the Site formerly used for heifer raising. Methane gas sampling and associated mitigation activities were reportedly planned after grading, in accordance with RCDEH protocols.

- **Petroleum-Stained Soil.** During the 2002 Phase I ESA, petroleum-stained soil was observed beneath a diesel aboveground storage tank (AST) located northwest of the reservoir (pond), near the irrigation groundwater well located southwest of the reservoir, and on the floor of the equipment shed, beneath three oil-containing 55-gallon drums. Based on the storage of hazardous substances and petroleum products in uncovered ground areas and evidence of a release, the former chemical storage identified above represented a REC. In order to evaluate and possibly mitigate environmental hazards associated with petroleum releases, the EIR recommend sampling and proper disposal of stained soils.

- **Septic Systems.** According to the EIR, the Site was equipped with two septic systems that historical sources suggest may have been in operation for many decades. The EIR stated the septic systems would be removed along with any residue material in accordance with RCDEH protocols. Based on the likely use of these systems for domestic waste only, the existing septic systems represent an OEF.

- **Debris.** Debris, including old equipment, water heaters, tires, and trash were observed in several piles throughout the site both in the 2002 Phase I ESA and during Site reconnaissance associated with the EIR. Several mounds of soil also were observed across the Site. According to the EIR, the soil piles were generated from on-Site activities and were piled for storage and eventual removal. The EIR recommended a qualified environmental professional be present on-Site during removal of debris piles to assess debris and stockpiled soils and direct disposal accordingly. All debris would be disposed of in accordance with state and local laws. Based on observations made during the Site reconnaissance, on-Site debris represent an OEF.

7. Database Records Review

7.1 Standard Environmental Record Sources

According to ASTM Standard E1527-13, the purpose of reviewing regulatory records is to obtain and review records that will help identify *recognized environmental conditions* in connection with the Site. In addition, some records to be reviewed pertain not only to the Site, but also to properties within an additional "approximate minimum search distance" in order to help assess the likelihood of problems from migrating hazardous substances or petroleum products. The basis of the "approximate minimum search distance" is the Site boundary.

Roux retained EDR of Shelton, Connecticut to provide an ASTM Radius Map Report (EDR Report) for this Site. This report is a computerized search of select state and federal environmental databases that identify various properties with a record of environmental activity. Roux reviewed the report and summarized the relevant findings in the following sections. A copy of the compiled EDR Report has been included as Appendix F. The EDR report includes a detailed description of each of the databases searched, providing a summary of the type of information provided by each. A summary of Roux' review of the EDR Report listings is provided in Table 1.

The following section describes the findings of the database search. Roux used professional judgement in determining which EDR-listed sites to include in the narrative of this report. Facilities adjoining the Site were included due to their proximity to the Site and the potential for surface water discharges (e.g., storm water runoff, surface water effluent discharges) to enter the Site or through the migration of groundwater. Sites with listings indicative of a release (e.g., SHWS, LUST, RELEASE) are likewise discussed below. Nonadjacent facilities with database listings not necessarily indicative of a release (hazardous waste generator, FINDS, ECHO, NPDES, HAZNET, AST, or UST) will not be discussed unless considered potentially relevant in context of the Phase I ESA.

7.1.1 Site (Target Property)

Address	Owner/Operator	Database(s)
870 Sanderson Avenue	None identified	CHMIRS
	Western Family Trust	HAZNET, HWTS
	Westra Dairy Farm	RGA LUST, LUST, Cortese, CERS, FINDS
	Quality Turf	FINDS
	Proposed High School at the Villages of San Jacinto	ENVIROSTOR, SCH

According to the CHMIRS listing, Riverside County Fire Department was called to a burning operation at a dairy on January 28, 1999. Ten 55-gallon drums of waste motor oil were identified to be leaking and overturned. There was reportedly evidence that some oil had been dumped into a refuse pit and burned. No additional pertinent information such as the location of the drums or cleanup activities were provided. Roux

requested records from Riverside County Fire Department on July 29, 2021. No response has been received as of this report date.

In 1999, Western Family Trust generated 4.17 tons of off-specification, aged or surplus inorganics at the Site. This listing may be associated with removal of hazardous waste drums such as the 10 drums identified in the CHMIRS. Environmental concerns associated with former aboveground chemical storage at the Site are discussed in Section 6.0.

Westra Dairy Farm was identified as a closed Leaking Underground Storage Tank (LUST) facility. According to the listings, a release of gasoline to soil was remediated under oversight of the Santa Ana Regional Water Quality Control Board. The closed LUST case is further discussed above in Section 6.0.

According to client-provided information, a portion of the Site was formerly proposed to be redeveloped with a school campus. The proposed school facility, located at Ramona Boulevard and Cawston Avenue, was identified as a school investigation EnviroStor listing. The closed EnviroStor case is further discussed above in Section 8.1.

7.1.2 Adjoining and Nearby Properties

Discussions of adjoining and nearby properties of potential environmental concern as noted in Table 1 are provided below.

- **EMWD San Jacinto Valley RWRF / Hemet San Jacinto Reg Water (770 North Sanderson Avenue).** The south adjacent site, identified as a sewage treatment facility, was identified in the AST, RCRA-LQG, CERS HAZ WASTE, CERS TANKS, CHMIRS, NPDES, CIWQS, and CERS database. According to the AST listing, this facility is equipped with ASTs totaling 3,720 gallons in capacity. The quantity and contents of the tanks were not provided. The RCRA-LQG listing indicates ignitable waste, corrosive waste, and lead have been generated by the facility. This adjacent site has reportedly been issued a construction stormwater permit by the Eastern Municipal Water District. Absent any additional information, this adjacent site is not expected to represent a significant environmental concern to the Site based on the lack of a documented release.

7.1.3 Orphan Sites

The EDR Report includes a section addressing “Orphan Sites.” Orphan sites are sites, which, due to incomplete geographic location data, incomplete address information or incorrect address information, cannot be plotted correctly. The database report identified one unmapped facility.

- **Hemet/San Jacinto WWRD (770 Sanderson).** The south adjacent site was identified in the CIWQS database. This listing pertains to an inactive industrial stormwater permit issued to the facility by the Eastern Municipal Water District. Based on the lack of a documented release associated with this facility, this listing is not expected to represent a significant environmental concern.

8. Findings

Roux has performed this Phase I ESA in general compliance with the scope and limitations of ASTM Standard Practice E1527-13. Roux separated the findings of this assessment into the following four categories: *recognized environmental conditions*, *controlled recognized environmental conditions*, *historical recognized environmental conditions* and *other environmental features*.

8.1 Data Gaps

During conduct of this ESA, the following data gaps, as defined in ASTM Standard E1527-13 were identified:

- The timing of the report did not allow for all contacted agencies to respond to the records requests issued, including a request pending with the City of San Jacinto City Clerk. This data gap is not considered significant due to sufficient information available from previous environmental reports, the EDR report, and city, county, and state websites.
- Previous Site owners/operators were not available for an interview. On August 26, 2021, Roux attempted to reach an owner of the Site, Mr. Cal Westra, via telephone. Roux was informed that the phone number for Mr. Westra had been reassigned. This data gap is not considered significant due to sufficient information regarding Site history available from EDR historical documents and FOIA requests.
- Roux observed the Site from accessible road throughout the Site. Due to the size of the property and the vegetation present on site, isolated areas of the site may have not been accessible for direct observation during the Site reconnaissance.
- A portion of the Site is listed by the California DTSC as the "Proposed High School at the Villages of San Jacinto" (Global ID T60000906) at the intersection of Ramona Boulevard and Cawston Avenue. Three pages of a PEA report including the introduction and part of the executive summary are available on EnviroStor appended to a response to comments matrix; however, the full PEA document is not available online. Roux contacted the DTSC Cypress office for copies of the PEA reports. Ms. Gloria Conti and Ms. Jone Barrio of the DTSC Cypress office informed Roux that no other pertinent records for the proposed high school are on file with the DTSC and have likely been purged. Roux' inability to obtain a copy of the previous PEA report represents a data gap. Based the limited information available online for the PEA and NFA letter issued by the DTSC, this limitation is not expected to alter the findings of this assessment.

8.2 Recognized Environmental Conditions

Based on the information obtained through the performance of this ESA, Roux identified the following RECs in connection with the current and historical operations at the Site or adjacent properties. To the extent possible, the locations of the RECs are shown in Figure 2. To avoid confusion, all RECs, cRECs, and hRECs, and OEFs are numbered sequentially.

REC 1 – Former Heifer Farm. A southeastern portion of the Site, totaling approximately 20 acres in size, was formerly developed as a heifer raising farm from at least 1978 through 2002. The former heifer farm operations represented a REC due to the possible presence of methane from manure.

REC 2 - Petroleum-Stained Soil. During a reconnaissance of the Site conducted in 2002, petroleum-stained soil was observed beneath a diesel AST located northwest of the reservoir (pond), near the irrigation groundwater well located southwest of the reservoir, and on the floor of the equipment shed, beneath three oil-containing 55-gallon drums. Based on the storage of hazardous substances and

petroleum products in uncovered ground areas and evidence of a release, the former chemical storage identified above represented a REC.

REC 3 - Pond. The Site is equipped with a pond located on the southwestern corner. According to aerial photographs, the pond was added between 1978 and 1985 and was likely used as part of the heifer ranch operations. According to a 2009 EIR, the reservoir contained reclaimed water from the neighboring San Jacinto Valley Regional Water Reclamation Facility related to irrigation for sod farming activities on-Site. It is unknown whether the pond also historically received wastewater from the on-Site ranch operations, was used for agricultural irrigation, or stored water treated with larvicide/repellant for mosquito control. The pond appeared unlined, allowing waters to infiltrate the ground and recharge the aquifer. Based on the historical agricultural use of the Site, the on-Site pond represents a REC.

REC 4 - Former Agricultural Applied Pesticide Area. Based on a review of historical sources, a portion of the Site was developed for agricultural use (row crops) as early as 1949 with increased agricultural development noted from at least 1978 to 2016. No indications of former row crops were observed on the Site. According to the EIR, a portion of the Site was developed as a sod farm from 1997 through at least 2002. Any residual pesticide, herbicide, or fertilizer residue in Site soils associated with sod farming was not identified as an environmental concern based on the removal of shallow soils during sod harvest. Agricultural production prior to 1997 at the Site is not currently known. However, it is likely that agricultural chemicals, such as pesticides, herbicides, and fertilizers, were used on-Site historically, and the potential for impacts from agricultural chemicals to on-Site soils is considered a REC.

8.3 Controlled Recognized Environmental Conditions

Roux did not identify known or suspected cRECs in connection with the current and historical operations at the Site

8.4 Historical Recognized Environmental Conditions

Roux identified the following hRECs in connection with the current and historical operations at the Site or adjacent properties. To the extent possible, the locations of the hRECs are shown in Figure 2.

hREC 5 – Historical Underground Storage Tanks. Westra Dairy Farm, formerly located on-Site at 870 Sanderson Avenue, was identified as having a closed LUST file. According to closure documents, the former on-Site dairy farm (or heifer ranch) had two 1,000-gallon gasoline USTs and one 10,000-gallon gasoline UST located south of a former workshop building in the southern portion of the Site. All three USTs were removed from the Site in December 1999 under direction of the County of Riverside. The tank area was over-excavated and approximately 120 tons of contaminated soil were removed and transported for off-Site disposal. In October 2000, a soil investigation identified TPH and VOC impacts below the former tanks to a depth of 35 feet bgs. In May 2001, a vapor extraction well was subsequently in the vicinity of the former tanks and a mobile soil vapor extraction system was used to extract and treat soil vapor. Soil samples do not appear to have been collected following the vapor extraction test. It is unknown if the SVE system operated outside of the 7-hour vapor extraction test as part of remediation for the impacted soils. A “No Further Action” letter was issued by the SA-RWQCB to the Westra Family Trust on December 26, 2001. The closure letter recommended that correction action should be reviewed if land use changes. According to the “No Further Action” letter, data from this investigation indicates that the residual petroleum hydrocarbons in soil are limited to an area with a 15-foot radius between 15

and 20 feet bgs and did not indicate a significant presence or source of petroleum hydrocarbons in the soil. Although a closure document was issued by the SA-RWQCB in 2001, the remaining petroleum hydrocarbon-impacted soil in the former LUST area is considered a hREC.

8.5 Other Environmental Features

OEFs are environmental conditions that do not meet the definition of a REC, cREC, or hREC, but which may warrant mention in a comprehensive Phase I ESA. Based on the subject Phase I ESA, Roux identified the following OEFs at or in the vicinity of the Site. To the extent possible, the locations of the OEFs are shown in Figure 2.

OEF 6 - Septic Systems. According to the EIR, the Site was equipped with two septic systems that historical sources suggest may have been in operation for many decades. The EIR stated the septic systems would be removed along with any residue material in accordance with Riverside County Department of Environmental Health (RCDEH) protocols. Based on the likely use of these systems for domestic waste only, the existing septic systems represent an OEF.

OEF 7 - Debris. Debris, including old equipment, water heaters, tires, and trash were observed in several piles throughout the site both in the 2002 Phase I ESA and during Site reconnaissance associated with the EIR. Several mounds of soil also were observed across the Site. According to the EIR, the soil piles were generated from on-Site activities and were piled for storage and eventual removal. The EIR recommended a qualified environmental professional be present on-Site during removal of debris piles to assess debris and stockpiled soils and direct disposal accordingly. Based on observations made during the Site reconnaissance, on-Site debris represent an OEF.

OEF 8 - Abandoned Drums. Two abandoned 55-gallon drums were observed during Roux' Site reconnaissance on August 3, 2021. The drums were observed on a concrete pad in the southeastern portion of the Site in the vicinity of the former heifer ranch area and appeared to contain unknown waste products. Minor to moderate staining was observed in the vicinity of these features. The staining was located on a paved area. It appears that the staining is surficial in nature and thus is not expected to represent a significant environmental concern.

9. References

American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-13)

EDR, *The EDR Radius Map™ Report with GeoCheck®*, July 30, 2021

EDR, *The EDR Aerial Photo Decade Package*, July 30, 2021

EDR, *EDR Historical Topo Map Report*, July 30, 2021

EDR, *Certified Sanborn Map Report*, July 30, 2021

EDR, *The EDR-City Directory Abstract*, August 3, 2021

ATC Associates Inc. (ATC), *Site Investigation, Westra Dairy, 870 Sanderson Avenue, San Jacinto, California*, October 30, 2000.

Stratus Environmental, Inc. (Stratus), *Well Investigation and Vapor Extraction Testing, Westra Diary Farm, 870 North Sanderson Avenue, San Jacinto, California*, June 6, 2001.

Dudek, *Recirculated Draft Environmental Impact Report No.2, Villages of San Jacinto,* August 2009.

Leighton Consulting, Inc. (Leighton), *Groundwater Monitoring Well Installation Report and Results of Groundwater Monitoring, Former San Jacinto Mobil, Site No. 200824216, 2070 North Sanderson Avenue, San Jacinto, California*, August 24, 2009.

10. Signature of Environmental Professional

Roux performed this assessment in accordance with the generally accepted practices for environmental assessments at the time of implementation. Roux made a reasonable effort to ensure that the information presented in this report is materially complete and accurate.

Roux completed a Phase I ESA in general compliance with the scope and limitations of ASTM Practice E1527-13 of the vacant property located at west of North Sanderson Avenue, San Jacinto, Riverside County, California.

"We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental professional as defined in §312.10 of 40 CFR 312" and,

"We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Roux performed this Phase I ESA by, or under direct supervision of, the undersigned environmental professionals.

Respectfully Submitted,

ROUX ASSOCIATES, INC.

Rocio Quinones
Project Scientist

Mauricio H. Escobar, P.G.
Principal Geologist

TABLES

1. Standard Environmental Record Sources (EDR Report) Summary

Table 1: Standard Environmental Record Sources (EDR Report) Summary

870 & 1380 N SANDERSON AVENUE SAN JACINTO, CA 92582

Site Name	Address	Database Listings	Distance (Miles)	Direction	Discussed in Report Text
	870 SANDERSON AVE	CHMIRS	TP	TP	Yes
WESTERN FAMILY TRUST	870 N SANDERSON	HWTS,HAZNET	TP	TP	Yes
WESTRA DAIRY FARM	870 SANDERSON	RGA LUST	TP	TP	Yes
WESTRA DAIRY FARM	870 SANDERSON	LUST,CORTESE,CERS	TP	TP	Yes
WESTRA DAIRY FARM	870 SANDERSON	FINDS	TP	TP	Yes
QUALITY TURF	870 SANDERSON AVE	FINDS	TP	TP	Yes
PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT	RAMONA BOULEVARD/CAWSTON AVENUE	ENVIROSTOR,SCH	0	0	Yes
PROPOSED HIGH SCHOOL	RAMONA BOULEVARD/CAWSTON AVENUE	CERS	0	0	Yes
SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACI	700 N SANDERSON AVE	FINDS	0	0	Yes
SAN JACINTO VALLEY REGIONAL WATER RECLAMATION FACI	700 N SANDERSON AVE	RCRA-VSQG	0	0	Yes
EMWD SAN JACINTO VALLEY RWRF	770 N SANDERSON AVE	CERS HAZ WASTE,CERS TANKS,CHMIRS,NPDES,CIWQS,CERS	0.146	SSE	Yes
HEMET SAN JACINTO REG WATER	770 N SANDERSON AVE	AST	0.146	SSE	Yes
SAN JACINTO VALLEY RWRF	770 NORTH SANDERSON	RCRA-LQG	0.146	SSE	Yes

Notes

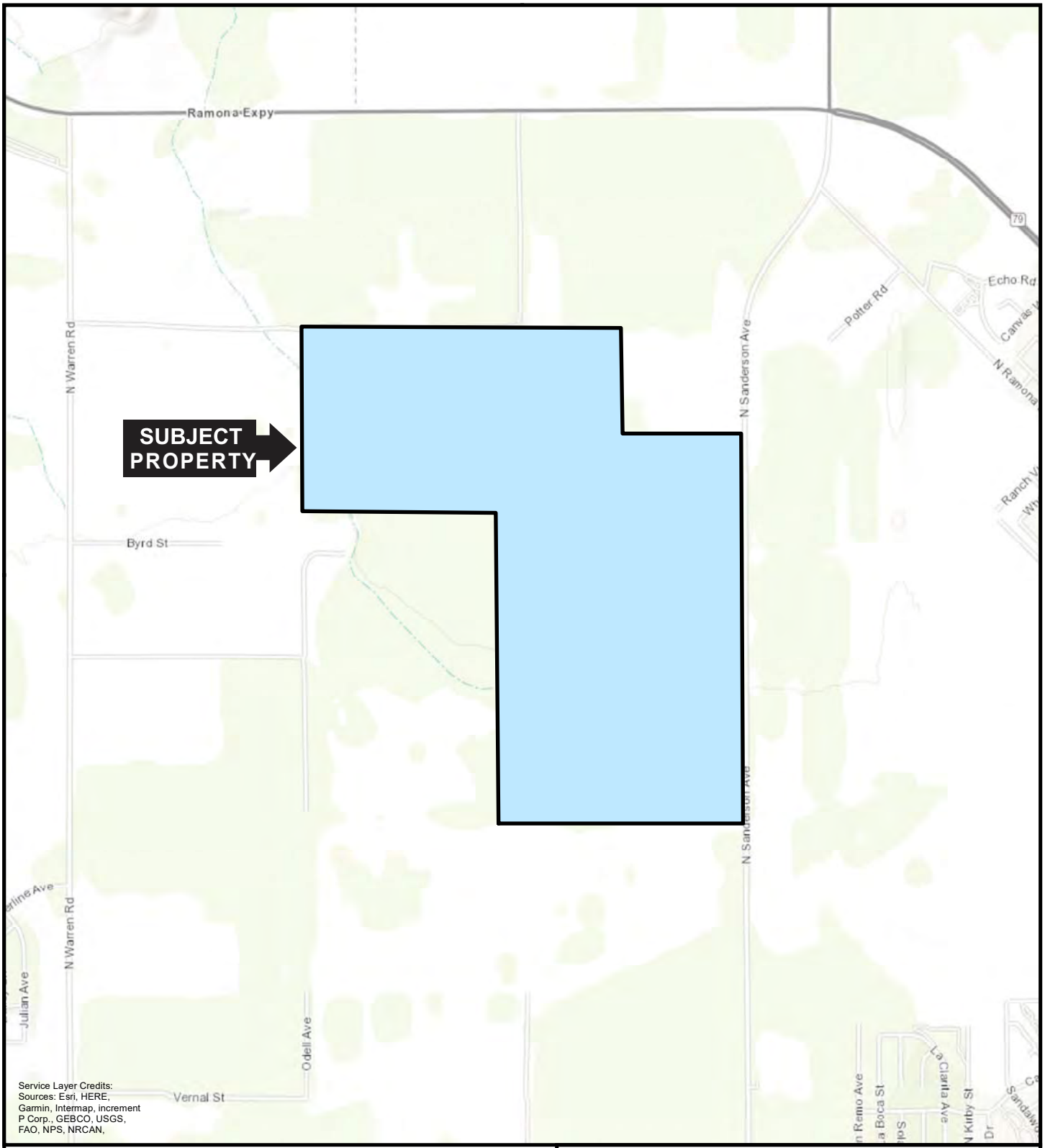
Blue: Facility does not have associated database listings indicative of a release or contamination

Green: Facility is hydraulically downgradient or crossgradient and/or is a closed release case

Orange: Facility has an associated release case impacting soil only and/or VOCs are not a potential contaminant of concern

FIGURES

1. Site Location Map
2. Site Plan
3. Site Plan: Former Operations Area



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

Villages at San Jacinto
870 & 1380 N Sanderson Avenue
San Jacinto, Riverside County, California

Prepared for:

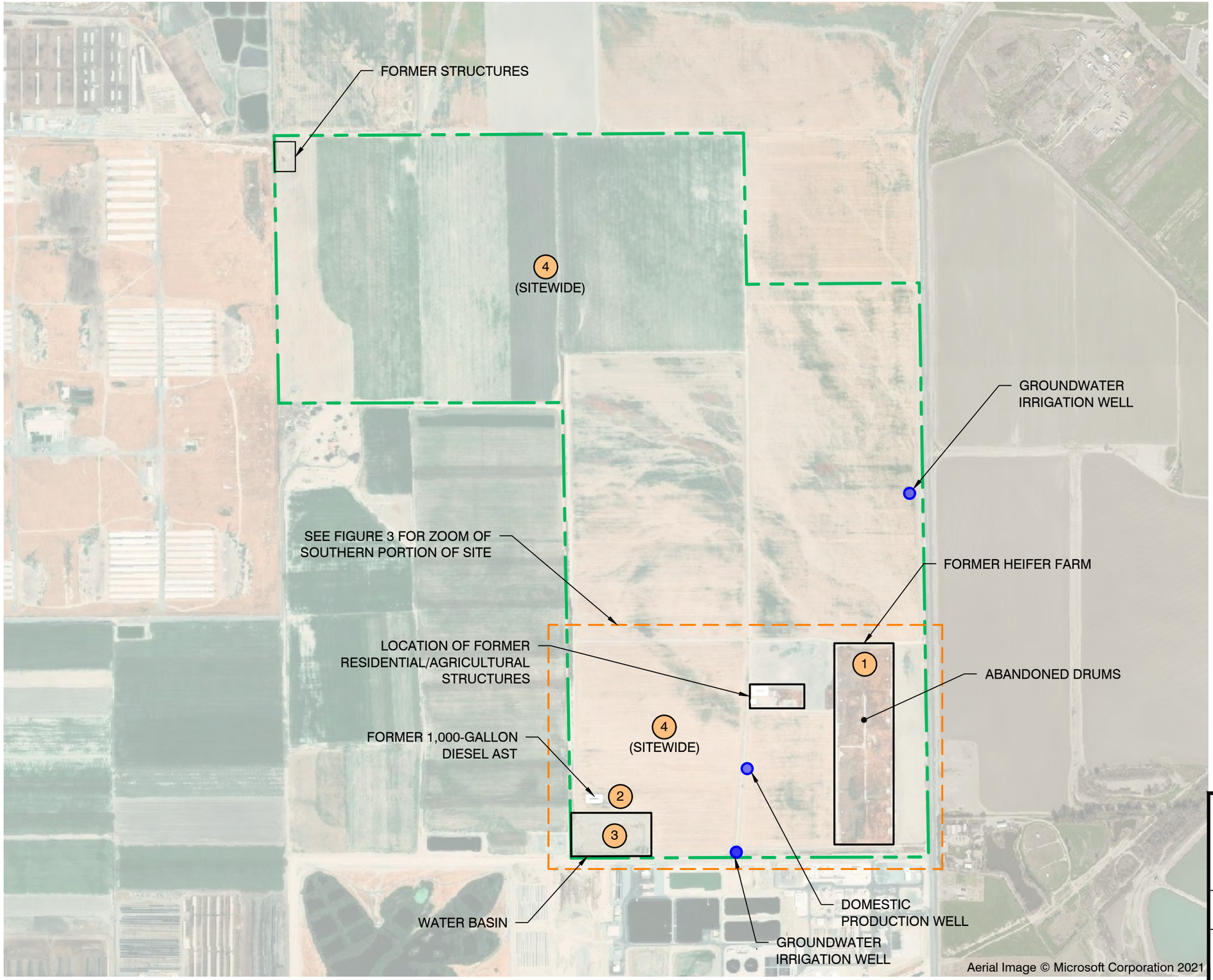
SHEA PROPERTIES LLC

ROUX

Compiled by: C.M.	Date: 08/04/21
Prepared by: C.M.	Scale: AS SHOWN
Project Mgr: R.Q.	Project:

FIGURE 1

S:\OFFICE ADMIN\REFERENCE LIBRARY\CMF\FIGURE 1 - SAN JACINTO.MXD



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE WATER WELL LOCATION
- # RECOGNIZED ENVIRONMENTAL CONDITION (REC)

N

0' 800' 1600'

Title:

SITE PLAN

NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

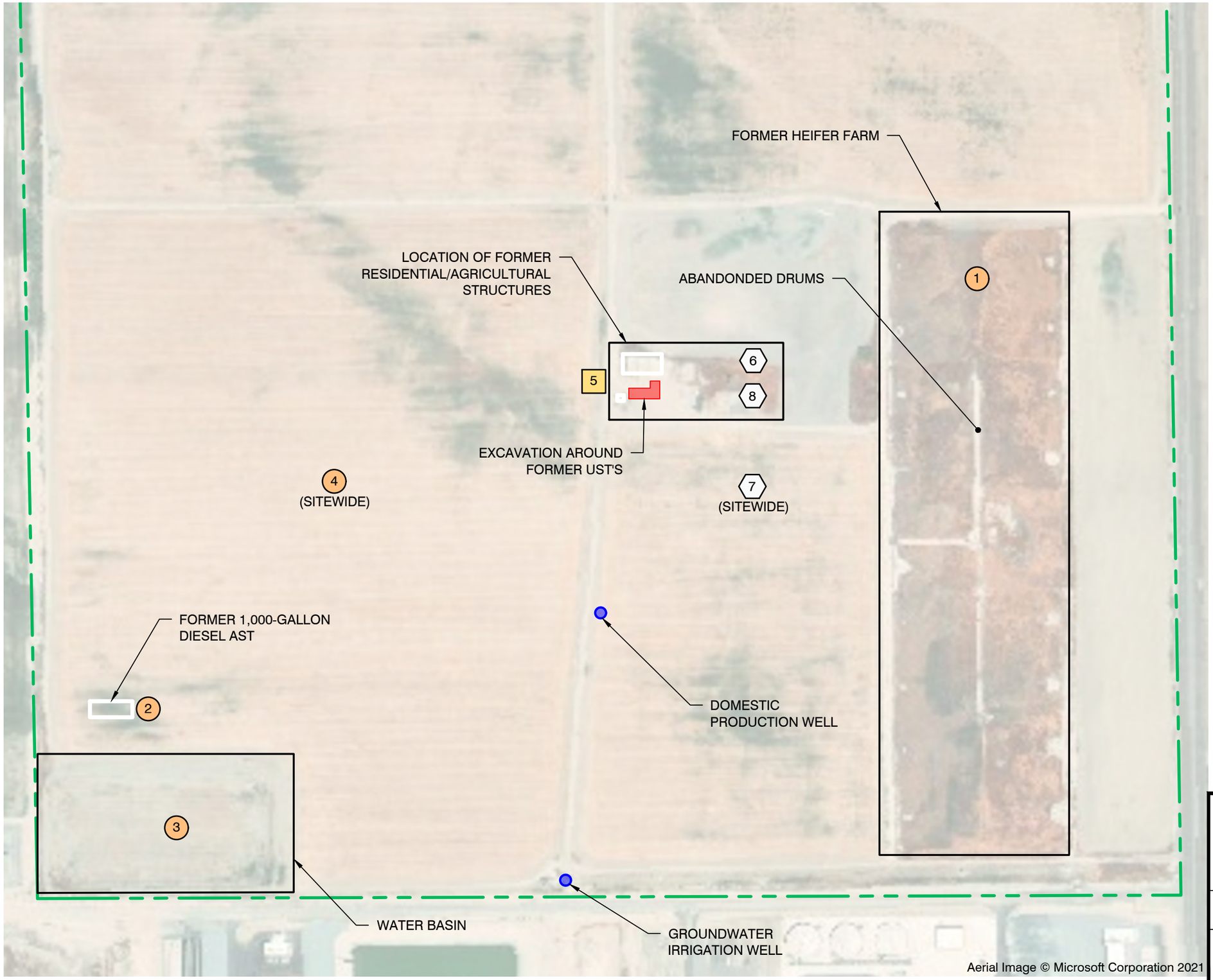
SHEA PROPERTIES

ROUX

Compiled by: C.J.	Date: 30 AUG 2021
Prepared by: C.J.	Scale: AS SHOWN
Project Mgr: R.Q.	Project: 2217.0025L
File: 001_2217.XXXX_SITE PLAN.DWG	

2

S:\CLIENTS\2217.0025L SHEA SAN JACINTO MHE\10CAD\001_2217.XXXX_SITE PLAN.DWG



Aerial Image © Microsoft Corporation 2021

LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE WATER WELL LOCATION
- 1 REC 1 - FORMER HEIFER FARM
- 2 REC 2 - PETROLEUM-STAINED SOIL
- 3 REC 3 - POND
- 4 REC 4 - HISTORICAL AGRICULTURAL USE
- 5 hREC 5 - HISTORICAL UNDERGROUND STORAGE TANKS
- 6 OEF 6 - SEPTIC TANKS
- 7 OEF 7 - DEBRIS
- 8 OEF 8 - ABANDONED DRUMS

N

0' 250' 500'

Title:

SITE PLAN
FORMER OPERATIONS AREA

NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: C.J.	Date: 30 AUG 2021
Prepared by: C.J.	Scale: AS SHOWN
Project Mgr: R.Q.	Project: 2217.0025L
File: 001_2217.XXXX_SITE PLAN.DWG	

3

S:\CLIENTS\2217.0025L SHEA SAN JACINTO MHE\10CAD\001_2217.XXXX_SITE PLAN.DWG

APPENDICES

A. Glossary of Terms

B. Historical Topographic Maps

C. Historical Aerial Photographs

D. Certified Sanborn Report

E. EDR City Directory Image Report

F. EDR Radius Map Report with Geocheck®

G. Photographic Log

H. Pertinent Historical Documentation

APPENDIX G

Photographic Log



G-1. View of the Site from the western parcel boundary, denoted as 'Field B' in field notes (08/03/2021).



G-2. Abandoned concrete improvements in the southeastern corner of the Site related to former heifer ranch operations (08/03/2021).



G-3. Miscellaneous concrete debris in southeastern corner of the Site (08/03/2021).



G-4. Abandoned 55-gallon drums located in the southeastern corner of the Site (33.802430622641666, -117.00940455424796; 08/03/2021)



G-5. Exterior of abandoned, un-labeled drum. The surface on the top lid was punctured. It appeared the drum contents were partially intact (08/03/2021)



G-6. Exterior of abandoned, un-labeled drum. The surface was damaged and the top lid (bottom) was missing (08/03/2021).



G-7. Caking and potential staining underneath abandoned drum (08/03/2021).



G-8. Interior of yellow abandoned drum. Observed from open bottom of drum. (08/03/2021).



G-9. Abandoned blue plastic 55-gallon tote, located in southeastern corner of Site.



G-10. Interior of abandoned blue plastic 55-gallon tote (08/19/2020).



G-11. View from east of pond in southwest corner of the Site, beyond which is irrigated fields on an adjacent parcel (08/03/2021).



G-12. Pond in southwest corner of the Site (08/19/2020).



G-13. View from north as Field A, as denoted in field notes (08/19/2020).



G-14. View of Field B, as denoted in field notes (08/04/2021).



G-15. View of the east of Field C, as denoted in field notes (08/03/2021).



G-16. Northwest corner of Field C, as denoted in field notes (08/03/2021)



G-17. Field D, as denoted in field notes (08/03/2021).



G-18. Field E, as denoted in field notes (08/03/2021)



G-19. Former residence area from west (08/03/2021).



G-20. Debris in former residence area (08/03/2021)



G-21. 100-foot by 50-foot concrete foundation in former residence area (08/03/2021).



G-22. View from the north of debris pile adjacent to former residence area (08/03/2021).



G-23. Box of debris on concrete foundation in former residence area (08/03/2021).



G-24. Interior of box of debris on concrete foundation in former residence area (08/19/2020).



G-25. Encampment in former residence area (08/03/2021)



G-26. 15-foot by 10-foot concrete foundation and debris southwest of residence area (08/03/2021).



G-27. Groundwater irrigation well at eastern boundary of Site (08/03/2021)



G-28. Groundwater irrigation well at southern boundary of Site



G-29. Southern adjacent water reclamation facility (08/03/2021).



G-30. Western adjacent property from Field C, as denoted in field notes (08/03/2021).

October 27, 2021

Steven Perales
Director, Industrial Acquisitions & Development
Shea Properties
130 Vantis Street, Suite 200
Aliso Viejo, California 92656

Re: Phase II Subsurface Investigation Letter Report
Proposed Industrial Building Complex, North Sanderson Avenue, San Jacinto, Riverside County, California

Dear Mr. Perales:

Roux Associates, Inc. (Roux) has prepared this Phase II Subsurface Investigation Letter Report (Report) for Shea Properties (CLIENT) to summarize the findings of the subsurface investigations conducted at the approximately 470-acre vacant property located west of North Sanderson Avenue, east of Odel Avenue and south of Ramona Boulevard in the City of San Jacinto, California (Site; Figure 1). The scopes of work, as detailed in Roux's proposals dated August 19, 2021 and October 1, 2021, were developed to address recognized environmental conditions (RECs), identified by Roux in the Phase I Environmental Site Assessment (Phase I ESA), dated October 25, 2021.

The Phase II Investigation focused on addressing the following RECs:

- Potential pesticide impacts to shallow soils from former agricultural (row crop) uses;
- Potential VOC, metals, pesticides, total petroleum hydrocarbon (TPH), and/or methane impacts from former on-Site heifer raising farm uses, including multiple livestock corrals and an unlined pond; and
- Potential petroleum impacts from former on-Site aboveground storage tanks (ASTs);

The sections that follow provide additional details of the investigation activities completed.

METHODS OF INVESTIGATION

Pre-Field Activities

Prior to the start of field activities, Roux prepared a Site-specific Health and Safety Plan (HASP) to ensure worker safety. In addition to containing information regarding Roux's standard safety practices, the HASP contained information about potential hazards related to Site activities and provided the locations and contact information of nearby emergency services. Field workers acknowledged their familiarity with all safety procedures and indicated their intent to follow the HASP by signing the HASP after the tailgate safety meeting, which took place at the beginning of each field day.

At least 48 hours prior to fieldwork, the areas of the Site targeted for the investigation were marked in white paint and Underground Service Alert (USA) was notified of the intended intrusive work. Additionally, to assess the locations of buried utilities (i.e., natural gas, electric, water, sewer, telephone, fiber optic, etc.) or obstructions, a private geophysical services and utility locating firm, Spectrum Geophysics of Chatsworth, California, was contracted to perform a geophysical survey to clear the proposed boring locations of potential subsurface obstructions prior to boring advancement.

5150 East Pacific Coast Highway, Suite 450 ■ Long Beach, California 90804 ■ +1.310.879.4900 ■ www.rouxinc.com
California ■ Illinois ■ Massachusetts ■ New Jersey ■ New York ■ Texas

Soil Sampling – Agricultural Uses

On September 1 and 2, 2021, a total of 184 soil samples were collected from 46 quadrants (SS-1 through SS-46) across the Site at depths of 0.5 feet below ground surface (bgs) as shown in Figure 2. Soil sampling locations were evenly distributed in a grid pattern across each quadrant.

Four soil samples were collected with a trowel and/or a hand auger from each quadrant, composited in the field, and placed into laboratory-provided glass jars. A total of 184 soil samples were composited into 46 composite samples (SS-COMP-1 through SS-COMP-46).

After sample collection, all soil samples were labeled, placed on ice, and transported under chain-of-custody to Enthalpy Analytical (Enthalpy) of Garden Grove, California, a California-certified laboratory. Soil samples were analyzed in accordance with the sampling and analysis plan as shown in Table 1.

Soil Sampling – USTs, Livestock, and Unlined Pond

On September 7, 2021, under the direction of Roux, Strongarm Environmental Field Services, Inc. (Strongarm) of Fullerton, California advanced 10 soil borings (SV-1 through SV-10, Figure 2). The sampling locations for this investigation targeted the former USTs. Borings SV-1 and SV-2 were advanced to a depth of 5 feet below ground surface (bgs) using a hand auger to clear for utilities and subsequently drilled to the terminal depth of 20 feet bgs using a direct push drilling rig. Borings SV-3 through SV-10 were advanced to a terminal depth of 5.5 feet bgs using a hand auger.

Based on the laboratory results for samples collected on September 7, 2021, additional soil samples were collected on October 8, 2021. Under the direction of Roux, Strongarm advanced seven additional borings at the Site. Two borings, SV-1A and SV-3A, were placed near the original SV-1 and SV-3 locations, respectively. Five additional borings (SV-11 through SV-15, Figure 3) were placed in the proximity of the former residential/agricultural structures on-Site. All borings were pre-cleared to a depth of 5 feet bgs using a hand auger to check for utilities and subsequently drilled to a terminal depth of 25 feet bgs using a direct push drilling rig.

During boring advancement, soil samples were collected from borings SV-1 and SV-2 at depths of 5, 10, 15, and 20 feet bgs; from borings SV-3 and SV-4 at 5 feet bgs; and from borings SV-5 at 0.5 and 5 feet bgs. The soil samples collected at 0.5 feet bgs from borings SV-5 as well as all soil samples collected at 5 feet bgs from borings SV-1 through SV-5 were collected directly from the hand auger bucket. The soil samples collected at depths of 10, 15, and 20 feet bgs from borings SV-1 and SV-2 were collected from acetate sleeves.

After sample collection, all soil samples were labeled, placed on ice, and transported under chain-of-custody to Enthalpy of Garden Grove, California, a California-certified laboratory. Soil samples were analyzed in accordance with the sampling and analysis plan as shown in Table 1.

Soil Vapor Probe Installation

On September 7, 2021, following advancement of borings SV-1 through SV-10, temporary soil vapor probes were installed. Dual-nested soil vapor probes were installed at depths of 5 feet bgs and 15 feet bgs at locations SV-1 and SV-2. Soil vapor probes were installed at 5 feet bgs at SV-3 through SV-10. Soil vapor sampling locations are shown in Figures 3 and 4.

On October 8, 2021, following advancement of borings SV-1A, SV-3A, and SV-11 through SV-15, temporary soil vapor probes were installed. One soil vapor probe was installed at a depth of 25 feet bgs at location SV-1A, one dual-nested soil vapor probe was installed at 15 and 25 feet bgs at location SV-3A, and five triple-nested soil vapor probes at depths of 5, 15, and 25 feet bgs were installed at locations SV-11 through SV-15. Soil vapor sampling locations are shown in Figures 3 and 4.

The soil vapor probes were constructed in general accordance with the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Los Angeles Regional Water Quality Control Board (LARWQCB), and San Francisco Regional Water Quality Control Board Advisory, Active Soil Gas Investigations (Soil Gas Advisory), dated July 2015. After the installation of each soil vapor probe, a minimum 48-hour equilibrium period was observed prior to sampling the five-foot probes and a minimum two-hour equilibrium period was observed prior to sampling 15-foot and 25-foot probes, per the Soil Gas Advisory.

Soil Vapor Sampling

On September 10, 2021, Roux collected samples from the temporary soil vapor probes installed at SV-1 through SV-10. On October 11, 2021, under the direction of Roux, Optimal Technology (Optimal) of Thousand Oaks, CA, collected samples from the temporary soil vapor probes installed at SV-1A, SV-3A, and SV-11 through SV-15. Prior to purging and sampling, a shut-in test was performed at each probe to confirm that the above-ground lines and valves were properly sealed. Upon successful completion of the shut-in test, three purge volumes of stagnant air were subsequently extracted from the soil vapor probe system at a flow rate of 200 milliliters per minute (mL/min). During purging and sampling, a leak check compound, 1,1-difluoroethane (1,1-DFA) or Isobutane, was applied adjacent to the sample train connections as a tracer gas to detect potential leaks in the sampling system.

After purging soil vapor probes SV-1 through SV-10, Roux collected soil vapor samples using 1-liter summa canisters equipped with 200 mL/min flow controllers. Following sample collection, soil vapor samples were transported under proper chain of custody to Enthalpy.

After purging soil vapor probes SV-1A, SV-3A, and SV-11 through SV-15, Optimal collected soil vapor samples in laboratory-prepared glass syringes; and immediately analyzed them on-Site using a mobile laboratory.

Soil vapor samples collected from SV-1 through SV-4, SV-1A, SV-3A, and SV-11 through SV-15 were analyzed for VOCs by USEPA Method TO-15 or USEPA Method 8260B. Soil vapor samples collected from SV-5 through SV-10 were analyzed for VOCs by USEPA Method TO-15 and methane by ASTM Method D-1946.

RESULTS

Analytical results for soil samples are summarized in Tables 2 through 5, and soil vapor results are presented in Tables 6 and 7. The complete analytical laboratory reports are included in Attachment A.

Soil Results

The sections that follow provide a summary of the soil analytical results. Soil sampling locations are shown in Figures 2 and 3.

OCPs

A summary of analytical results for OCPs in soil is presented in Table 2.

In general, individual OCP constituents were reported above laboratory method reporting limits (MRLs) in several borings including:

- dichlorodiphenyldichloroethane (4,4'-DDD);
- dichlorodiphenyldichloroethylene (4,4'-DDE);
- dichlorodiphenyltrichloroethane (4,4'-DDT); and

- eldrin aldehyde.

Detected concentrations were compared to the applicable May 2021 USEPA Regional Screening Level (RSL) for industrial soil and the June 2020 DTSC Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3 Screening Level for industrial/commercial soil.

Conclusion: No OCPs were detected above the commercial/industrial screening levels established by USEPA RSLs or DTSC HERO HHRA Note 3 SLs.

Metals

A summary of analytical results for metals in soil is presented in Table 3. A total of 11 metals were detected above laboratory detection limits in at least one of the soil samples analyzed. Detected concentrations were compared to the applicable May 2021 USEPA RSL for industrial soil and the June 2020 DTSC HERO HHRA Note 3 Screening Level for industrial/commercial soil.

Arsenic was detected at concentrations exceeding the regulatory screening levels, ranging from 1.0 to 9.3 milligrams per kilogram (mg/kg), which exceeds the DTSC Note 3 SL (0.36 mg/kg). However, arsenic concentrations were below the upper range of the *Southern California Regional Background Arsenic Concentration in Soil* (Determination of a Southern California Regional Background Arsenic Concentration in Soil, G., Bosan, W., and Outiz, D., DTSC) of 12 mg/kg.

Conclusion: No metals were above background concentrations or the commercial/industrial screening levels established by USEPA RSLs or DTSC HERO HHRA Note 3 SLs.

TPH

A summary of the analytical results for TPH in soil is presented in Table 4.

Conclusion: TPH was not detected above laboratory reporting limits in carbon ranges C6-C44 in any of the samples analyzed.

VOCs

A summary of the analytical results for VOCs in soil is presented in Table 5. Two VOCs, methylene chloride and tert-butyl alcohol (TBA), were detected above laboratory reporting limits in at least one soil sample.

Conclusion: VOCs were not detected above either the applicable USEPA RSL for industrial soil or the DTSC SL for commercial/industrial soil.

Soil Vapor Results

The sections that follow provide a summary of the soil vapor analytical results. A summary of the soil vapor analytical results is presented in Tables 6 and 7. Soil sampling locations are shown in Figures 2 and 3.

VOCs

A summary of the analytical results for VOCs in soil vapor is presented in Table 6.

A total of 17 VOCs were detected above laboratory reporting limits in at least one soil vapor sample. Detected concentrations were compared to the applicable USEPA RSL for commercial/industrial soil vapor and the DTSC SL for commercial/industrial soil vapor when an attenuation factor of 0.03 was applied.

- Trichloroethene (TCE) was detected in soil vapor at concentrations exceeding screening levels. TCE was detected above the applicable USEPA RSL (100 micrograms per cubic meter [µg/m^3]) in two samples (SV-1-15 and SV-3-5) at concentrations of 110 µg/m^3 and 210 µg/m^3, respectively.

    - Borings SV-1 and SV-3 were located in the area of former residential and agricultural structures including a maintenance building.

    - All detections of TCE were below the applicable DTSC SL (267 µg/m^3).

    - Additional soil vapor sampling, focused in the area of the former residential/agricultural structures, did not yield detectable concentrations of TCE above laboratory reporting limits.

Conclusion: TCE was detected at concentrations that exceeded applicable conservative USEPA RSL at two locations. However, no sources were identified on-Site and the generally low TCE concentrations do not suggest that any mitigation or remediation will be required. All other VOCs were below the DTSC's Commercial/Industrial Soil Vapor SL or USEPA's Industrial Soil Vapor RSL.

Methane

A summary of the analytical results for methane in soil vapor is presented in Table 7.

Methane was detected above laboratory method reporting limits in six soil vapor samples (SV-5-5 through SV-10-5) at concentrations ranging from 2.3 parts per million by volume (ppmv) to 3.7 ppmv. Detections of methane did not exceed the cautionary value of 1,000 ppmv or response value of 5,000 ppmv established by the DTSC Advisory on Methane Assessment and Common Remedies at School Sites.

Conclusion: Methane concentrations detected at the Site do not present a potential concern for the Site.

RECOMMENDATIONS

Based on the results of this Phase II Subsurface Investigation, Roux has addressed the RECs identified in the Phase I ESA and does not have any additional recommendations at this time.

CLOSING

Should you have any questions or require any further information regarding the contents of this Report, please do not hesitate to contact Mauricio Escobar by telephone at 310-879-4920 or by email at mescobar@rouxinc.com.

Sincerely,

ROUX ASSOCIATES, INC.



Mauricio Escobar, P.G.
Principal Geologist



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Table 1. Sampling and Analysis Plan
870 North Sanderson Avenue
San Jacinto, California

Boring / Probe ID	Media	Depth / Screen (feet bgs)	USEPA Soil Analysis Method					Soil Vapor Analysis Method			Objective / Target Feature(s)
			Title 22 Metals by 6010B / 7471	Lead and Arsenic by 6010B	Organochlorine Pesticides 8081A	TPH-cc by 8015	VOCs by 8260B	VOCs by TO-15	VOCs by 8260B	Methane by ASTM D-1946	
Operations Samples (Red)											
SV-1	Soil	5, 10, 15, & 20	X			X	X				Assess former tanks, septic systems, other on-Site operations
	Soil Vapor	5 & 15						X			
SV-1A	Soil Vapor	25							X		
SV-2	Soil	5, 10, 15, & 20	X			X	X				
	Soil Vapor	5 & 15						X			
SV-3	Soil	5	X			X	X				
	Soil Vapor	5						X			
SV-3A	Soil Vapor	15 & 25							X		
SV-4	Soil	5	X			X	X				
	Soil Vapor	5 & 15						X			
SV-11	Soil Vapor	5, 15, & 25							X		
SV-12	Soil Vapor	5, 15, & 25							X		
SV-13	Soil Vapor	5, 15, & 25							X		
SV-14	Soil Vapor	5, 15, & 25							X		
SV-15	Soil Vapor	5, 15, & 25							X		
Pond Samples (Blue)											
SV-5	Soil	0.5	X		X						Assess wastewater pond
		5				X	X				
	Soil Vapor	5						X		X	
Corral Samples (Green)											
SV-6	Soil Vapor	5						X		X	Assess former heifer-raising operations
SV-7	Soil Vapor	5						X		X	
SV-8	Soil Vapor	5						X		X	
SV-9	Soil Vapor	5						X		X	
SV-10	Soil Vapor	5						X		X	
Agricultural Soil Composite Samples (Yellow)											
SS-COMP-1	Soil	0.5		X	X						
SS-COMP-2	Soil	0.5		X	X						
SS-COMP-3	Soil	0.5		X	X						
SS-COMP-4	Soil	0.5		X	X						
SS-COMP-5	Soil	0.5		X	X						
SS-COMP-6	Soil	0.5		X	X						
SS-COMP-7	Soil	0.5		X	X						
SS-COMP-8	Soil	0.5		X	X						
SS-COMP-9	Soil	0.5		X	X						
SS-COMP-10	Soil	0.5		X	X						
SS-COMP-11	Soil	0.5		X	X						
SS-COMP-12	Soil	0.5		X	X						
SS-COMP-13	Soil	0.5		X	X						
SS-COMP-14	Soil	0.5		X	X						
SS-COMP-15	Soil	0.5		X	X						
SS-COMP-16	Soil	0.5		X	X						
SS-COMP-17	Soil	0.5		X	X						
SS-COMP-18	Soil	0.5		X	X						
SS-COMP-19	Soil	0.5		X	X						
SS-COMP-20	Soil	0.5		X	X						
SS-COMP-21	Soil	0.5		X	X						

Table 1. Sampling and Analysis Plan
870 North Sanderson Avenue
San Jacinto, California

Boring / Probe ID	Media	Depth / Screen (feet bgs)	USEPA Soil Analysis Method					Soil Vapor Analysis Method			Objective / Target Feature(s)
			Title 22 Metals by 6010B / 7471	Lead and Arsenic by 6010B	Organochlorine Pesticides 8081A	TPH-cc by 8015	VOCs by 8260B	VOCs by TO-15	VOCs by 8260B	Methane by ASTM D-1946	
SS-COMP-22	Soil	0.5		X	X						Assess former agricultural use
SS-COMP-23	Soil	0.5		X	X						
SS-COMP-24	Soil	0.5		X	X						
SS-COMP-25	Soil	0.5		X	X						
SS-COMP-26	Soil	0.5		X	X						
SS-COMP-27	Soil	0.5		X	X						
SS-COMP-28	Soil	0.5		X	X						
SS-COMP-29	Soil	0.5		X	X						
SS-COMP-30	Soil	0.5		X	X						
SS-COMP-31	Soil	0.5		X	X						
SS-COMP-32	Soil	0.5		X	X						
SS-COMP-33	Soil	0.5		X	X						
SS-COMP-34	Soil	0.5		X	X						
SS-COMP-35	Soil	0.5		X	X						
SS-COMP-36	Soil	0.5		X	X						
SS-COMP-37	Soil	0.5		X	X						
SS-COMP-38	Soil	0.5		X	X						
SS-COMP-39	Soil	0.5		X	X						
SS-COMP-40	Soil	0.5		X	X						
SS-COMP-41	Soil	0.5		X	X						
SS-COMP-42	Soil	0.5		X	X						
SS-COMP-43	Soil	0.5		X	X						
SS-COMP-44	Soil	0.5		X	X						
SS-COMP-45	Soil	0.5		X	X						
SS-COMP-46	Soil	0.5		X	X						

Notes:
bgs = below ground surface
USEPA = United States Environmental Protection Agency
TPH = Total Petroleum Hydrocarbons
VOC = Volatile Organic Compound
ASTM = American Society for Testing and Materials
N/A = Sample was not analyzed

Table 2. Organochlorine Pesticides in Soil
870 North Sanderson Avenue
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Sample Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Endrin aldehyde	All Other OCPs
Analytical Method			USEPA Method 8081A				
Units			µg/Kg				
USEPA Industrial Soil RSLs			9,600	9,300	8,500	NS	Varies
DTSC Commercial/Industrial Soil SL			6,200	9,300	7,100	NS	Varies
SS-COMP-1	0.5	9/1/2021	<5.0	**20**	<5.0	<5.0	ND
SS-COMP-2	0.5	9/1/2021	<5.0	**170**	**7.3 #,C**	<5.0	ND
SS-COMP-3	0.5	9/1/2021	<10	**200**	<10	<10	ND
SS-COMP-4	0.5	9/1/2021	<10	**110**	<10	<10	ND
SS-COMP-5	0.5	9/1/2021	<10	<10	<10	<10	ND
SS-COMP-6	0.5	9/1/2021	<10	<10	<10	<10	ND
SS-COMP-6 DUP	*0.5*	*9/1/2021*	*<10*	*<10*	*<10*	*<10*	*ND*
SS-COMP-7	0.5	9/1/2021	<10	**100**	**28**	<10	ND
SS-COMP-8	0.5	9/1/2021	<10	**150**	<10	<10	ND
SS-COMP-9	0.5	9/1/2021	<25	**130**	<25	<25	ND
SS-COMP-10	0.5	9/1/2021	<5.0	**56**	<5.0	<5.0	ND
SS-COMP-11	0.5	9/1/2021	<5.0	**55**	<5.0	<5.0	ND
SS-COMP-12	0.5	9/1/2021	<5.0	**36**	<5.0	<5.0	ND
SS-COMP-13	0.5	9/1/2021	<5.0	**28**	<5.0	<5.0	ND
SS-COMP-14	0.5	9/1/2021	<25	**61**	<25	<25	ND
SS-COMP-15	0.5	9/1/2021	<5.0	**42**	**7.6 #**	<5.0	ND
SS-COMP-16	0.5	9/1/2021	<5.0	**28**	**6.5 #**	<5.0	ND
SS-COMP-17	0.5	9/1/2021	<5.0	**16**	<5.0	<5.0	ND
SS-COMP-18	0.5	9/1/2021	<5.0	**36**	<5.0	<5.0	ND
SS-COMP-19	0.5	9/1/2021	<5.0	**31**	<5.0	<5.0	ND
SS-COMP-19-DUP	*0.5*	*9/1/2021*	*<5.0*	***57***	*<5.0*	*<5.0*	*ND*
SS-COMP-20	0.5	9/1/2021	<5.1	**75**	<5.1	<5.1	ND
SS-COMP-21	0.5	9/1/2021	<4.9	**66**	**12**	<4.9	ND
SS-COMP-22	0.5	9/1/2021	<5.1	**9.2**	<5.1	<5.1	ND
SS-COMP-23	0.5	9/1/2021	<5.1	**20**	<5.1	<5.1	ND
SS-COMP-24	0.5	9/1/2021	<5.1	**40**	<5.1	<5.1	ND
SS-COMP-25	0.5	9/1/2021	<5.0	**59**	**5.2**	<5.0	ND
SS-COMP-26	0.5	9/2/2021	**6.5**	**83**	**94**	<5.0	ND
SS-COMP-27	0.5	9/2/2021	**8.1**	**100**	**130**	<5.0	ND
SS-COMP-27-DUP	*0.5*	*9/2/2021*	***8.3***	***110***	***120***	*<4.9*	*ND*
SS-COMP-28	0.5	9/2/2021	**18**	**97**	**240**	<5.0	ND
SS-COMP-29	0.5	9/2/2021	<5.0	**63**	**6.8**	<5.0	ND
SS-COMP-30	0.5	9/2/2021	<4.9	**90**	**10**	<4.9	ND
SS-COMP-30-DUP	*0.5*	*9/2/2021*	*<5.1*	***80***	***12***	*<5.1*	*ND*
SS-COMP-31	0.5	9/2/2021	**39**	**91**	**740**	**5.6**	ND
SS-COMP-32	0.5	9/2/2021	**48**	**81**	**750**	**8.2**	ND
SS-COMP-33	0.5	9/2/2021	**27**	**120**	**250**	<5.0	ND
SS-COMP-34	0.5	9/2/2021	<5.0	**120**	**11**	<5.0	ND
SS-COMP-35	0.5	9/2/2021	**7.7**	**12**	**50**	<5.1	ND
SS-COMP-36	0.5	9/2/2021	**22**	**20 C**	**120**	<5.1	ND
SS-COMP-37	0.5	9/2/2021	**15**	**60**	**69 #**	<5.0	ND
SS-COMP-38	0.5	9/2/2021	<5.0	**41**	<5.0	<5.0	ND
SS-COMP-39	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND
SS-COMP-40	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND
SS-COMP-41	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND
SS-COMP-41-DUP	*0.5*	*9/2/2021*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*ND*
SS-COMP-42	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND
SS-COMP-43	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND
SS-COMP-44	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND
SS-COMP-45	0.5	9/2/2021	**5.2**	<5.0	**7.4 #,C**	<5.0	ND
SS-COMP-46	0.5	9/2/2021	<5.0	<5.0	<5.0	<5.0	ND

Notes:
1. OCPs = organochlorine pesticides
2. USEPA = United States Environmental Protection Agency
3. µg/kg = micrograms per kilogram
4. USEPA RSL = USEPA Regional Screening Levels for Soil, Hazard Quotient (HQ) = 1.0, May 2021.
5. DTSC SL = Human Health Risk Assessment (HHRA) Note 3, Department of Toxic Substances Control Screening Levels (DTSC-SLs) for Soil, June 2020.
6. bgs = below ground surface
7. Only compounds detected in soil above laboratory reporting limits in at least one sample are shown on this table
8. <X = not detected above laboratory reporting limits
9. **Bold** indicates value exceeds laboratory reporting limit
10. *Italics* indicates duplicate sample
11. NS = no screening criteria available
12. C = relative percent difference between QC samples exceeds 40%
13. # = continuing calibration verification (CCV) drift outside limits; average CCV drift within limits per method requirements

Table 3. Metals in Soil
870 North Sanderson Avenue
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Sample Date	Arsenic	Lead	Antimony	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
Analytical Method			USEPA Method 6010B																USEPA Method 7471A
Units			mg/kg																
Typical range for California Soil[1]			12[a]	14.3-107.9	0.15-1.95	133-1,400	0.25-2.70	0.05-1.7	23-1,579	2.7-46.9	9.1-96.4	0.1-9.6	9-509	NS	NS	NS	39-288	88-236	0.10-0.90
USEPA RSL - Industrial Soil			3.0	800	470	220,000	2,300	980	NS	350	47,000	5,800	22,000	64,000	64,000	64,000	5,800	350,000	46
DTSC Commercial/Industrial Soil SL			0.36	320*	NS	NS	230	780	NS	NS	NS	NS	11,000	NS	NS	NS	NS	NS	4.4*
Operations Samples																			
SV-1-5	5	9/7/2021	<1.1	**3.6**	<3.3	**140**	<0.54	<0.54	**7.4**	**4.1**	**8.1**	<1.1	**4.2**	<3.3	<0.54	<3.3	**23**	**56**	<0.16
SV-1-10	10	9/7/2021	<0.9	**3.4**	<2.6	**180**	<0.43	<0.43	**6.9**	**4.3**	**5.3**	<0.87	**3.2**	<2.6	<0.43	<2.6	**24**	**44**	<0.16
SV-1-15	15	9/7/2021	**1.1**	**2.7**	<3.3	**130**	<0.54	<0.54	**8.6**	**4.1**	**6.3**	<1.1	**4.4**	<3.3	<0.54	<3.3	**25**	**44**	<0.16
SV-1-20	20	9/7/2021	<0.9	**2.2**	<2.8	**350**	<0.47	<0.47	**9.8**	**5.5**	**5.5**	<0.94	**5.2**	<2.8	<0.47	<2.8	**29**	**49**	<0.16
SV-2-5	5	9/7/2021	**1.2**	**3.2**	<2.8	**220**	**0.53**	<0.46	**11**	**6.2**	**7.0**	<0.93	**5.5**	<2.8	<0.46	<2.8	**33**	**64**	<0.14
SV-2-10	10	9/7/2021	<1.0	**3.8**	<3.1	**230**	**0.57**	<0.51	**11**	**6.8**	**8.0**	<1.0	**5.8**	<3.1	<0.51	<3.1	**38**	**74**	<0.15
SV-2-15	15	9/7/2021	<1.0	**2.2**	<3.1	**160**	<0.51	<0.51	**7.8**	**4.2**	**5.2**	<1.0	**4.0**	<3.1	<0.51	<3.1	**19**	**39**	<0.16
SV-2-20	20	9/7/2021	**1.4**	**2.4**	<2.9	**200**	<0.49	<0.49	**7.7**	**4.3**	**5.9**	<1.0	**4.4**	<2.9	<0.49	<2.9	**23**	**44**	<0.15
SV-3-5	5	9/7/2021	**1.5**	**2.5**	<2.8	**190**	<0.46	<0.46	**7.9**	**5.1**	**4.8**	**1.1**	**4.5**	<2.8	<0.46	<2.8	**28**	**53**	<0.14
SV-4-5	5	9/7/2021	**2.0**	**2.5**	<2.8	**150**	<0.46	<0.46	**7.7**	**5.1**	**5.8**	<0.92	**4.2**	<2.8	<0.46	<2.8	**33**	**54**	<0.16
Pond Samples (Blue)																			
SV-5-0.5	0.5	9/7/2021	<1.0	**4.4**	<3.1	**280**	**0.73**	<0.52	**12**	**8.0**	**8.2**	<1.0	**6.5**	<3.1	<0.52	<3.1	**48**	**94**	<0.15
SV-5-5	5	9/7/2021	**3.9**	**5.2**	<2.9	**330**	**0.75**	<0.49	**13**	**9.0**	**9.0**	<1.0	**7.1**	<2.9	<0.49	<2.9	**54**	**99**	<0.16
Corral Samples (Green)																			
SS-COMP-1	0.5	9/1/2021	**1.2**	**5.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-2	0.5	9/1/2021	**1.2**	**4.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-3	0.5	9/1/2021	**1.4**	**4.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-4	0.5	9/1/2021	**1.3**	**5.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-5	0.5	9/1/2021	**1.3**	**4.4**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-6	0.5	9/1/2021	**1.4**	**4.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-6 DUP	*0.5*	*9/1/2021*	***1.5***	***4.5***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-7	0.5	9/1/2021	**1.3**	**3.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-8	0.5	9/1/2021	**1.5**	**10**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-9	0.5	9/1/2021	**1.4**	**4.2**	<3.1	**170**	<0.52	<0.52	**10**	**5.2**	**31**	<1.0	**5.8**	<3.1	<0.5	<3.1	**31**	**91**	<0.16
SS-COMP-10	0.5	9/1/2021	**1.4**	**3.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-11	0.5	9/1/2021	**1.5**	**3.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-12	0.5	9/1/2021	**1.4**	**4.0**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-13	0.5	9/1/2021	**1.5**	**4.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-14	0.5	9/1/2021	**1.4**	**3.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-15	0.5	9/1/2021	<0.94	**2.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-16	0.5	9/1/2021	<1.0	**2.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-17	0.5	9/1/2021	<0.93	**3.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-18	0.5	9/1/2021	<0.94	**3.4**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-19	0.5	9/1/2021	<1.1	**3.7**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-19-DUP	*0.5*	9/1/2021	***1.2***	***4.3***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-20	0.5	9/1/2021	**1.9**	**4.7**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-21	0.5	9/1/2021	**1.1**	**3.3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-22	0.5	9/1/2021	**1.5**	**2.9**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-23	0.5	9/1/2021	**1.0**	**3.0**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-24	0.5	9/1/2021	**1.2**	**4.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-25	0.5	9/1/2021	**1.2**	**4.5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-26	0.5	9/2/2021	**1.4**	**3.7**	<3.1	**200**	<0.52	<0.52	**10**	**5.8**	**37**	<1.0	**5.9**	<3.1	<0.52	<3.1	**34**	**89**	<0.16
SS-COMP-27	0.5	9/2/2021	**1.3**	**3.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-27-DUP	*0.5*	*9/2/2021*	***1.5***	***3.6***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-28	0.5	9/2/2021	**9.3**	**5.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-29	0.5	9/2/2021	**1.1**	**4.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-30	0.5	9/2/2021	**1.2**	**4.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-30-DUP	*0.5*	*9/2/2021*	***1.4***	***4.2***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-31	0.5	9/2/2021	**1.5**	**4.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-32	0.5	9/2/2021	**2.4**	**4.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-33	0.5	9/2/2021	**1.3**	**4.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-34	0.5	9/2/2021	**1.0**	**3.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-35	0.5	9/2/2021	**1.7**	**3.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-36	0.5	9/2/2021	**1.7**	**3.9**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-37	0.5	9/2/2021	**1.9**	**15**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-38	0.5	9/2/2021	**1.5**	**3.9**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-39	0.5	9/2/2021	**1.5**	**4.3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-40	0.5	9/2/2021	**2.2**	**4.5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-41	0.5	9/2/2021	**2.0**	**4.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-41-DUP	*0.5*	*9/2/2021*	***1.5***	***4.0***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-42	0.5	9/2/2021	**2.1**	**3.7**	<3.0	**220**	**0.6**	<0.5	**12**	**6.7**	**14**	<1.0	**6.7**	<3.0	<0.5	<3.0	**39**	**96**	<0.14
SS-COMP-43	0.5	9/2/2021	**1.2**	**3.9**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-44	0.5	9/2/2021	**1.7**	**4.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-45	0.5	9/2/2021	**1.2**	**3.9**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-COMP-46	0.5	9/2/2021	**2.0**	**3.6**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

[1] Bradford, G.R., Chang, A.C., Page, A.L., Bakhtar, D., Frampton, J.A., and Wright, H., 1996, Background of Trace and Major Elements in California Soils, Kearney Foundation of Soil Sciences Special Report, Division of Agriculture and Natural Resources, University of California

[a] Upper-bound background concentrations from Chernoff, G., Bosan, W., and Outiz, D., DTSC. Determination of a Southern California Regional Background Arsenic Concentration in Soil.

USEPA = United States Environmental Protection Agency

USEPA RSL = USEPA Regional Screening Level for industrial soil, dated May 2021

DTSC SL = Department of Toxic Substances Control Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3 Screening Level for industrial/commercial soil, dated June 2020

* SL is for "Lead and Compounds"

mg/kg = milligrams per kilogram

bgs = below ground surface

<X = not detected above laboratory reporting limits

Bold indicates value exceeds laboratory reporting limit

Italics indicates duplicate sample

Yellow = Concentration exceeds DTSC SL but does not exceed USEPA RSL

Orange = Concentration exceeds USEPA RSL

NS = no screening criteria available

Table 4. Total Petroleum Hydrocarbons in Soil
870 North Sanderson Avenue
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Sample Date	TPH (C6-C12)	TPH (C13-C22)	TPH (C23-C44)
		Analytical Method	USEPA Method 8015B (M)		
		Units	mg/kg		
		SSL for TPH	500	1,000	10,000
SV-1-5	5	9/7/2021	<10	<10	<10
SV-1-10	10	9/7/2021	<10	<10	<10
SV-1-15	15	9/7/2021	<10	<10	<10
SV-1-20	20	9/7/2021	<10	<10	<10
SV-2-5	5	9/7/2021	<10	<10	<10
SV-2-10	10	9/7/2021	<10	<10	<10
SV-2-15	15	9/7/2021	<10	<10	<10
SV-2-20	20	9/7/2021	<10	<10	<10
SV-3-5	5	9/7/2021	<10	<10	<10
SV-4-5	5	9/7/2021	<10	<10	<10
SV-5-0.5	0.5	9/7/2021	<10	<10	<10

Notes:
USEPA = United States Environmental Protection Agency

SSL for TPH = Maximum Soil Screening Levels for Total Petroleum Hydrocarbons above Drinking Water Aquifers (20-150 feet above groundwater), California Regional Water Quality Control Board Remediation Guidances for Petroleum and VOC Impacted Sites, May 1996

mg/kg = milligrams per kilogram

bgs = below ground surface

Only compounds detected in soil above laboratory reporting limits in at least one sample are shown.
<X = not detected above laboratory reporting limits
Bold indicates value exceeds laboratory reporting limit
Italics indicates duplicate sample
NS = No screening criteria established

Table 5. Volatile Organic Compounds in Soil
870 North Sanderson Avenue
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Sample Date	Methylene Chloride	tert-Butyl Alcohol (TBA)	All Other VOCs
Analytical Method			USEPA Method 8260B		
Units			µg/kg		
DTSC Commercial/Industrial Soil SL			26,000	NS	Varies
USEPA Industrial Soil RSLs			1,000,000	NS	Varies
Operations Samples					
SV-1-5	5	9/7/2021	<5.2	<10	ND
SV-1-10	10	9/7/2021	**6.1**	<10	ND
SV-1-15	15	9/7/2021	<4.5	<9.1	ND
SV-1-20	20	9/7/2021	<4.3	**13**	ND
SV-2-5	5	9/7/2021	<5.1	<10	ND
SV-2-10	10	9/7/2021	<5.0	<10	ND
SV-2-15	15	9/7/2021	<4.8	<9.6	ND
SV-2-20	20	9/7/2021	<7.6	**23**	ND
SV-3-5	5	9/7/2021	**6.9**	<10	ND
SV-4-5	5	9/7/2021	**5.8**	<10	ND
Pond Samples (Blue)					
SV-5-0.5	0.5	9/7/2021	**8.1**	<13	ND
SV-5-5	5	9/7/2021	**8.1**	<12	ND

Notes:
USEPA = United States Environmental Protection Agency
USEPA RSL = USEPA Regional Screening Level for industrial soil, updated May 2021.
DTSC SL = Department of Toxic Substances Control Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3 Screening Level for industrial/commercial soil, dated June 2020.
µg/kg = micrograms per kilogram
bgs = below ground surface
Only compounds detected in soil above laboratory reporting limits in at least one sample are shown on this table
<X = not detected above laboratory reporting limits
Bold indicates value exceeds laboratory reporting limit
Italics indicates duplicate sample
NS = no screening criteria available

Table 6. Volatile Organic Compounds in Soil Vapor
870 North Sanderson Avenue
San Jacinto, California

Sample ID	Sample Depth (feet bgs)	Sample Date	1,2,4-Trimethylbenzene	2-Butanone	4-Methyl-2-Pentanone	Acetone	Benzene	Carbon Disulfide	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Freon 12	Isopropanol (IPA)	Methylene Chloride	n-Hexane	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene
Analytical Method			USEPA Method TO-15 and USEPA Method 8260B																
Units			µg/m^3																
USEPA Industrial Soil Vapor RSL[1]			1,500	733,333	NS	4,666,667	53	103,333	18	13,000	1,200	14,667	29,333	40,000	103,333	1,567	733,333	1,200	100
DTSC Commercial/Industrial Soil Vapor SL[1]			NS	NS	NS	NS	14	NS	NS	NS	1,167	NS	NS	400	NS	67	43,333	11,667	267
SV-1-5	5	9/10/2021	<1.7	<5.0	<1.4	**20**	**1.5**	**1.7**	<1.7	<0.7	<1.3	**2.5**	**8.6**	**2.8**	<1.2	**14**	<1.3	<1.3	**9.2**
SV-1-15	*15*	9/10/2021	**2.0**	**8.0**	**6.3**	**28**	**4.4**	**17**	<1.7	<0.7	<1.3	**2.6**	**12**	**1.3**	**15**	**19**	**5.4**	<1.3	**110**
SV-2-5	5	9/10/2021	<1.7	**6.7**	**2.7**	**30**	**3.9**	**4.5**	**2.2**	<0.7	**3.0**	**2.6**	**10**	**16**	**8.2**	**5.2**	**3.4**	**1.7**	**23**
SV-2-15	15	9/10/2021	**5.9**	**9.0**	**4.0**	**35**	**6.4**	**28**	<1.8	**1.5**	<1.4	**2.7**	**9.0**	**4.5**	**31**	<2.4	**4.7**	<1.4	**5.0**
SV-3-5	5	9/10/2021	<1.8	**10**	<1.5	**45**	**2.4**	**4.8**	**2.0**	**4.3**	<1.4	**2.6**	**15**	**3.3**	**6.8**	**22**	**4.4**	<1.4	**210**
SV-4-5	5	9/10/2021	<1.7	<5.0	<1.4	**22**	**1.5**	**1.8**	<1.7	<0.7	<1.3	**2.5**	**9.3**	**6.8**	**3.0**	**4.5**	**1.8**	<1.3	<1.8
SV-4-5-DUP	*5*	*9/10/2021*	*<1.6*	*<4.7*	*<1.3*	**15**	**1.3**	**1.7**	**1.6**	*<0.7*	*<1.3*	**2.5**	**4.3**	*<1.1*	**2.4**	*<2.2*	**1.2**	*<1.3*	*<1.7*
SV-5-5	5	9/11/2021	<1.6	**6.1**	**1.7**	**35**	**1.8**	**3.4**	**2.0**	**1.2**	<1.3	**2.6**	**5.6**	**8.0**	**41.0**	<2.2	**2.0**	<1.3	<1.7
SV-1A-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-3A-15	15	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-3A-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-11-5	5	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	**16**	<1,000	<1,000	<10
SV-11-15	15	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-11-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-11-25 DUP	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-12-5	5	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-12-15	15	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-12-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-13-5	5	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-13-15	15	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-13-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	**5**	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-14-5	5	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	**17**	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-14-15	15	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	**13**	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-14-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-14-25 DUP	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-15-5	5	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-15-15	15	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10
SV-15-25	25	10/11/2021	<1,000	<1,000	<1,000	<1,000	<3	--	<4	<1,000	<200	--	--	<30	--	<10	<1,000	<1,000	<10

Notes:

[1] Soil Gas Screening Levels (SGSLs) were calculated by applying an attenuation factor of 0.03 to the DTSC SLs or USEPA RSLs, per the DTSC Draft Supplemental Guidance, dated February 2020
USEPA = United States Environmental Protection Agency
USEPA RSL = USEPA Regional Screening Level for industrial air, dated May 2021
DTSC SL = Department of Toxic Substances Control Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3 Screening Level for industrial/commercial air, dated June 2020; and DTSC HERO HHRA Note 5 Trichloroethene Indoor Air Response Action Levels for Commercial/Industrial (8-hour workday), dated August 23, 2014
µg/m^3 = micrograms per cubic meter
Only compounds detected in soil vapor above laboratory reporting limits in at least one sample are shown on this table
<X = not detected above laboratory reporting limits
Bold indicates value exceeds laboratory reporting limit
Italics indicates duplicate sample
Orange = Concentration exceeds USEPA RSL
NS = no screening criteria available

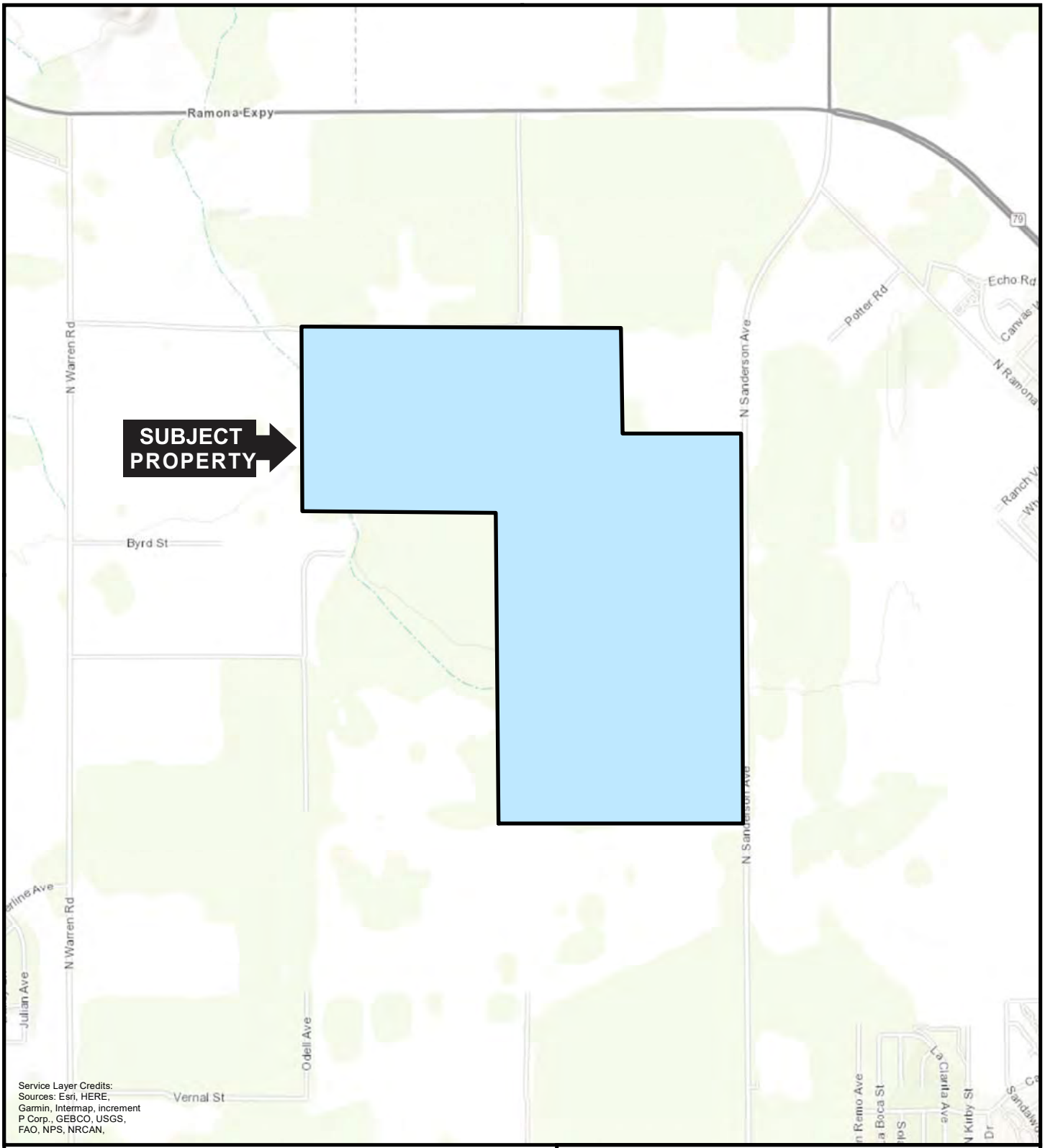
Table 7. Methane in Soil Vapor
870 North Sanderson Avenue
San Jacinto, CA

Sample ID	Sample Depth (feet bgs)	Sample Date	Methane
		Analytical Method	ASTM D-1946
		DTSC Cautionary Value for Methane	1,000
		DTSC Response Value for Methane	5,000
		Units	ppmv
SV-5-5	5	9/10/2021	**3.7**
SV-6-5	5	9/10/2021	**2.7**
SV-7-5	5	9/10/2021	**2.6**
SV-8-5	5	9/10/2021	**2.8**
SV-9-5	5	9/10/2021	**2.3**
SV-10-5	5	9/10/2021	**2.4**

Notes:
ASTM = American Society for Testing Materials
ppmv = parts per million by volume
Bold indicates analyte detected above method reporting limits
DTSC Cautionary and Response Values = DTSC Advisory on Methane Assessment and Common Remedies at School Sites, dated June 16, 2005.

FIGURES

1. Site Location Map
2. Site Plan
3. Soil Vapor VOC Sampling Locations



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

870 North Sanderson Avenue
San Jacinto, Riverside County, California

Prepared for:

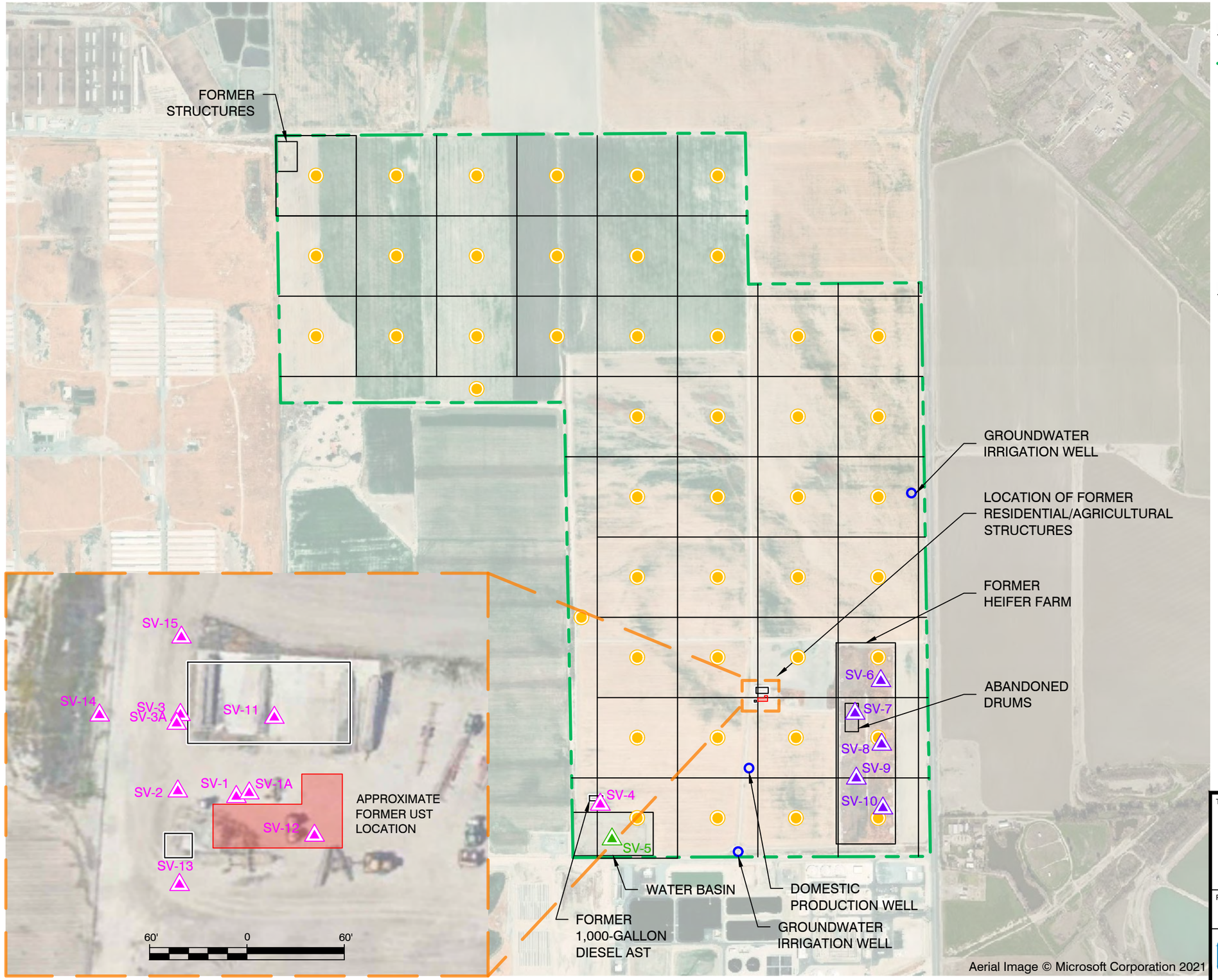
SHEA PROPERTIES LLC

ROUX

Compiled by: C.M.	Date: 08/04/21
Prepared by: C.M.	Scale: AS SHOWN
Project Mgr: R.Q.	Project: 2217.0025L

FIGURE 1

S:\OFFICE ADMIN\REFERENCE LIBRARY\CMF\FIGURE 1 - SAN JACINTO.MXD



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE WATER WELL LOCATION
- OPERATIONS SAMPLES
- POND SAMPLE
- AGRICULTURAL SOIL COMPOSITE SAMPLES
- CORRAL SAMPLES

NOTES

1) SAMPLES IN AREA OF FORMER RESIDENTIAL/AGRICULTURAL STRUCTURES SHOWN ONLY IN INSET.

N

800' 0 800'

Title:

SITE PLAN

870 NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA

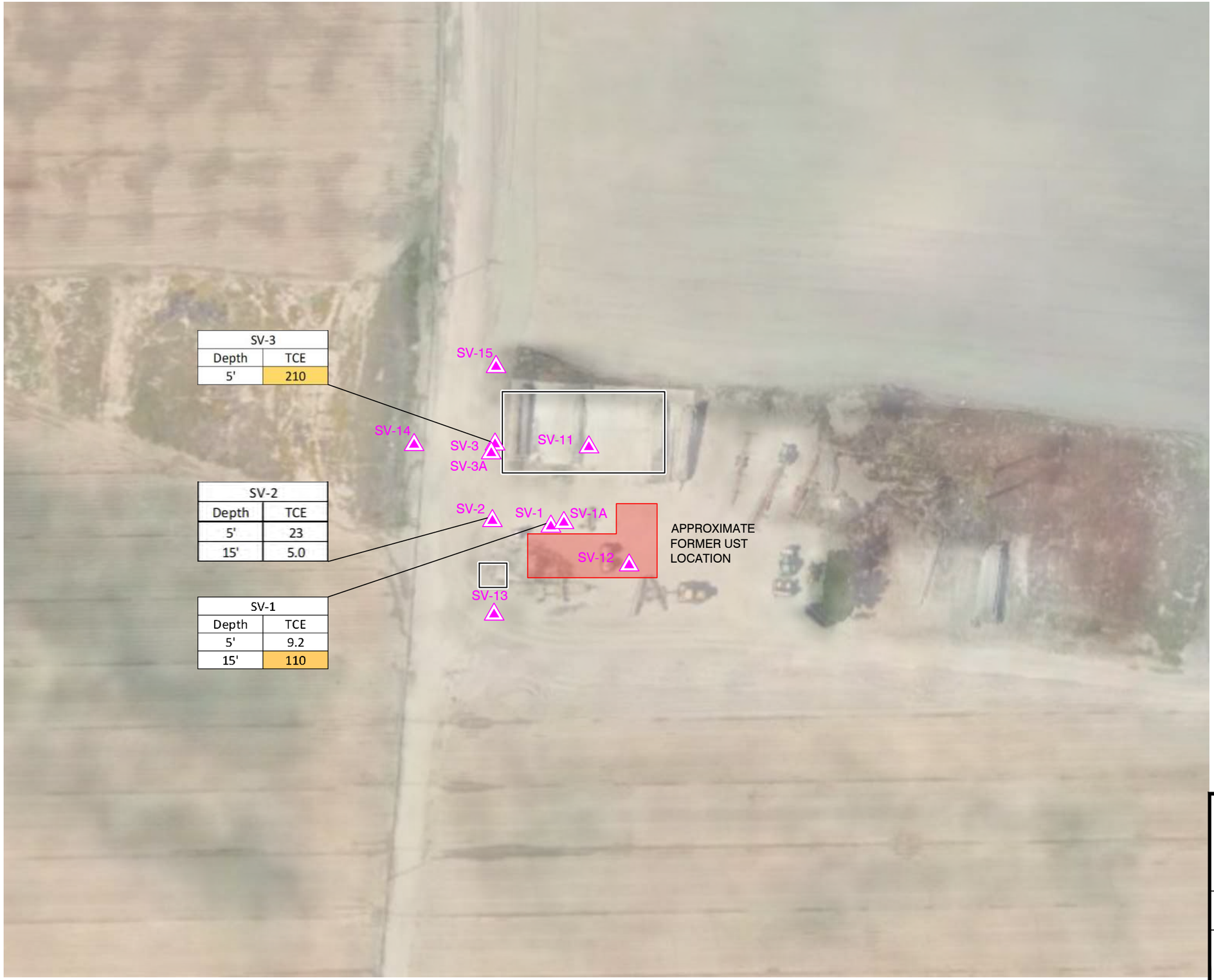
Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: A.MOK	Date: 18 OCT 2021	FIGURE
Prepared by: A.F.	Scale: AS SHOWN	2
Project Mgr: R.Q.	Project: 2217.0025L	
File: 006_2217.0025_SITE PLAN.DWG		

\\SRVLACAFP1\LA SHARED\CLIENTS\2217.0025L SHEA SAN JACINTO MHE\10CAD\006_2217.0025_SITE PLAN.DWG



LEGEND

▲ OPERATIONS SAMPLES

NOTES

1) TCE = TRICHLOROETHENE
2) BOLD INDICATES VALUE EXCEEDS LABORATORY REPORTING LIMIT.
3) ALL UNITS ARE IN MICROGRAMS PER CUBIC METER (µg/m³).
4) [ ] INDICATES VALUE EXCEEDS UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGIONAL SCREENING LEVEL FOR INDUSTRIAL SOIL VAPOR.

N

60' 0 60'

Title:

SOIL VAPOR VOC SAMPLING LOCATIONS

870 NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: A.MOK	Date: 18 OCT 2021	FIGURE
Prepared by: A.F.	Scale: AS SHOWN	3
Project Mgr: R.Q.	Project: 2217.0025L	
File: 007_2217.0025_TCE CONCENTRATIONS.DWG		

\\SRVLACAFP1\LA SHARED\CLIENTS\2217.0025L SHEA SAN JACINTO MHE\10CAD\007_2217.0025_TCE CONCENTRATIONS.DWG

ATTACHMENT A

Laboratory Analytical Reports

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

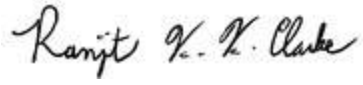
Lab Job Number:	450050
Report Level:	II
Report Date:	09/10/2021

Analytical Report *prepared for:*

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA

Authorized for release by:



Ranjit K Clarke, Project Manager
(714) 771-9906
Ranjit.Clarke@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105, CDC ELITE Member

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones Roux Associates, Inc. 5150 E. Pacific Coast Hwy. Suite 450 Long Beach, CA 90804	Lab Job #: Location: Date Received:	450050 Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA 09/02/21

Sample ID	Lab ID	Collected	Matrix
SS-COMP-1	450050-001	09/01/21 08:42	Soil
SS-COMP-2	450050-002	09/01/21 09:08	Soil
SS-COMP-3	450050-003	09/01/21 09:30	Soil
SS-COMP-4	450050-004	09/01/21 09:46	Soil
SS-COMP-5	450050-005	09/01/21 10:03	Soil
SS-COMP-6	450050-006	09/01/21 10:23	Soil
SS-COMP-6 DUP	450050-007	09/01/21 10:23	Soil
SS-COMP-7	450050-008	09/01/21 12:15	Soil
SS-COMP-8	450050-009	09/01/21 11:58	Soil
SS-COMP-9	450050-010	09/01/21 11:38	Soil
SS-COMP-10	450050-011	09/01/21 11:20	Soil
SS-COMP-11	450050-012	09/01/21 11:04	Soil
SS-COMP-12	450050-013	09/01/21 10:50	Soil
SS-COMP-13	450050-014	09/01/21 17:09	Soil
SS-COMP-14	450050-015	09/01/21 16:50	Soil
SS-COMP-15	450050-016	09/01/21 16:21	Soil
SS-COMP-16	450050-017	09/01/21 16:04	Soil
SS-COMP-17	450050-018	09/01/21 15:50	Soil
SS-COMP-18	450050-019	09/01/21 15:35	Soil
SS-COMP-19	450050-020	09/01/21 15:11	Soil
SS-COMP-19-DUP	450050-021	09/01/21 15:11	Soil
SS-COMP-20	450050-022	09/01/21 14:45	Soil
SS-COMP-21	450050-023	09/01/21 17:27	Soil
SS-COMP-22	450050-024	09/01/21 17:41	Soil
SS-COMP-23	450050-025	09/01/21 17:57	Soil
SS-COMP-24	450050-026	09/01/21 18:12	Soil
SS-COMP-25	450050-027	09/01/21 18:31	Soil
SS-COMP-26	450050-028	09/02/21 09:27	Soil

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones Roux Associates, Inc. 5150 E. Pacific Coast Hwy. Suite 450 Long Beach, CA 90804	Lab Job #: Location: Date Received:	450050 Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA 09/02/21

Sample ID	Lab ID	Collected	Matrix
SS-COMP-27	450050-029	09/02/21 08:32	Soil
SS-COMP-27-DUP	450050-030	09/02/21 08:32	Soil
SS-COMP-28	450050-031	09/02/21 08:14	Soil
SS-COMP-29	450050-032	09/02/21 07:52	Soil
SS-COMP-30	450050-033	09/02/21 07:32	Soil
SS-COMP-30-DUP	450050-034	09/02/21 07:32	Soil
SS-COMP-31	450050-035	09/02/21 09:44	Soil
SS-COMP-32	450050-036	09/02/21 10:04	Soil
SS-COMP-33	450050-037	09/02/21 10:24	Soil
SS-COMP-34	450050-038	09/02/21 10:43	Soil
SS-COMP-35	450050-039	09/02/21 12:04	Soil
SS-COMP-36	450050-040	09/02/21 11:45	Soil
SS-COMP-37	450050-041	09/02/21 11:26	Soil
SS-COMP-38	450050-042	09/02/21 11:04	Soil
SS-COMP-39	450050-043	09/02/21 13:10	Soil
SS-COMP-40	450050-044	09/02/21 13:27	Soil
SS-COMP-41	450050-045	09/02/21 13:45	Soil
SS-COMP-41-DUP	450050-046	09/02/21 13:45	Soil
SS-COMP-42	450050-047	09/02/21 14:08	Soil
SS-COMP-43	450050-048	09/02/21 14:30	Soil
SS-COMP-44	450050-049	09/02/21 14:50	Soil
SS-COMP-45	450050-050	09/02/21 15:11	Soil
SS-COMP-46	450050-051	09/02/21 15:31	Soil

ENTHALPY ANALYTICAL

Case Narrative

Roux Associates, Inc. 5150 E. Pacific Coast Hwy. Suite 450 Long Beach, CA 90804 Rocio Quinones	Lab Job Number:	450050
	Location:	Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA
	Date Received:	09/02/21

This data package contains sample and QC results for fifty one soil samples, requested for the above referenced project on 09/02/21. The samples were received cold and intact.

Pesticides (EPA 8081A):

Low recoveries were observed for endrin aldehyde and endrin ketone in the MS/MSD for batch 273570; the parent sample was not a project sample, and the LCS was within limits. High recoveries were observed for a number of analytes; the LCS was within limits. High RPD was observed for aldrin, endosulfan sulfate, and endrin; these analytes were not detected at or above the RL in the associated sample. High RPD was observed for methoxychlor in the MS/MSD of SS-COMP-1 (lab # 450050-001); this analyte was not detected at or above the RL in the associated samples. High RPD was observed for endrin ketone in the MS/MSD for batch 273369; the parent sample was not a project sample, and this analyte was not detected at or above the RL in the associated samples. Many samples were diluted due to the dark color of the sample extracts. SS-COMP-7 (lab # 450050-008) was diluted due to the color of the sample extract. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A):

High response was observed for antimony in the CCV analyzed 09/09/21 15:28; affected data was qualified with "b". High response was observed for antimony in the CCV analyzed 09/09/21 16:09; affected data was qualified with "b". Low recoveries were observed for antimony in the MS/MSD of SS-COMP-9 (lab # 450050-010); the LCS was within limits, and the associated RPD was within limits. Low recoveries were observed for antimony in the MS/MSD of SS-COMP-25 (lab # 450050-027); the LCS was within limits, and the associated RPD was within limits. High recoveries were observed for silver and barium in the MS of SS-COMP-25 (lab # 450050-027); the LCS was within limits. High RPD was also observed for silver and barium in the MS/MSD of SS-COMP-25 (lab # 450050-027). Low recoveries were observed for antimony in the MS/MSD of SS-COMP-42 (lab # 450050-047); the LCS was within limits, and the associated RPD was within limits. No other analytical problems were encountered.

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 450050

Page: 1 of 6

Turn Around Time (rush by advanced notice only)

Standard:	✓	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: 38/25 58/50 (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	San Jacinto
Report To:	Rocio Quinones	Number:	2217.0025L
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	6160 E Pacific Coast Hwy, Suite 450, Long Beach	Address:	870 N. Sanderson Ave, San Jacinto
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	CJ + AF

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	Analysis Request: DCPs 8081A	Title 22 Metal 6010B	T22 6010B/1P6RAS only	Test Instructions / Comments
1	SS-COMP-1	9/1/2021	0842	S	8oz. glass		X		X	
2	SS-COMP-2		0908							
3	SS-COMP-3		0930							
4	SS-COMP-4		0946							
5	SS-COMP-5		1003							
6	SS-COMP-6		1023							
7	SS-COMP-6-DUP		1023							
8	SS-COMP-7		1215							
9	SS-COMP-8		1158							
10	SS-COMP-9		1138					X		

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Amelia Feick	Amelia Feick	Roux	9/2/21 1803
1 Received By:		Glim	GA	9/2/21 1803
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 450050

Page: 2 of 6

Turn Around Time (rush by advanced notice only)

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Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	San Jacinto
Report To:	Rocio Quinones	Number:	2217.0025L
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	5150 E Pacific Coast Hwy, Suite 450, Long Beach	Address:	870 N. Sanderson Ave, San Jacinto
Phone:	424.232.9444	Global ID:	
Fax:		Sampled By:	OJ + AF

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	Analysis Request: OCPs 8081A	T22 metals 6010B	T22 6010B (Per AS only)	Test Instructions / Comments
1	SS-COMP-10	9/1/2021	1120	S	8oz/glass		X		X	
2	SS-COMP-11	↓	1104	↓	↓		↓		↓	
3	SS-COMP-12		1050							
4	SS-COMP-13		1709							
5	SS-COMP-14		1650							
6	SS-COMP-15		1621							
7	SS-COMP-16		1604							
8	SS-COMP-17		1550							
9	SS-COMP-18		1535							
10	SS-COMP-19	↓	1511	↓	↓		↓		↓	

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:	Amelia Feick	Amelia Feick	Roux	9/2/21 1803
[1] Received By:		C Lem	SA	9/2/21 1803
[2] Relinquished By:				
[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

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Chain of Custody Record

Lab No: 450050

Page: 3 of 6

Turn Around Time (rush by advanced notice only)

Standard:	✓	5 Day:		3 Day:	
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Enthalpy Analytical - Orange

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Phone 714-771-6900

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Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	San Jacinto
Report To:	Rocio Quinones	Number:	2217.0025L
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	6150 E Pacific Coast Hwy	Address:	870 N. Sanderson Ave,
	Suite 450, Long Beach		San Jacinto
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	CJ+AF

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCPs 8081A	T22 metals 6010B	T22 ~~metals~~ 6010B (PbAs only)	Test Instructions / Comments
1	SS-COMP-19-DUP	9/1/2021	1511	S	8oz/glass		X		X	
2	SS-COMP-20	↓	1445	↓	↓		↓		↓	
3	SS-COMP-21		1727							
4	SS-COMP-22	AF	~~1721~~ 1741							
5	SS-COMP-23		1757							
6	SS-COMP-24		1812							
7	SS-COMP-25	↓	1831						↓	
8	SS-COMP-26	9/2/2021	0927					X	~~X~~ AF	
9	SS-COMP-27	↓	0832						X	
10	SS-COMP-27-DUP	↓	0832	↓	↓		↓		X	

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:	Amelia Feick	Amelia Feick	Roux	9/2/21 1803
[1] Received By:		Glen	EA	9/2/21 1803
[2] Relinquished By:				
[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

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Chain of Custody Record

Lab No: 450050

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Turn Around Time (rush by advanced notice only)

Standard:	✓	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

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Phone 714-771-6900

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Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	San Jacinto
Report To:	Rocio Quinones	Number:	2217.00852
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	5150 E. Pacific Coast Hwy	Address:	870 N. Sanderson Ave.
	Suite 450, Long Beach, CA		San Jacinto, CA
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	CJ + AF

Analysis Request

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCP's 8081A	~~T-22 metals 6010B~~ CJ	T-22 6010B (Pb + As only)	Test Instructions / Comments
1	SS-COMP-28	9/2/2021	0814	S	8oz. glass		X		X	
2	SS-COMP-29	↓	0752	↓	↓		↓		↓	
3	SS-COMP-30	↓	0732	↓	↓		↓		↓	
4	SS-COMP-30-DUP	↓	0732	↓	↓		↓		↓	
5	SS-COMP-31	↓	0944	↓	↓		↓		↓	
6	SS-COMP-32	↓	1004	↓	↓		↓		↓	
7	SS-COMP-33	↓	1024	↓	↓		↓		↓	
8	SS-COMP-34	↓	1043	↓	↓		↓		↓	
9	SS-COMP-35	↓	1204	↓	↓		↓		↓	
10	SS-COMP-36	↓	1145	↓	↓		↓		↓	

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Amelia Feick	Amelia Feick	Roux	9/2/21 1803
1 Received By:	[signature]	G Kim	CA	9/2/21 1803
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 450050

Page: 5 of 6

Turn Around Time (rush by advanced notice only)

Standard:	✓	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

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Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	San Jacinto
Report To:	Rocio Quinones	Number:	2217.0025L
Email:	rquinones@roxiaa.com	P.O. #:	
Address:	5150 E. Pacific Coast Hwy	Address:	870 N. Sanderson Ave.
	Suite 450, Long Beach, CA		San Jacinto, CA
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	CJ+AF

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCP's 8081A	T-22 Metals 6010B	T-22 6010B (Pb+As only)	Test Instructions / Comments
1	SS-COMP-37	9/2/2021	1126	S	8oz. glass		X		X	
2	SS-COMP-38	↓	1104	↓	↓		↓		↓	
3	SS-COMP-39		1310							
4	SS-COMP-40		1327							
5	SS-COMP-41		1345							
6	SS-COMP-41-DUP		1345							
7	SS-COMP-42		1408					X	X AF	
8	SS-COMP-43		1430						X	
9	SS-COMP-44		1450							
10	SS-COMP-45	↓	1511	↓	↓		↓		↓	

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Amelia Falck	Amelia FELCK	ROUX	9/2/21 1803
1 Received By:		GKim	RA	9/2/21 1803
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 450050

Page: 6 of 6

Turn Around Time (rush by advanced notice only)

Standard:	✓	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

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Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	San Jacinto
Report To:	Rocio Quinones	Number:	2217.6025L
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	5150 E. Pacific Coast Hwy Suite 490, Long Beach, CA	Address:	870 N. Sanderson Ave San Jacinto, CA
Phone:	424-234-9444	Global ID:	
Fax:		Sampled By:	CJ+AF

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCPs 8081A	T-22 6015B (PBs Only)	Test Instructions / Comments
1	SS-COMP-46	9/2/2021	1531	S	8oz glass		X	X	
2									
3									
4									
5									
6									
7									
8									
9									
10									

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:	Amelia Feick	Amelia Feick	Roux	9/2/21 1803
[1] Received By:		6km	EA	9/2/21 1803
[2] Relinquished By:				
[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Roux Project: San Jacinto

Date Received: 9/2/21 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 2 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 3.8 #2: 5.8 #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☑ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 2.5 #2: 5.0 #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✔		
Are sample IDs present?	✔		
Are sampling dates & times present?	✔		
Is a relinquished signature present?	✔		
Are the tests required clearly indicated on the COC?	✔		
Are custody seals present?		✔	
If custody seals are present, were they intact?			✔
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✔		
Did all samples arrive intact? If no, indicate in Section 4 below.		✔	
Did all bottle labels agree with COC? (ID, dates and times)	✔		
Were the samples collected in the correct containers for the required tests?	✔		
Are the containers labeled with the correct preservatives?			✔
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✔
Was a sufficient amount of sample submitted for the requested tests?	✔		

Section 5 Explanations/Comments

Sample 8: "SS-Comp-7" Received broken, possible ice water contamination.

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☑ Email (email sent to/on): RKC / 9/2/21

Project Manager's response:

Completed By: _____ Date: 9/2/2021

ENTHALPY ANALYTICAL

Analysis Results for 450050

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 450050
Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA
Date Received: 09/02/21

Sample ID: SS-COMP-1 **Lab ID: 450050-001** **Collected: 09/01/21 08:42**
Matrix: Soil

450050-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	1.0	1	273379	09/03/21	09/04/21	JCP
Lead	**5.2**		mg/Kg	1.0	1	273379	09/03/21	09/04/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**20**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	85%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	70%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450050

Sample ID: SS-COMP-2	Lab ID: 450050-002	Collected: 09/01/21 09:08
	Matrix: Soil	

450050-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	0.93	0.93	273379	09/03/21	09/04/21	JCP
Lead	**4.6**		mg/Kg	0.93	0.93	273379	09/03/21	09/04/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**170**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	**7.3**	#,C	ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	80%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	64%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-3	Lab ID: 450050-003	Collected: 09/01/21 09:30
	Matrix: Soil	

450050-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.92	0.92	273379	09/03/21	09/04/21	JCP
Lead	**4.8**		mg/Kg	0.92	0.92	273379	09/03/21	09/04/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**200**		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	20	2	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	200	2	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	100	2	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	83%		%REC	23-120	2	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	77%		%REC	24-120	2	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-4	Lab ID: 450050-004	Collected: 09/01/21 09:46
	Matrix: Soil	

450050-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.3**		mg/Kg	1.1	1.1	273379	09/03/21	09/04/21	JCP
Lead	**5.1**		mg/Kg	1.1	1.1	273379	09/03/21	09/04/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**110**		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	20	2	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	200	2	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	100	2	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	83%		%REC	23-120	2	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	78%		%REC	24-120	2	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-5	Lab ID: 450050-005	Collected: 09/01/21 10:03
	Matrix: Soil	

450050-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.3**		mg/Kg	1.0	1	273379	09/03/21	09/04/21	JCP
Lead	**4.4**		mg/Kg	1.0	1	273379	09/03/21	09/04/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	20	2	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	200	2	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	100	2	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	89%		%REC	23-120	2	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	87%		%REC	24-120	2	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-6	Lab ID: 450050-006	Collected: 09/01/21 10:23
	Matrix: Soil	

450050-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.98	0.98	273379	09/03/21	09/04/21	JCP
Lead	**4.6**		mg/Kg	0.98	0.98	273379	09/03/21	09/04/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	20	2	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	200	2	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	100	2	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	72%		%REC	23-120	2	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	69%		%REC	24-120	2	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-6 DUP	Lab ID: 450050-007	Collected: 09/01/21 10:23
	Matrix: Soil	

450050-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	0.99	0.99	273380	09/03/21	09/04/21	KLN
Lead	**4.5**		mg/Kg	0.99	0.99	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	20	2	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	200	2	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	100	2	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	79%		%REC	23-120	2	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	72%		%REC	24-120	2	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-7	Lab ID: 450050-008	Collected: 09/01/21 12:15
	Matrix: Soil	

450050-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.3**		mg/Kg	1.0	1	273560	09/08/21	09/09/21	KLN
Lead	**3.8**		mg/Kg	1.0	1	273560	09/08/21	09/09/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
beta-BHC	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
gamma-BHC	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
delta-BHC	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Heptachlor	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Aldrin	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Heptachlor epoxide	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Endosulfan I	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Dieldrin	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
4,4'-DDE	**100**		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Endrin	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Endosulfan II	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Endosulfan sulfate	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
4,4'-DDD	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Endrin aldehyde	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Endrin ketone	ND		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
4,4'-DDT	**28**		ug/Kg	10	2	273570	09/09/21	09/09/21	TRN
Methoxychlor	ND		ug/Kg	20	2	273570	09/09/21	09/09/21	TRN
Toxaphene	ND		ug/Kg	200	2	273570	09/09/21	09/09/21	TRN
Chlordane (Technical)	ND		ug/Kg	100	2	273570	09/09/21	09/09/21	TRN
Surrogates				**Limits**					
TCMX	92%		%REC	23-120	2	273570	09/09/21	09/09/21	TRN
Decachlorobiphenyl	72%		%REC	24-120	2	273570	09/09/21	09/09/21	TRN

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-8	Lab ID: 450050-009	Collected: 09/01/21 11:58
	Matrix: Soil	

450050-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Lead	**10**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**150**		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	10	2	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	20	2	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	200	2	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	100	2	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	79%		%REC	23-120	2	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	75%		%REC	24-120	2	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450050

Sample ID: SS-COMP-9	Lab ID: 450050-010	Collected: 09/01/21 11:38
	Matrix: Soil	

450050-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.1	1	273380	09/03/21	09/04/21	KLN
Arsenic	**1.4**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Barium	**170**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Beryllium	ND		mg/Kg	0.52	1	273380	09/03/21	09/04/21	KLN
Cadmium	ND		mg/Kg	0.52	1	273380	09/03/21	09/04/21	KLN
Chromium	**10**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Cobalt	**5.2**		mg/Kg	0.52	1	273380	09/03/21	09/04/21	KLN
Copper	**31**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Lead	**4.2**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Molybdenum	ND		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Nickel	**5.8**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Selenium	ND		mg/Kg	3.1	1	273380	09/03/21	09/04/21	KLN
Silver	ND		mg/Kg	0.52	1	273380	09/03/21	09/04/21	KLN
Thallium	ND		mg/Kg	3.1	1	273380	09/03/21	09/04/21	KLN
Vanadium	**31**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Zinc	**91**		mg/Kg	5.2	1	273380	09/03/21	09/04/21	KLN
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273447	09/07/21	09/07/21	TNN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**130**		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	50	5	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	500	5	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

450050-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chlordane (Technical)	ND		ug/Kg	250	5	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	81%		%REC	23-120	5	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	77%		%REC	24-120	5	273339	09/03/21	09/03/21	TJW

Sample ID: SS-COMP-10 **Lab ID: 450050-011** **Collected: 09/01/21 11:20**
Matrix: Soil

450050-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Lead	**3.8**		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**56**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	65%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	60%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-11	Lab ID: 450050-012	Collected: 09/01/21 11:04
	Matrix: Soil	

450050-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	0.98	0.98	273380	09/03/21	09/04/21	KLN
Lead	**3.1**		mg/Kg	0.98	0.98	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**55**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	101%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	91%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-12	Lab ID: 450050-013	Collected: 09/01/21 10:50
	Matrix: Soil	

450050-013 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Lead	**4.0**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**36**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	78%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	60%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-13	Lab ID: 450050-014	Collected: 09/01/21 17:09
	Matrix: Soil	

450050-014 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	0.98	0.98	273380	09/03/21	09/04/21	KLN
Lead	**4.1**		mg/Kg	0.98	0.98	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**28**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	70%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	59%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-14	Lab ID: 450050-015	Collected: 09/01/21 16:50
	Matrix: Soil	

450050-015 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.98	0.98	273380	09/03/21	09/04/21	KLN
Lead	**3.8**		mg/Kg	0.98	0.98	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**61**		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	25	5	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	50	5	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	500	5	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	250	5	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	77%		%REC	23-120	5	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	59%		%REC	24-120	5	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450050

Sample ID: SS-COMP-15	Lab ID: 450050-016	Collected: 09/01/21 16:21
	Matrix: Soil	

450050-016 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	ND		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Lead	**2.8**		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**42**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	**7.6**	#	ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	65%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	51%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-16	Lab ID: 450050-017	Collected: 09/01/21 16:04
	Matrix: Soil	

450050-017 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	ND		mg/Kg	0.96	0.96	273380	09/03/21	09/04/21	KLN
Lead	**2.6**		mg/Kg	0.96	0.96	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**28**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	**6.5**	#	ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	92%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	73%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-17	Lab ID: 450050-018	Collected: 09/01/21 15:50
	Matrix: Soil	

450050-018 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	ND		mg/Kg	0.93	0.93	273380	09/03/21	09/04/21	KLN
Lead	**3.1**		mg/Kg	0.93	0.93	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**16**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	73%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	58%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-18	Lab ID: 450050-019	Collected: 09/01/21 15:35
	Matrix: Soil	

450050-019 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	ND		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Lead	**3.4**		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**36**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	85%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	75%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-19	Lab ID: 450050-020	Collected: 09/01/21 15:11
	Matrix: Soil	

450050-020 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	ND		mg/Kg	1.1	1.1	273380	09/03/21	09/04/21	KLN
Lead	**3.7**		mg/Kg	1.1	1.1	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDE	**31**		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273339	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273339	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273339	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273339	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	96%		%REC	23-120	1	273339	09/03/21	09/03/21	TJW
Decachlorobiphenyl	88%		%REC	24-120	1	273339	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-19-DUP	Lab ID: 450050-021	Collected: 09/01/21 15:11
	Matrix: Soil	

450050-021 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Lead	**4.3**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**57**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	85%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-20	Lab ID: 450050-022	Collected: 09/01/21 14:45
	Matrix: Soil	

450050-022 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.9**		mg/Kg	1.1	1.1	273380	09/03/21	09/04/21	KLN
Lead	**4.7**		mg/Kg	1.1	1.1	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**75**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	68%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	81%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-21	Lab ID: 450050-023	Collected: 09/01/21 17:27
	Matrix: Soil	

450050-023 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.1**		mg/Kg	0.99	0.99	273380	09/03/21	09/04/21	KLN
Lead	**3.3**		mg/Kg	0.99	0.99	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**66**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**12**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	9.8	0.98	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	98	0.98	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	49	0.98	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	63%		%REC	23-120	0.98	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	74%		%REC	24-120	0.98	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-22	Lab ID: 450050-024	Collected: 09/01/21 17:41
	Matrix: Soil	

450050-024 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Lead	**2.9**		mg/Kg	1.0	1	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**9.2**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	69%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	80%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-23	Lab ID: 450050-025	Collected: 09/01/21 17:57
	Matrix: Soil	

450050-025 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.0**		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Lead	**3.0**		mg/Kg	0.94	0.94	273380	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**20**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	67%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	79%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-24	Lab ID: 450050-026	Collected: 09/01/21 18:12
	Matrix: Soil	

450050-026 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	0.98	0.98	273380	09/03/21	09/07/21	KLN
Lead	**4.1**		mg/Kg	0.98	0.98	273380	09/03/21	09/07/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**40**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	77%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	92%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450050

Sample ID: SS-COMP-25	Lab ID: 450050-027	Collected: 09/01/21 18:31
	Matrix: Soil	

450050-027 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Lead	**4.5**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**59**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**5.2**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	71%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	85%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-26	Lab ID: 450050-028	Collected: 09/02/21 09:27
	Matrix: Soil	

450050-028 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.1	1	273381	09/03/21	09/04/21	KLN
Arsenic	**1.4**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Barium	**200**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Beryllium	ND		mg/Kg	0.52	1	273381	09/03/21	09/04/21	KLN
Cadmium	ND		mg/Kg	0.52	1	273381	09/03/21	09/04/21	KLN
Chromium	**10**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Cobalt	**5.8**		mg/Kg	0.52	1	273381	09/03/21	09/04/21	KLN
Copper	**37**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**3.7**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Molybdenum	ND		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Nickel	**5.9**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Selenium	ND		mg/Kg	3.1	1	273381	09/03/21	09/04/21	KLN
Silver	ND		mg/Kg	0.52	1	273381	09/03/21	09/04/21	KLN
Thallium	ND		mg/Kg	3.1	1	273381	09/03/21	09/04/21	KLN
Vanadium	**34**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Zinc	**89**		mg/Kg	5.2	1	273381	09/03/21	09/04/21	KLN
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273447	09/07/21	09/07/21	TNN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**83**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**6.5**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**94**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

450050-028 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	71%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	93%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Sample ID: SS-COMP-27 **Lab ID: 450050-029** **Collected: 09/02/21 08:32**
Matrix: Soil

450050-029 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.3**		mg/Kg	0.98	0.98	273381	09/03/21	09/04/21	KLN
Lead	**3.8**		mg/Kg	0.98	0.98	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**100**		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**8.1**		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**130**		ug/Kg	5.0	0.99	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	9.9	0.99	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	99	0.99	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	0.99	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	74%		%REC	23-120	0.99	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	87%		%REC	24-120	0.99	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-27-DUP	Lab ID: 450050-030	Collected: 09/02/21 08:32
	Matrix: Soil	

450050-030 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	0.98	0.98	273381	09/03/21	09/04/21	KLN
Lead	**3.6**		mg/Kg	0.98	0.98	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**110**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**8.3**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**120**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	9.8	0.98	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	98	0.98	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	49	0.98	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	74%		%REC	23-120	0.98	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	88%		%REC	24-120	0.98	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-28	Lab ID: 450050-031	Collected: 09/02/21 08:14
	Matrix: Soil	

450050-031 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**9.3**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**5.2**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**97**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**18**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**240**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	69%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	79%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-29	Lab ID: 450050-032	Collected: 09/02/21 07:52
	Matrix: Soil	

450050-032 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.1**		mg/Kg	0.96	0.96	273381	09/03/21	09/04/21	KLN
Lead	**4.1**		mg/Kg	0.96	0.96	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**63**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**6.8**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	71%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	83%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-30	Lab ID: 450050-033	Collected: 09/02/21 07:32
	Matrix: Soil	

450050-033 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Lead	**4.2**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**90**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**10**		ug/Kg	4.9	0.98	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	9.8	0.98	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	98	0.98	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	49	0.98	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	71%		%REC	23-120	0.98	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	81%		%REC	24-120	0.98	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-30-DUP	Lab ID: 450050-034	Collected: 09/02/21 07:32
	Matrix: Soil	

450050-034 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**4.2**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**80**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**12**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	83%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-31	Lab ID: 450050-035	Collected: 09/02/21 09:44
	Matrix: Soil	

450050-035 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**4.1**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**91**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**39**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	**5.6**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**740**		ug/Kg	25	5	273393	09/03/21	09/09/21	TRN
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	74%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	92%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-32	Lab ID: 450050-036	Collected: 09/02/21 10:04
	Matrix: Soil	

450050-036 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.4**		mg/Kg	0.93	0.93	273381	09/03/21	09/04/21	KLN
Lead	**4.6**		mg/Kg	0.93	0.93	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**81**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**48**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	**8.2**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**750**		ug/Kg	25	5.1	273393	09/03/21	09/09/21	TRN
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	65%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	83%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-33	Lab ID: 450050-037	Collected: 09/02/21 10:24
	Matrix: Soil	

450050-037 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.3**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Lead	**4.6**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**120**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**27**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**250**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	88%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-34	Lab ID: 450050-038	Collected: 09/02/21 10:43
	Matrix: Soil	

450050-038 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.0**		mg/Kg	0.93	0.93	273381	09/03/21	09/04/21	KLN
Lead	**3.8**		mg/Kg	0.93	0.93	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**120**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**11**		ug/Kg	5.0	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	50	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	67%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	79%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-35	Lab ID: 450050-039	Collected: 09/02/21 12:04
	Matrix: Soil	

450050-039 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.7**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**3.6**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**12**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**7.7**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**50**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	68%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	77%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-36	Lab ID: 450050-040	Collected: 09/02/21 11:45
	Matrix: Soil	

450050-040 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.7**		mg/Kg	0.96	0.96	273381	09/03/21	09/04/21	KLN
Lead	**3.9**		mg/Kg	0.96	0.96	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
beta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
gamma-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
delta-BHC	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Aldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Heptachlor epoxide	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan I	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Dieldrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDE	**20**	C	ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan II	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endosulfan sulfate	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDD	**22**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin aldehyde	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Endrin ketone	ND		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
4,4'-DDT	**120**		ug/Kg	5.1	1	273393	09/03/21	09/08/21	MTS
Methoxychlor	ND		ug/Kg	10	1	273393	09/03/21	09/08/21	MTS
Toxaphene	ND		ug/Kg	100	1	273393	09/03/21	09/08/21	MTS
Chlordane (Technical)	ND		ug/Kg	51	1	273393	09/03/21	09/08/21	MTS
Surrogates				**Limits**					
TCMX	67%		%REC	23-120	1	273393	09/03/21	09/08/21	MTS
Decachlorobiphenyl	84%		%REC	24-120	1	273393	09/03/21	09/08/21	MTS

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-37	Lab ID: 450050-041	Collected: 09/02/21 11:26
	Matrix: Soil	

450050-041 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.9**		mg/Kg	0.95	0.95	273381	09/03/21	09/04/21	KLN
Lead	**15**		mg/Kg	0.95	0.95	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	**60**		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	**15**		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	**69**	#	ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	66%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	53%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-38	Lab ID: 450050-042	Collected: 09/02/21 11:04
	Matrix: Soil	

450050-042 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**3.9**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	**41**		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	73%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	63%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-39	Lab ID: 450050-043	Collected: 09/02/21 13:10
	Matrix: Soil	

450050-043 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Lead	**4.3**		mg/Kg	1.0	1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	57%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	47%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-40	Lab ID: 450050-044	Collected: 09/02/21 13:27
	Matrix: Soil	

450050-044 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.2**		mg/Kg	0.98	0.98	273381	09/03/21	09/04/21	KLN
Lead	**4.5**		mg/Kg	0.98	0.98	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	64%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	52%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-41	Lab ID: 450050-045	Collected: 09/02/21 13:45
	Matrix: Soil	

450050-045 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.0**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Lead	**4.2**		mg/Kg	1.1	1.1	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	68%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	52%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-41-DUP	Lab ID: 450050-046	Collected: 09/02/21 13:45
	Matrix: Soil	

450050-046 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	0.97	0.97	273381	09/03/21	09/04/21	KLN
Lead	**4.0**		mg/Kg	0.97	0.97	273381	09/03/21	09/04/21	KLN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	66%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	52%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450050

Sample ID: SS-COMP-42	Lab ID: 450050-047	Collected: 09/02/21 14:08
	Matrix: Soil	

450050-047 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	1	273383	09/03/21	09/03/21	JCP
Arsenic	**2.1**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Barium	**220**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Beryllium	**0.58**		mg/Kg	0.50	1	273383	09/03/21	09/03/21	JCP
Cadmium	ND		mg/Kg	0.50	1	273383	09/03/21	09/03/21	JCP
Chromium	**12**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Cobalt	**6.7**		mg/Kg	0.50	1	273383	09/03/21	09/03/21	JCP
Copper	**14**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Lead	**3.7**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Molybdenum	ND		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Nickel	**6.7**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Selenium	ND		mg/Kg	3.0	1	273383	09/03/21	09/03/21	JCP
Silver	ND		mg/Kg	0.50	1	273383	09/03/21	09/03/21	JCP
Thallium	ND		mg/Kg	3.0	1	273383	09/03/21	09/03/21	JCP
Vanadium	**39**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Zinc	**96**		mg/Kg	5.0	1	273383	09/03/21	09/03/21	JCP
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.14	1	273447	09/07/21	09/07/21	TNN
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

450050-047 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	77%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	63%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Sample ID: SS-COMP-43 **Lab ID: 450050-048** **Collected: 09/02/21 14:30**
Matrix: Soil

450050-048 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Lead	**3.9**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TJW
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TJW
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TJW
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TJW
Surrogates				**Limits**					
TCMX	76%		%REC	23-120	1	273369	09/03/21	09/03/21	TJW
Decachlorobiphenyl	64%		%REC	24-120	1	273369	09/03/21	09/03/21	TJW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-44	Lab ID: 450050-049	Collected: 09/02/21 14:50
	Matrix: Soil	

450050-049 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.7**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Lead	**4.6**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TRN
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TRN
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TRN
Surrogates				**Limits**					
TCMX	63%		%REC	23-120	1	273369	09/03/21	09/03/21	TRN
Decachlorobiphenyl	83%		%REC	24-120	1	273369	09/03/21	09/03/21	TRN

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450050

Sample ID: SS-COMP-45	Lab ID: 450050-050	Collected: 09/02/21 15:11
	Matrix: Soil	

450050-050 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	1.1	1.1	273383	09/03/21	09/03/21	JCP
Lead	**3.9**		mg/Kg	1.1	1.1	273383	09/03/21	09/03/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDD	**5.2**		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDT	**7.4**	#,C	ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TRN
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TRN
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TRN
Surrogates				**Limits**					
TCMX	66%		%REC	23-120	1	273369	09/03/21	09/03/21	TRN
Decachlorobiphenyl	83%		%REC	24-120	1	273369	09/03/21	09/03/21	TRN

Results for any subcontracted analyses are not included in this section.

Analysis Results for 450050

Sample ID: SS-COMP-46	Lab ID: 450050-051	Collected: 09/02/21 15:31
	Matrix: Soil	

450050-051 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.0**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Lead	**3.6**		mg/Kg	1.0	1	273383	09/03/21	09/03/21	JCP
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
beta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
gamma-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
delta-BHC	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Heptachlor	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Aldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Heptachlor epoxide	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan I	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Dieldrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDE	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan II	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endosulfan sulfate	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDD	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin aldehyde	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Endrin ketone	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
4,4'-DDT	ND		ug/Kg	5.0	1	273369	09/03/21	09/03/21	TRN
Methoxychlor	ND		ug/Kg	10	1	273369	09/03/21	09/03/21	TRN
Toxaphene	ND		ug/Kg	100	1	273369	09/03/21	09/03/21	TRN
Chlordane (Technical)	ND		ug/Kg	50	1	273369	09/03/21	09/03/21	TRN
Surrogates				**Limits**					
TCMX	76%		%REC	23-120	1	273369	09/03/21	09/03/21	TRN
Decachlorobiphenyl	101%		%REC	24-120	1	273369	09/03/21	09/03/21	TRN

CCV drift outside limits; average CCV drift within limits per method requirements
C Presence confirmed, but RPD between columns exceeds 40%
ND Not Detected

Results for any subcontracted analyses are not included in this section.

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Batch QC

Type: Blank	**Lab ID: QC942031**	**Batch: 273339**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942031 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
alpha-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
beta-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
gamma-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
delta-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
Heptachlor	ND		ug/Kg	5.0	09/03/21	09/03/21
Aldrin	ND		ug/Kg	5.0	09/03/21	09/03/21
Heptachlor epoxide	ND		ug/Kg	5.0	09/03/21	09/03/21
Endosulfan I	ND		ug/Kg	5.0	09/03/21	09/03/21
Dieldrin	ND		ug/Kg	5.0	09/03/21	09/03/21
4,4'-DDE	ND		ug/Kg	5.0	09/03/21	09/03/21
Endrin	ND		ug/Kg	5.0	09/03/21	09/03/21
Endosulfan II	ND		ug/Kg	5.0	09/03/21	09/03/21
Endosulfan sulfate	ND		ug/Kg	5.0	09/03/21	09/03/21
4,4'-DDD	ND		ug/Kg	5.0	09/03/21	09/03/21
Endrin aldehyde	ND		ug/Kg	5.0	09/03/21	09/03/21
Endrin ketone	ND		ug/Kg	5.0	09/03/21	09/03/21
4,4'-DDT	ND		ug/Kg	5.0	09/03/21	09/03/21
Methoxychlor	ND		ug/Kg	10	09/03/21	09/03/21
Toxaphene	ND		ug/Kg	100	09/03/21	09/03/21
Chlordane (Technical)	ND		ug/Kg	50	09/03/21	09/03/21
Surrogates				**Limits**		
TCMX	91%		%REC	23-120	09/03/21	09/03/21
Decachlorobiphenyl	90%		%REC	24-120	09/03/21	09/03/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC942032**	**Batch: 273339**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942032 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	56.32	50.00	ug/Kg	113%		22-129
beta-BHC	54.34	50.00	ug/Kg	109%		28-125
gamma-BHC	54.11	50.00	ug/Kg	108%		22-128
delta-BHC	56.40	50.00	ug/Kg	113%		24-131
Heptachlor	50.65	50.00	ug/Kg	101%		18-124
Aldrin	47.35	50.00	ug/Kg	95%		23-120
Heptachlor epoxide	49.76	50.00	ug/Kg	100%		26-120
Endosulfan I	55.07	50.00	ug/Kg	110%		25-126
Dieldrin	50.87	50.00	ug/Kg	102%		23-124
4,4'-DDE	50.55	50.00	ug/Kg	101%		28-121
Endrin	55.12	50.00	ug/Kg	110%		25-127
Endosulfan II	56.32	50.00	ug/Kg	113%		29-121
Endosulfan sulfate	54.89	50.00	ug/Kg	110%		30-121
4,4'-DDD	48.69	50.00	ug/Kg	97%		26-120
Endrin aldehyde	37.99	50.00	ug/Kg	76%		10-120
Endrin ketone	57.38	50.00	ug/Kg	115%		28-125
4,4'-DDT	54.38	50.00	ug/Kg	109%	#	22-125
Methoxychlor	53.16	50.00	ug/Kg	106%	#	28-130
Surrogates						
TCMX	48.31	50.00	ug/Kg	97%		23-120
Decachlorobiphenyl	48.09	50.00	ug/Kg	96%		24-120

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC942033**	**Batch:**	**273339**
Matrix (Source ID):	**Soil (450050-001)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942033 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	47.06	ND	50.00	ug/Kg	94%		46-120	1
beta-BHC	43.15	ND	50.00	ug/Kg	86%		41-120	1
gamma-BHC	47.37	1.028	50.00	ug/Kg	93%		41-120	1
delta-BHC	46.96	2.844	50.00	ug/Kg	88%		38-123	1
Heptachlor	42.25	2.151	50.00	ug/Kg	80%		39-120	1
Aldrin	42.20	ND	50.00	ug/Kg	84%		34-120	1
Heptachlor epoxide	39.92	ND	50.00	ug/Kg	80%		43-120	1
Endosulfan I	44.45	ND	50.00	ug/Kg	89%		45-120	1
Dieldrin	40.14	ND	50.00	ug/Kg	80%		45-120	1
4,4'-DDE	64.13	19.51	50.00	ug/Kg	89%		34-120	1
Endrin	44.85	ND	50.00	ug/Kg	90%		40-120	1
Endosulfan II	42.68	ND	50.00	ug/Kg	85%		41-120	1
Endosulfan sulfate	42.40	1.405	50.00	ug/Kg	82%		42-120	1
4,4'-DDD	39.82	ND	50.00	ug/Kg	80%		41-120	1
Endrin aldehyde	30.20	1.224	50.00	ug/Kg	58%		30-120	1
Endrin ketone	43.75	ND	50.00	ug/Kg	88%		45-120	1
4,4'-DDT	47.31	4.043	50.00	ug/Kg	87%	#	35-127	1
Methoxychlor	39.34	ND	50.00	ug/Kg	79%	#	42-136	1
Surrogates								
TCMX	45.39		50.00	ug/Kg	91%		23-120	1
Decachlorobiphenyl	37.55		50.00	ug/Kg	75%		24-120	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942034**	**Batch:**	**273339**
Matrix (Source ID):	**Soil (450050-001)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942034 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	42.97	ND	50.00	ug/Kg	86%		46-120	9	30	1
beta-BHC	37.04	ND	50.00	ug/Kg	74%		41-120	15	30	1
gamma-BHC	39.76	1.028	50.00	ug/Kg	77%		41-120	17	30	1
delta-BHC	40.35	2.844	50.00	ug/Kg	75%		38-123	15	30	1
Heptachlor	37.20	2.151	50.00	ug/Kg	70%		39-120	13	30	1
Aldrin	35.28	ND	50.00	ug/Kg	71%		34-120	18	30	1
Heptachlor epoxide	34.54	ND	50.00	ug/Kg	69%		43-120	14	30	1
Endosulfan I	38.88	ND	50.00	ug/Kg	78%		45-120	13	30	1
Dieldrin	34.93	ND	50.00	ug/Kg	70%		45-120	14	30	1
4,4'-DDE	52.89	19.51	50.00	ug/Kg	67%		34-120	19	30	1
Endrin	38.01	ND	50.00	ug/Kg	76%		40-120	17	30	1
Endosulfan II	36.45	ND	50.00	ug/Kg	73%		41-120	16	30	1
Endosulfan sulfate	36.57	1.405	50.00	ug/Kg	70%		42-120	15	30	1
4,4'-DDD	34.61	ND	50.00	ug/Kg	69%		41-120	14	30	1
Endrin aldehyde	24.20	1.224	50.00	ug/Kg	46%		30-120	22	30	1
Endrin ketone	38.31	ND	50.00	ug/Kg	77%		45-120	13	30	1
4,4'-DDT	39.79	4.043	50.00	ug/Kg	72%	#	35-127	17	30	1
Methoxychlor	28.84	ND	50.00	ug/Kg	58%	#	42-136	31*	30	1
Surrogates										
TCMX	36.90		50.00	ug/Kg	74%		23-120			1
Decachlorobiphenyl	31.91		50.00	ug/Kg	64%		24-120			1

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC942090**	**Batch: 273369**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942090 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
alpha-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
beta-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
gamma-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
delta-BHC	ND		ug/Kg	5.0	09/03/21	09/03/21
Heptachlor	ND		ug/Kg	5.0	09/03/21	09/03/21
Aldrin	ND		ug/Kg	5.0	09/03/21	09/03/21
Heptachlor epoxide	ND		ug/Kg	5.0	09/03/21	09/03/21
Endosulfan I	ND		ug/Kg	5.0	09/03/21	09/03/21
Dieldrin	ND		ug/Kg	5.0	09/03/21	09/03/21
4,4'-DDE	ND		ug/Kg	5.0	09/03/21	09/03/21
Endrin	ND		ug/Kg	5.0	09/03/21	09/03/21
Endosulfan II	ND		ug/Kg	5.0	09/03/21	09/03/21
Endosulfan sulfate	ND		ug/Kg	5.0	09/03/21	09/03/21
4,4'-DDD	ND		ug/Kg	5.0	09/03/21	09/03/21
Endrin aldehyde	ND		ug/Kg	5.0	09/03/21	09/03/21
Endrin ketone	ND		ug/Kg	5.0	09/03/21	09/03/21
4,4'-DDT	ND		ug/Kg	5.0	09/03/21	09/03/21
Methoxychlor	ND		ug/Kg	10	09/03/21	09/03/21
Toxaphene	ND		ug/Kg	100	09/03/21	09/03/21
Chlordane (Technical)	ND		ug/Kg	50	09/03/21	09/03/21
Surrogates				**Limits**		
TCMX	87%		%REC	23-120	09/03/21	09/03/21
Decachlorobiphenyl	49%		%REC	24-120	09/03/21	09/03/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC942091**	**Batch: 273369**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942091 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	54.18	50.00	ug/Kg	108%	#	22-129
beta-BHC	62.12	50.00	ug/Kg	124%		28-125
gamma-BHC	52.61	50.00	ug/Kg	105%	#	22-128
delta-BHC	49.68	50.00	ug/Kg	99%	#	24-131
Heptachlor	52.42	50.00	ug/Kg	105%		18-124
Aldrin	35.73	50.00	ug/Kg	71%		23-120
Heptachlor epoxide	35.04	50.00	ug/Kg	70%		26-120
Endosulfan I	39.41	50.00	ug/Kg	79%		25-126
Dieldrin	36.93	50.00	ug/Kg	74%		23-124
4,4'-DDE	36.16	50.00	ug/Kg	72%		28-121
Endrin	38.88	50.00	ug/Kg	78%		25-127
Endosulfan II	35.35	50.00	ug/Kg	71%		29-121
Endosulfan sulfate	30.82	50.00	ug/Kg	62%		30-121
4,4'-DDD	32.75	50.00	ug/Kg	65%		26-120
Endrin aldehyde	21.81	50.00	ug/Kg	44%		10-120
Endrin ketone	33.28	50.00	ug/Kg	67%		28-125
4,4'-DDT	33.02	50.00	ug/Kg	66%		22-125
Methoxychlor	33.82	50.00	ug/Kg	68%		28-130
Surrogates						
TCMX	45.51	50.00	ug/Kg	91%		23-120
Decachlorobiphenyl	23.15	50.00	ug/Kg	46%		24-120

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC942092**	**Batch:**	**273369**
Matrix (Source ID):	**Soil (450053-002)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942092 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	48.90	ND	50.00	ug/Kg	98%		46-120	1
beta-BHC	41.85	ND	50.00	ug/Kg	84%		41-120	1
gamma-BHC	42.11	ND	50.00	ug/Kg	84%		41-120	1
delta-BHC	45.48	ND	50.00	ug/Kg	91%		38-123	1
Heptachlor	38.71	ND	50.00	ug/Kg	77%		39-120	1
Aldrin	39.23	ND	50.00	ug/Kg	78%		34-120	1
Heptachlor epoxide	41.80	ND	50.00	ug/Kg	84%		43-120	1
Endosulfan I	32.74	ND	50.00	ug/Kg	65%	#	45-120	1
Dieldrin	38.16	ND	50.00	ug/Kg	76%		45-120	1
4,4'-DDE	285.3	277.3	50.00	ug/Kg	16%	NM	34-120	1
Endrin	37.96	ND	50.00	ug/Kg	76%		40-120	1
Endosulfan II	37.59	ND	50.00	ug/Kg	75%		41-120	1
Endosulfan sulfate	35.82	ND	50.00	ug/Kg	72%		42-120	1
4,4'-DDD	44.86	19.36	50.00	ug/Kg	51%		41-120	1
Endrin aldehyde	24.34	ND	50.00	ug/Kg	49%		30-120	1
Endrin ketone	42.61	ND	50.00	ug/Kg	85%		45-120	1
4,4'-DDT	61.67	30.86	50.00	ug/Kg	62%		35-127	1
Methoxychlor	43.47	ND	50.00	ug/Kg	87%		42-136	1
Surrogates								
TCMX	37.63		50.00	ug/Kg	75%		23-120	1
Decachlorobiphenyl	29.07		50.00	ug/Kg	58%		24-120	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942093**	**Batch:**	**273369**
Matrix (Source ID):	**Soil (450053-002)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942093 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	37.94	ND	50.00	ug/Kg	76%		46-120	25	30	1
beta-BHC	35.53	ND	50.00	ug/Kg	71%		41-120	16	30	1
gamma-BHC	33.54	ND	50.00	ug/Kg	67%		41-120	23	30	1
delta-BHC	36.28	ND	50.00	ug/Kg	73%		38-123	23	30	1
Heptachlor	30.94	ND	50.00	ug/Kg	62%		39-120	22	30	1
Aldrin	29.69	ND	50.00	ug/Kg	59%		34-120	28	30	1
Heptachlor epoxide	36.20	ND	50.00	ug/Kg	72%		43-120	14	30	1
Endosulfan I	26.52	ND	50.00	ug/Kg	53%	#	45-120	21	30	1
Dieldrin	30.27	ND	50.00	ug/Kg	61%		45-120	23	30	1
4,4'-DDE	299.1	277.3	50.00	ug/Kg	44%	NM	34-120	5	30	1
Endrin	32.02	ND	50.00	ug/Kg	64%		40-120	17	30	1
Endosulfan II	32.41	ND	50.00	ug/Kg	65%		41-120	15	30	1
Endosulfan sulfate	29.06	ND	50.00	ug/Kg	58%		42-120	21	30	1
4,4'-DDD	40.38	19.36	50.00	ug/Kg	42%		41-120	11	30	1
Endrin aldehyde	20.63	ND	50.00	ug/Kg	41%		30-120	17	30	1
Endrin ketone	30.25	ND	50.00	ug/Kg	60%		45-120	34*	30	1
4,4'-DDT	53.86	30.86	50.00	ug/Kg	46%		35-127	14	30	1
Methoxychlor	32.73	ND	50.00	ug/Kg	65%		42-136	28	30	1
Surrogates										
TCMX	29.61		50.00	ug/Kg	59%		23-120			1
Decachlorobiphenyl	23.76		50.00	ug/Kg	48%		24-120			1

Type:	**Blank**	**Lab ID:**	**QC942129**	**Batch:**	**273379**
Matrix:	**Soil**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942129 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Arsenic	ND		mg/Kg	1.0	09/03/21	09/03/21
Lead	ND		mg/Kg	1.0	09/03/21	09/03/21

Type:	**Lab Control Sample**	**Lab ID:**	**QC942130**	**Batch:**	**273379**
Matrix:	**Soil**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942130 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Arsenic	99.68	100.0	mg/Kg	100%		80-120
Lead	98.50	100.0	mg/Kg	98%		80-120

ENTHALPY ANALYTICAL

Batch QC

Type:	Matrix Spike	Lab ID:	QC942131	Batch:	273379
Matrix (Source ID):	Soil (449888-002)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC942131 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Arsenic	106.1	0.7777	102.0	mg/Kg	103%		75-125	1
Lead	102.5	1.159	102.0	mg/Kg	99%		75-125	1

Type:	Matrix Spike Duplicate	Lab ID:	QC942132	Batch:	273379
Matrix (Source ID):	Soil (449888-002)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC942132 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Arsenic	105.8	0.7777	100.0	mg/Kg	105%		75-125	2	35	1
Lead	100.9	1.159	100.0	mg/Kg	100%		75-125	0	20	1

Type:	Blank	Lab ID:	QC942134	Batch:	273380
Matrix:	Soil	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC942134 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Antimony	ND		mg/Kg	3.0	09/03/21	09/04/21
Arsenic	ND		mg/Kg	1.0	09/03/21	09/04/21
Barium	ND		mg/Kg	1.0	09/03/21	09/04/21
Beryllium	ND		mg/Kg	0.50	09/03/21	09/04/21
Cadmium	ND		mg/Kg	0.50	09/03/21	09/04/21
Chromium	ND		mg/Kg	1.0	09/03/21	09/04/21
Cobalt	ND		mg/Kg	0.50	09/03/21	09/04/21
Copper	ND		mg/Kg	1.0	09/03/21	09/04/21
Lead	ND		mg/Kg	1.0	09/03/21	09/04/21
Molybdenum	ND		mg/Kg	1.0	09/03/21	09/04/21
Nickel	ND		mg/Kg	1.0	09/03/21	09/04/21
Selenium	ND		mg/Kg	3.0	09/03/21	09/04/21
Silver	ND		mg/Kg	0.50	09/03/21	09/04/21
Thallium	ND		mg/Kg	3.0	09/03/21	09/04/21
Vanadium	ND		mg/Kg	1.0	09/03/21	09/04/21
Zinc	ND		mg/Kg	5.0	09/03/21	09/04/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	Lab ID: QC942135	Batch: 273380
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC942135 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Antimony	104.9	100.0	mg/Kg	105%		80-120
Arsenic	99.97	100.0	mg/Kg	100%		80-120
Barium	102.1	100.0	mg/Kg	102%		80-120
Beryllium	100.6	100.0	mg/Kg	101%		80-120
Cadmium	99.20	100.0	mg/Kg	99%		80-120
Chromium	96.84	100.0	mg/Kg	97%		80-120
Cobalt	102.0	100.0	mg/Kg	102%		80-120
Copper	94.45	100.0	mg/Kg	94%		80-120
Lead	98.09	100.0	mg/Kg	98%		80-120
Molybdenum	102.8	100.0	mg/Kg	103%		80-120
Nickel	102.0	100.0	mg/Kg	102%		80-120
Selenium	89.71	100.0	mg/Kg	90%		80-120
Silver	46.30	50.00	mg/Kg	93%		80-120
Thallium	107.8	100.0	mg/Kg	108%		80-120
Vanadium	98.62	100.0	mg/Kg	99%		80-120
Zinc	105.2	100.0	mg/Kg	105%		80-120

Type: Matrix Spike	Lab ID: QC942136	Batch: 273380
Matrix (Source ID): Soil (450050-010)	Method: EPA 6010B	Prep Method: EPA 3050B

QC942136 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	40.88	ND	101.0	mg/Kg	40%	*	75-125	1
Arsenic	104.4	1.398	101.0	mg/Kg	102%		75-125	1
Barium	300.6	174.0	101.0	mg/Kg	125%		75-125	1
Beryllium	101.7	0.3998	101.0	mg/Kg	100%		75-125	1
Cadmium	100.7	ND	101.0	mg/Kg	100%		75-125	1
Chromium	109.4	10.39	101.0	mg/Kg	98%		75-125	1
Cobalt	103.0	5.183	101.0	mg/Kg	97%		75-125	1
Copper	130.9	30.76	101.0	mg/Kg	99%		75-125	1
Lead	97.75	4.154	101.0	mg/Kg	93%		75-125	1
Molybdenum	101.7	ND	101.0	mg/Kg	101%		75-125	1
Nickel	104.2	5.817	101.0	mg/Kg	97%		75-125	1
Selenium	91.78	ND	101.0	mg/Kg	91%		75-125	1
Silver	47.79	0.4794	50.51	mg/Kg	94%		75-125	1
Thallium	98.06	ND	101.0	mg/Kg	97%		75-125	1
Vanadium	133.6	30.83	101.0	mg/Kg	102%		75-125	1
Zinc	189.8	90.53	101.0	mg/Kg	98%		75-125	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942137**	**Batch:**	**273380**
Matrix (Source ID):	**Soil (450050-010)**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942137 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Antimony	39.00	ND	101.0	mg/Kg	39%	*	75-125	5	41	1
Arsenic	102.1	1.398	101.0	mg/Kg	100%		75-125	2	35	1
Barium	285.7	174.0	101.0	mg/Kg	111%		75-125	5	20	1
Beryllium	100.3	0.3998	101.0	mg/Kg	99%		75-125	1	20	1
Cadmium	98.62	ND	101.0	mg/Kg	98%		75-125	2	20	1
Chromium	104.9	10.39	101.0	mg/Kg	94%		75-125	4	20	1
Cobalt	101.0	5.183	101.0	mg/Kg	95%		75-125	2	20	1
Copper	140.3	30.76	101.0	mg/Kg	108%		75-125	7	20	1
Lead	95.68	4.154	101.0	mg/Kg	91%		75-125	2	20	1
Molybdenum	99.52	ND	101.0	mg/Kg	99%		75-125	2	20	1
Nickel	101.1	5.817	101.0	mg/Kg	94%		75-125	3	20	1
Selenium	90.13	ND	101.0	mg/Kg	89%		75-125	2	20	1
Silver	47.40	0.4794	50.51	mg/Kg	93%		75-125	1	20	1
Thallium	95.56	ND	101.0	mg/Kg	95%		75-125	3	20	1
Vanadium	132.0	30.83	101.0	mg/Kg	100%		75-125	1	20	1
Zinc	185.6	90.53	101.0	mg/Kg	94%		75-125	2	20	1

Type:	**Blank**	**Lab ID:**	**QC942139**	**Batch:**	**273381**
Matrix:	**Soil**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942139 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Antimony	ND		mg/Kg	3.0	09/03/21	09/04/21
Arsenic	ND		mg/Kg	1.0	09/03/21	09/04/21
Barium	ND		mg/Kg	1.0	09/03/21	09/04/21
Beryllium	ND		mg/Kg	0.50	09/03/21	09/04/21
Cadmium	ND		mg/Kg	0.50	09/03/21	09/04/21
Chromium	ND		mg/Kg	1.0	09/03/21	09/04/21
Cobalt	ND		mg/Kg	0.50	09/03/21	09/04/21
Copper	ND		mg/Kg	1.0	09/03/21	09/04/21
Lead	ND		mg/Kg	1.0	09/03/21	09/04/21
Molybdenum	ND		mg/Kg	1.0	09/03/21	09/04/21
Nickel	ND		mg/Kg	1.0	09/03/21	09/04/21
Selenium	ND		mg/Kg	3.0	09/03/21	09/04/21
Silver	ND		mg/Kg	0.50	09/03/21	09/04/21
Thallium	ND		mg/Kg	3.0	09/03/21	09/04/21
Vanadium	ND		mg/Kg	1.0	09/03/21	09/04/21
Zinc	ND		mg/Kg	5.0	09/03/21	09/04/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	Lab ID: QC942140	Batch: 273381
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC942140 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Antimony	107.2	100.0	mg/Kg	107%		80-120
Arsenic	100.9	100.0	mg/Kg	101%		80-120
Barium	104.6	100.0	mg/Kg	105%		80-120
Beryllium	103.6	100.0	mg/Kg	104%		80-120
Cadmium	101.1	100.0	mg/Kg	101%		80-120
Chromium	99.09	100.0	mg/Kg	99%		80-120
Cobalt	104.2	100.0	mg/Kg	104%		80-120
Copper	96.82	100.0	mg/Kg	97%		80-120
Lead	100.0	100.0	mg/Kg	100%		80-120
Molybdenum	105.7	100.0	mg/Kg	106%		80-120
Nickel	104.1	100.0	mg/Kg	104%		80-120
Selenium	90.63	100.0	mg/Kg	91%		80-120
Silver	47.10	50.00	mg/Kg	94%		80-120
Thallium	109.4	100.0	mg/Kg	109%		80-120
Vanadium	101.0	100.0	mg/Kg	101%		80-120
Zinc	109.5	100.0	mg/Kg	109%		80-120

Type: Matrix Spike	Lab ID: QC942141	Batch: 273381
Matrix (Source ID): Soil (450050-027)	Method: EPA 6010B	Prep Method: EPA 3050B

QC942141 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	40.20	1.757	102.0	mg/Kg	38%	*	75-125	1
Arsenic	98.85	1.224	102.0	mg/Kg	96%		75-125	1
Barium	383.2	215.5	102.0	mg/Kg	164%	*	75-125	1
Beryllium	99.30	0.5442	102.0	mg/Kg	97%		75-125	1
Cadmium	95.84	ND	102.0	mg/Kg	94%		75-125	1
Chromium	102.5	12.27	102.0	mg/Kg	88%		75-125	1
Cobalt	99.31	6.427	102.0	mg/Kg	91%		75-125	1
Copper	109.5	18.29	102.0	mg/Kg	89%		75-125	1
Lead	92.80	4.459	102.0	mg/Kg	87%		75-125	1
Molybdenum	97.38	ND	102.0	mg/Kg	95%		75-125	1
Nickel	99.03	6.628	102.0	mg/Kg	91%		75-125	1
Selenium	87.06	ND	102.0	mg/Kg	85%		75-125	1
Silver	88.76	1.456	51.02	mg/Kg	171%	*	75-125	1
Thallium	93.36	ND	102.0	mg/Kg	91%		75-125	1
Vanadium	134.9	38.52	102.0	mg/Kg	94%		75-125	1
Zinc	169.9	93.82	102.0	mg/Kg	75%		75-125	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942142**	**Batch:**	**273381**
Matrix (Source ID):	**Soil (450050-027)**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942142 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Antimony	35.68	1.757	103.1	mg/Kg	33%	*	75-125	13	41	1
Arsenic	107.0	1.224	103.1	mg/Kg	103%		75-125	7	35	1
Barium	311.8	215.5	103.1	mg/Kg	93%		75-125	21*	20	1
Beryllium	106.0	0.5442	103.1	mg/Kg	102%		75-125	6	20	1
Cadmium	103.9	ND	103.1	mg/Kg	101%		75-125	7	20	1
Chromium	110.9	12.27	103.1	mg/Kg	96%		75-125	7	20	1
Cobalt	107.5	6.427	103.1	mg/Kg	98%		75-125	7	20	1
Copper	117.7	18.29	103.1	mg/Kg	96%		75-125	6	20	1
Lead	99.91	4.459	103.1	mg/Kg	93%		75-125	6	20	1
Molybdenum	104.5	ND	103.1	mg/Kg	101%		75-125	6	20	1
Nickel	106.9	6.628	103.1	mg/Kg	97%		75-125	7	20	1
Selenium	94.31	ND	103.1	mg/Kg	91%		75-125	7	20	1
Silver	48.68	1.456	51.55	mg/Kg	92%		75-125	59*	20	1
Thallium	101.9	ND	103.1	mg/Kg	99%		75-125	8	20	1
Vanadium	145.2	38.52	103.1	mg/Kg	103%		75-125	7	20	1
Zinc	182.1	93.82	103.1	mg/Kg	86%		75-125	6	20	1

Type:	**Blank**	**Lab ID:**	**QC942147**	**Batch:**	**273383**
Matrix:	**Soil**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942147 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Antimony	ND		mg/Kg	3.0	09/03/21	09/03/21
Arsenic	ND		mg/Kg	1.0	09/03/21	09/03/21
Barium	ND		mg/Kg	1.0	09/03/21	09/03/21
Beryllium	ND		mg/Kg	0.50	09/03/21	09/03/21
Cadmium	ND		mg/Kg	0.50	09/03/21	09/03/21
Chromium	ND		mg/Kg	1.0	09/03/21	09/03/21
Cobalt	ND		mg/Kg	0.50	09/03/21	09/03/21
Copper	ND		mg/Kg	1.0	09/03/21	09/03/21
Lead	ND		mg/Kg	1.0	09/03/21	09/03/21
Molybdenum	ND		mg/Kg	1.0	09/03/21	09/03/21
Nickel	ND		mg/Kg	1.0	09/03/21	09/03/21
Selenium	ND		mg/Kg	3.0	09/03/21	09/03/21
Silver	ND		mg/Kg	0.50	09/03/21	09/03/21
Thallium	ND		mg/Kg	3.0	09/03/21	09/03/21
Vanadium	ND		mg/Kg	1.0	09/03/21	09/03/21
Zinc	ND		mg/Kg	5.0	09/03/21	09/03/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	Lab ID: QC942148	Batch: 273383
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC942148 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Antimony	105.9	100.0	mg/Kg	106%		80-120
Arsenic	101.1	100.0	mg/Kg	101%		80-120
Barium	102.4	100.0	mg/Kg	102%		80-120
Beryllium	103.0	100.0	mg/Kg	103%		80-120
Cadmium	99.76	100.0	mg/Kg	100%		80-120
Chromium	97.69	100.0	mg/Kg	98%		80-120
Cobalt	103.1	100.0	mg/Kg	103%		80-120
Copper	98.53	100.0	mg/Kg	99%		80-120
Lead	100.2	100.0	mg/Kg	100%		80-120
Molybdenum	104.0	100.0	mg/Kg	104%		80-120
Nickel	103.2	100.0	mg/Kg	103%		80-120
Selenium	90.28	100.0	mg/Kg	90%		80-120
Silver	47.85	50.00	mg/Kg	96%		80-120
Thallium	107.4	100.0	mg/Kg	107%		80-120
Vanadium	102.5	100.0	mg/Kg	103%		80-120
Zinc	105.9	100.0	mg/Kg	106%		80-120

Type: Matrix Spike	Lab ID: QC942149	Batch: 273383
Matrix (Source ID): Soil (450050-047)	Method: EPA 6010B	Prep Method: EPA 3050B

QC942149 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	30.10	1.973	100.0	mg/Kg	28%	*	75-125	1
Arsenic	104.6	2.095	100.0	mg/Kg	102%		75-125	1
Barium	310.3	221.1	100.0	mg/Kg	89%		75-125	1
Beryllium	99.65	0.5809	100.0	mg/Kg	99%		75-125	1
Cadmium	99.11	ND	100.0	mg/Kg	99%		75-125	1
Chromium	105.0	12.49	100.0	mg/Kg	92%		75-125	1
Cobalt	101.6	6.655	100.0	mg/Kg	95%		75-125	1
Copper	110.9	14.14	100.0	mg/Kg	97%		75-125	1
Lead	94.97	3.716	100.0	mg/Kg	91%		75-125	1
Molybdenum	98.20	ND	100.0	mg/Kg	98%		75-125	1
Nickel	100.7	6.717	100.0	mg/Kg	94%		75-125	1
Selenium	89.88	ND	100.0	mg/Kg	90%		75-125	1
Silver	46.91	ND	50.00	mg/Kg	94%		75-125	1
Thallium	94.14	ND	100.0	mg/Kg	94%		75-125	1
Vanadium	139.4	39.45	100.0	mg/Kg	100%		75-125	1
Zinc	179.8	96.27	100.0	mg/Kg	84%		75-125	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942150**	**Batch:**	**273383**
Matrix (Source ID):	**Soil (450050-047)**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942150 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Antimony	32.70	1.973	101.0	mg/Kg	30%	*	75-125	7	41	1
Arsenic	106.1	2.095	101.0	mg/Kg	103%		75-125	0	35	1
Barium	314.3	221.1	101.0	mg/Kg	92%		75-125	1	20	1
Beryllium	99.19	0.5809	101.0	mg/Kg	98%		75-125	1	20	1
Cadmium	100.4	ND	101.0	mg/Kg	99%		75-125	0	20	1
Chromium	103.5	12.49	101.0	mg/Kg	90%		75-125	2	20	1
Cobalt	100.2	6.655	101.0	mg/Kg	93%		75-125	2	20	1
Copper	109.5	14.14	101.0	mg/Kg	94%		75-125	2	20	1
Lead	94.07	3.716	101.0	mg/Kg	89%		75-125	2	20	1
Molybdenum	98.88	ND	101.0	mg/Kg	98%		75-125	0	20	1
Nickel	99.45	6.717	101.0	mg/Kg	92%		75-125	2	20	1
Selenium	92.01	ND	101.0	mg/Kg	91%		75-125	1	20	1
Silver	47.70	ND	50.51	mg/Kg	94%		75-125	1	20	1
Thallium	93.69	ND	101.0	mg/Kg	93%		75-125	1	20	1
Vanadium	135.8	39.45	101.0	mg/Kg	95%		75-125	3	20	1
Zinc	172.1	96.27	101.0	mg/Kg	75%		75-125	5	20	1

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC942173**	**Batch: 273393**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942173 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
alpha-BHC	ND		ug/Kg	5.0	09/03/21	09/08/21
beta-BHC	ND		ug/Kg	5.0	09/03/21	09/08/21
gamma-BHC	ND		ug/Kg	5.0	09/03/21	09/08/21
delta-BHC	ND		ug/Kg	5.0	09/03/21	09/08/21
Heptachlor	ND		ug/Kg	5.0	09/03/21	09/08/21
Aldrin	ND		ug/Kg	5.0	09/03/21	09/08/21
Heptachlor epoxide	ND		ug/Kg	5.0	09/03/21	09/08/21
Endosulfan I	ND		ug/Kg	5.0	09/03/21	09/08/21
Dieldrin	ND		ug/Kg	5.0	09/03/21	09/08/21
4,4'-DDE	ND		ug/Kg	5.0	09/03/21	09/08/21
Endrin	ND		ug/Kg	5.0	09/03/21	09/08/21
Endosulfan II	ND		ug/Kg	5.0	09/03/21	09/08/21
Endosulfan sulfate	ND		ug/Kg	5.0	09/03/21	09/08/21
4,4'-DDD	ND		ug/Kg	5.0	09/03/21	09/08/21
Endrin aldehyde	ND		ug/Kg	5.0	09/03/21	09/08/21
Endrin ketone	ND		ug/Kg	5.0	09/03/21	09/08/21
4,4'-DDT	ND		ug/Kg	5.0	09/03/21	09/08/21
Methoxychlor	ND		ug/Kg	10	09/03/21	09/08/21
Toxaphene	ND		ug/Kg	100	09/03/21	09/08/21
Chlordane (Technical)	ND		ug/Kg	50	09/03/21	09/08/21
Surrogates				**Limits**		
TCMX	73%		%REC	23-120	09/03/21	09/08/21
Decachlorobiphenyl	87%		%REC	24-120	09/03/21	09/08/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC942174**	**Batch: 273393**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942174 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	42.84	50.00	ug/Kg	86%		22-129
beta-BHC	44.57	50.00	ug/Kg	89%		28-125
gamma-BHC	42.77	50.00	ug/Kg	86%		22-128
delta-BHC	41.03	50.00	ug/Kg	82%		24-131
Heptachlor	42.68	50.00	ug/Kg	85%		18-124
Aldrin	39.55	50.00	ug/Kg	79%		23-120
Heptachlor epoxide	43.50	50.00	ug/Kg	87%		26-120
Endosulfan I	46.67	50.00	ug/Kg	93%		25-126
Dieldrin	46.20	50.00	ug/Kg	92%		23-124
4,4'-DDE	47.09	50.00	ug/Kg	94%		28-121
Endrin	53.23	50.00	ug/Kg	106%		25-127
Endosulfan II	51.11	50.00	ug/Kg	102%		29-121
Endosulfan sulfate	50.02	50.00	ug/Kg	100%		30-121
4,4'-DDD	48.21	50.00	ug/Kg	96%		26-120
Endrin aldehyde	32.19	50.00	ug/Kg	64%		10-120
Endrin ketone	49.46	50.00	ug/Kg	99%		28-125
4,4'-DDT	53.59	50.00	ug/Kg	107%		22-125
Methoxychlor	56.76	50.00	ug/Kg	114%		28-130
Surrogates						
TCMX	40.70	50.00	ug/Kg	81%		23-120
Decachlorobiphenyl	49.73	50.00	ug/Kg	99%		24-120

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC942175**	**Batch:**	**273393**
Matrix (Source ID):	**Soil (450050-021)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942175 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	43.99	ND	50.51	ug/Kg	87%		46-120	1
beta-BHC	42.92	ND	50.51	ug/Kg	85%		41-120	1
gamma-BHC	42.43	ND	50.51	ug/Kg	84%		41-120	1
delta-BHC	39.35	ND	50.51	ug/Kg	78%		38-123	1
Heptachlor	42.24	ND	50.51	ug/Kg	84%		39-120	1
Aldrin	40.10	ND	50.51	ug/Kg	79%		34-120	1
Heptachlor epoxide	41.85	ND	50.51	ug/Kg	83%		43-120	1
Endosulfan I	44.50	ND	50.51	ug/Kg	88%		45-120	1
Dieldrin	45.11	ND	50.51	ug/Kg	89%		45-120	1
4,4'-DDE	108.1	56.63	50.51	ug/Kg	102%		34-120	1
Endrin	52.46	ND	50.51	ug/Kg	104%		40-120	1
Endosulfan II	48.07	ND	50.51	ug/Kg	95%		41-120	1
Endosulfan sulfate	48.04	ND	50.51	ug/Kg	95%		42-120	1
4,4'-DDD	44.22	ND	50.51	ug/Kg	88%		41-120	1
Endrin aldehyde	31.34	ND	50.51	ug/Kg	62%		30-120	1
Endrin ketone	45.96	ND	50.51	ug/Kg	91%		45-120	1
4,4'-DDT	57.06	3.682	50.51	ug/Kg	106%		35-127	1
Methoxychlor	55.52	ND	50.51	ug/Kg	110%		42-136	1
Surrogates								
TCMX	39.25		50.51	ug/Kg	78%		23-120	1
Decachlorobiphenyl	45.81		50.51	ug/Kg	91%		24-120	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942176**	**Batch:**	**273393**
Matrix (Source ID):	**Soil (450050-021)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942176 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	41.41	ND	50.51	ug/Kg	82%		46-120	6	30	1
beta-BHC	39.82	ND	50.51	ug/Kg	79%		41-120	7	30	1
gamma-BHC	40.08	ND	50.51	ug/Kg	79%		41-120	6	30	1
delta-BHC	36.26	ND	50.51	ug/Kg	72%		38-123	8	30	1
Heptachlor	39.97	ND	50.51	ug/Kg	79%		39-120	6	30	1
Aldrin	36.96	ND	50.51	ug/Kg	73%		34-120	8	30	1
Heptachlor epoxide	38.39	ND	50.51	ug/Kg	76%		43-120	9	30	1
Endosulfan I	40.64	ND	50.51	ug/Kg	80%		45-120	9	30	1
Dieldrin	40.90	ND	50.51	ug/Kg	81%		45-120	10	30	1
4,4'-DDE	99.63	56.63	50.51	ug/Kg	85%		34-120	8	30	1
Endrin	48.42	ND	50.51	ug/Kg	96%		40-120	8	30	1
Endosulfan II	43.18	ND	50.51	ug/Kg	85%		41-120	11	30	1
Endosulfan sulfate	43.79	ND	50.51	ug/Kg	87%		42-120	9	30	1
4,4'-DDD	41.67	ND	50.51	ug/Kg	82%		41-120	6	30	1
Endrin aldehyde	29.41	ND	50.51	ug/Kg	58%		30-120	6	30	1
Endrin ketone	42.48	ND	50.51	ug/Kg	84%		45-120	8	30	1
4,4'-DDT	51.11	3.682	50.51	ug/Kg	94%		35-127	11	30	1
Methoxychlor	49.97	ND	50.51	ug/Kg	99%		42-136	11	30	1
Surrogates										
TCMX	37.07		50.51	ug/Kg	73%		23-120			1
Decachlorobiphenyl	43.01		50.51	ug/Kg	85%		24-120			1

Type:	**Blank**	**Lab ID:**	**QC942352**	**Batch:**	**273447**
Matrix:	**Soil**	**Method:**	**EPA 7471A**	**Prep Method:**	**METHOD**

QC942352 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Mercury	ND		mg/Kg	0.14	09/07/21	09/07/21

Type:	**Lab Control Sample**	**Lab ID:**	**QC942353**	**Batch:**	**273447**
Matrix:	**Soil**	**Method:**	**EPA 7471A**	**Prep Method:**	**METHOD**

QC942353 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Mercury	0.8259	0.8333	mg/Kg	99%		80-120

ENTHALPY ANALYTICAL

Batch QC

Type: Matrix Spike	Lab ID: QC942354	Batch: 273447
Matrix (Source ID): Soil (450050-010)	Method: EPA 7471A	Prep Method: METHOD

QC942354 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Mercury	0.9051	0.07098	0.9434	mg/Kg	88%		75-125	1.1

Type: Matrix Spike Duplicate	Lab ID: QC942355	Batch: 273447
Matrix (Source ID): Soil (450050-010)	Method: EPA 7471A	Prep Method: METHOD

QC942355 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Mercury	0.9377	0.07098	0.9615	mg/Kg	90%		75-125	2	20	1.2

Type: Blank	Lab ID: QC942666	Batch: 273560
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC942666 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Arsenic	ND		mg/Kg	1.0	09/08/21	09/09/21
Lead	ND		mg/Kg	1.0	09/08/21	09/09/21

Type: Lab Control Sample	Lab ID: QC942667	Batch: 273560
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC942667 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Arsenic	103.4	100.0	mg/Kg	103%		80-120
Lead	103.8	100.0	mg/Kg	104%		80-120

Type: Matrix Spike	Lab ID: QC942668	Batch: 273560
Matrix (Source ID): Soil (450216-001)	Method: EPA 6010B	Prep Method: EPA 3050B

QC942668 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Arsenic	94.03	6.762	86.96	mg/Kg	100%		75-125	0.87
Lead	91.27	7.209	86.96	mg/Kg	97%		75-125	0.87

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942669**	**Batch:**	**273560**
Matrix (Source ID):	**Soil (450216-001)**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC942669 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Arsenic	110.7	6.762	100.0	mg/Kg	104%		75-125	3	35	1
Lead	106.1	7.209	100.0	mg/Kg	99%		75-125	2	20	1

Type:	**Blank**	**Lab ID:**	**QC942706**	**Batch:**	**273570**
Matrix:	**Soil**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942706 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
alpha-BHC	ND		ug/Kg	5.0	09/09/21	09/09/21
beta-BHC	ND		ug/Kg	5.0	09/09/21	09/09/21
gamma-BHC	ND		ug/Kg	5.0	09/09/21	09/09/21
delta-BHC	ND		ug/Kg	5.0	09/09/21	09/09/21
Heptachlor	ND		ug/Kg	5.0	09/09/21	09/09/21
Aldrin	ND		ug/Kg	5.0	09/09/21	09/09/21
Heptachlor epoxide	ND		ug/Kg	5.0	09/09/21	09/09/21
Endosulfan I	ND		ug/Kg	5.0	09/09/21	09/09/21
Dieldrin	ND		ug/Kg	5.0	09/09/21	09/09/21
4,4'-DDE	ND		ug/Kg	5.0	09/09/21	09/09/21
Endrin	ND		ug/Kg	5.0	09/09/21	09/09/21
Endosulfan II	ND		ug/Kg	5.0	09/09/21	09/09/21
Endosulfan sulfate	ND		ug/Kg	5.0	09/09/21	09/09/21
4,4'-DDD	ND		ug/Kg	5.0	09/09/21	09/09/21
Endrin aldehyde	ND		ug/Kg	5.0	09/09/21	09/09/21
Endrin ketone	ND		ug/Kg	5.0	09/09/21	09/09/21
4,4'-DDT	ND		ug/Kg	5.0	09/09/21	09/09/21
Methoxychlor	ND		ug/Kg	10	09/09/21	09/09/21
Toxaphene	ND		ug/Kg	100	09/09/21	09/09/21
Chlordane (Technical)	ND		ug/Kg	50	09/09/21	09/09/21
Surrogates				**Limits**		
TCMX	88%		%REC	23-120	09/09/21	09/09/21
Decachlorobiphenyl	87%		%REC	24-120	09/09/21	09/09/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC942707**	**Batch: 273570**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC942707 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	56.96	50.00	ug/Kg	114%		22-129
beta-BHC	51.48	50.00	ug/Kg	103%		28-125
gamma-BHC	56.13	50.00	ug/Kg	112%		22-128
delta-BHC	54.94	50.00	ug/Kg	110%	#	24-131
Heptachlor	52.67	50.00	ug/Kg	105%		18-124
Aldrin	49.09	50.00	ug/Kg	98%		23-120
Heptachlor epoxide	39.48	50.00	ug/Kg	79%		26-120
Endosulfan I	45.15	50.00	ug/Kg	90%		25-126
Dieldrin	39.08	50.00	ug/Kg	78%		23-124
4,4'-DDE	42.76	50.00	ug/Kg	86%		28-121
Endrin	44.93	50.00	ug/Kg	90%		25-127
Endosulfan II	39.57	50.00	ug/Kg	79%		29-121
Endosulfan sulfate	37.52	50.00	ug/Kg	75%	#	30-121
4,4'-DDD	39.65	50.00	ug/Kg	79%		26-120
Endrin aldehyde	27.84	50.00	ug/Kg	56%		10-120
Endrin ketone	32.92	50.00	ug/Kg	66%	#	28-125
4,4'-DDT	41.78	50.00	ug/Kg	84%		22-125
Methoxychlor	36.08	50.00	ug/Kg	72%	#	28-130
Surrogates						
TCMX	42.96	50.00	ug/Kg	86%		23-120
Decachlorobiphenyl	28.58	50.00	ug/Kg	57%		24-120

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Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC942708**	**Batch:**	**273570**
Matrix (Source ID):	**Soil (450073-002)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942708 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	49.59	ND	50.00	ug/Kg	99%		46-120	10
beta-BHC	41.56	ND	50.00	ug/Kg	83%		41-120	10
gamma-BHC	52.91	ND	50.00	ug/Kg	106%		41-120	10
delta-BHC	46.73	ND	50.00	ug/Kg	93%	#	38-123	10
Heptachlor	51.17	ND	50.00	ug/Kg	102%		39-120	10
Aldrin	64.95	ND	50.00	ug/Kg	130%	*	34-120	10
Heptachlor epoxide	56.94	ND	50.00	ug/Kg	114%		43-120	10
Endosulfan I	48.55	ND	50.00	ug/Kg	97%		45-120	10
Dieldrin	53.27	ND	50.00	ug/Kg	107%		45-120	10
4,4'-DDE	48.37	ND	50.00	ug/Kg	97%		34-120	10
Endrin	133.4	ND	50.00	ug/Kg	267%	*	40-120	10
Endosulfan II	36.92	ND	50.00	ug/Kg	74%		41-120	10
Endosulfan sulfate	46.55	ND	50.00	ug/Kg	93%	#	42-120	10
4,4'-DDD	34.06	ND	50.00	ug/Kg	68%		41-120	10
Endrin aldehyde	0	ND	50.00	ug/Kg	0%	*	30-120	10
Endrin ketone	125.4	ND	50.00	ug/Kg	251%	#,*	45-120	10
4,4'-DDT	118.9	ND	50.00	ug/Kg	238%	*	35-127	10
Methoxychlor	174.5	ND	50.00	ug/Kg		DO	42-136	10
Surrogates								
TCMX	46.12		50.00	ug/Kg		DO	23-120	10
Decachlorobiphenyl	0		50.00	ug/Kg		DO	24-120	10

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC942709**	**Batch:**	**273570**
Matrix (Source ID):	**Soil (450073-002)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC942709 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	52.45	ND	50.00	ug/Kg	105%		46-120	6	30	10
beta-BHC	53.95	ND	50.00	ug/Kg	108%		41-120	26	30	10
gamma-BHC	50.48	ND	50.00	ug/Kg	101%		41-120	5	30	10
delta-BHC	50.75	ND	50.00	ug/Kg	102%	#	38-123	8	30	10
Heptachlor	48.83	ND	50.00	ug/Kg	98%		39-120	5	30	10
Aldrin	95.56	ND	50.00	ug/Kg	191%	*	34-120	38*	30	10
Heptachlor epoxide	50.77	ND	50.00	ug/Kg	102%		43-120	11	30	10
Endosulfan I	42.24	ND	50.00	ug/Kg	84%		45-120	14	30	10
Dieldrin	43.60	ND	50.00	ug/Kg	87%		45-120	20	30	10
4,4'-DDE	37.61	ND	50.00	ug/Kg	75%		34-120	25	30	10
Endrin	46.93	ND	50.00	ug/Kg	94%		40-120	96*	30	10
Endosulfan II	30.72	ND	50.00	ug/Kg	61%		41-120	18	30	10
Endosulfan sulfate	68.22	ND	50.00	ug/Kg	136%	#,*	42-120	38*	30	10
4,4'-DDD	36.08	ND	50.00	ug/Kg	72%		41-120	6	30	10
Endrin aldehyde	10.84	ND	50.00	ug/Kg		DO	30-120		30	10
Endrin ketone	0	ND	50.00	ug/Kg	0%	#,*	45-120		30	10
4,4'-DDT	107.4	ND	50.00	ug/Kg	215%	*	35-127	10	30	10
Methoxychlor	22.25	ND	50.00	ug/Kg		DO	42-136		30	10
Surrogates										
TCMX	47.86		50.00	ug/Kg		DO	23-120			10
Decachlorobiphenyl	40.54		50.00	ug/Kg		DO	24-120			10

CCV drift outside limits; average CCV drift within limits per method requirements
* Value is outside QC limits
DO Diluted Out
ND Not Detected
NM Not Meaningful

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

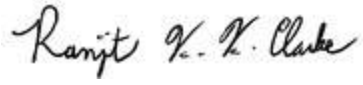
Lab Job Number: 450281
Report Level: II
Report Date: 09/15/2021

Analytical Report *prepared for:*

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA

Authorized for release by:



Ranjit K Clarke, Project Manager
(714) 771-9906
Ranjit.Clarke@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105, CDC ELITE Member

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones Roux Associates, Inc. 5150 E. Pacific Coast Hwy. Suite 450 Long Beach, CA 90804	Lab Job #: Location: Date Received:	450281 Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA 09/09/21

Sample ID	Lab ID	Collected	Matrix
SV-1-5	450281-001	09/07/21 11:08	Soil
SV-1-10	450281-002	09/07/21 12:52	Soil
SV-1-15	450281-003	09/07/21 12:56	Soil
SV-1-20	450281-004	09/07/21 13:07	Soil
SV-2-5	450281-005	09/07/21 12:38	Soil
SV-2-10	450281-006	09/07/21 13:55	Soil
SV-2-15	450281-007	09/07/21 14:02	Soil
SV-2-20	450281-008	09/07/21 14:09	Soil
SV-3-5	450281-009	09/07/21 11:00	Soil
SV-4-5	450281-010	09/07/21 11:19	Soil
SV-5-0.5	450281-011	09/07/21 11:47	Soil
SV-5-5	450281-012	09/07/21 11:58	Soil

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 450281

Page: 1 of 2

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux Associates, Inc.	Name:	Shea San Jacinto
Report To:	Rocio Quinones / Drew Williams	Number:	2217.0025L
Email:	rquinones@rouxinc.com / dwilliams@rouxinc.co	P.O. #:	ROUØ82Ø21A
Address:	5150 Pacific Coast Hwy, Suite 450	Address:	870 N. Sanderson Avenue
	Long Beach, CA 90804		San Jacinto, CA
Phone:	310-879-4900	Global ID:	
Fax:	' ----	Sampled By:	

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	TPH-cc by 8015B	VOCs by 8260B	Metals by 6010B / 7471	Test Instructions / Comments
1	SV-1-5	9/7/21	1108	Soil	6	Yes	X	X	X	
2	SV-1-10	"	1252	"	"	"	X	X	X	
3	SV-1-15	"	1256	"	"	"	X	X	X	
4	SV-1-20	"	1307	"	"	"	X	X	X	
5	SV-2-5	"	1238	"	"	"	X	X	X	
6	SV-2-10	"	1355	"	"	"	X	X	X	
7	SV-2-15	"	1402	"	"	"	X	X	X	
8	SV-2-20	"	1409	"	"	"	X	X	X	
9	SV-3-5	"	1100	"	"	"	X	X	X	
10	SV-4-5	"	1119	"	"	"	X	X	X	

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:		Drew Williams	Roux / Proj. Geo	9/9/21 @ 1023
[1] Received By:		DON Sampson	EA	9/9/21 1027
[2] Relinquished By:		Don Sampson	EA	9/9/21 1650
[2] Received By:		Elizabeth Kramer	EA	9/9/21 16:50
[3] Relinquished By:				

0.9|5.8

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 450281

Page: 2 of 2

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange
931 W. Barkley Avenue, Orange, CA 92868
Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux Associates, Inc.	Name:	Shea San Jacinto
Report To:	Rocio Quinones / Drew Williams	Number:	2217.0025L
Email:	rquinones@rouxinc.com / dwilliams@rouxinc.co	P.O. #:	ROU0820210A
Address:	5150 Pacific Coast Hwy, Suite 450	Address:	870 N. Sanderson Avenue
	Long Beach, CA 90804		San Jacinto, CA
Phone:	310-879-4900	Global ID:	
Fax:	' ---	Sampled By:	Drew Williams

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	TPH-cc by 8015B	VOCs by 8260B	Metals by 6010B / 7471	OCPs by 8081A						Test Instructions / Comments
1	SV-5-0.5	9/7/21	1147	Soil	6	Yes			X	X						
2	SV-5-5	9/7/21	1158	Soil	6	Yes	X	X								
3																
4																
5																
6																
7																
8																
9																
10																

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Drew Williams	Drew Williams	Roux / Proj. Geo.	9/9/21 @ 1023
1 Received By:	Don Sampson	Don Sampson	ea	9/9/21 1023
2 Relinquished By:	Don Sampson	Don Sampson	ea	9/9/21 1650
2 Received By:	Elizabeth Beam	Elizabeth Beam	EA	9/9/21 16:50
3 Relinquished By:				

0.9/5.8

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Roux Associates, Inc. Project: Shea San Jacinto

Date Received: 9/9/21 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 5.8 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0.9 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✔		
Are sample IDs present?	✔		
Are sampling dates & times present?	✔		
Is a relinquished signature present?	✔		
Are the tests required clearly indicated on the COC?	✔		
Are custody seals present?		✔	
If custody seals are present, were they intact?			✔
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✔		
Did all samples arrive intact? If no, indicate in Section 4 below.	✔		
Did all bottle labels agree with COC? (ID, dates and times)	✔		
Were the samples collected in the correct containers for the required tests?	✔		
Are the containers labeled with the correct preservatives?	✔		
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✔
Was a sufficient amount of sample submitted for the requested tests?	✔		

Section 5 Explanations/Comments

Sample " SV-1-10" (Sample 2) received with possible ice water contamination.

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☑ Email (email sent to/on): RKC /9/9/21

Project Manager's response:

Completed By: _____ Date: 9/9/21

ENTHALPY ANALYTICAL

Analysis Results for 450281

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 450281
Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA
Date Received: 09/09/21

Sample ID: SV-1-5 **Lab ID: 450281-001** **Collected: 09/07/21 11:08**
Matrix: Soil

450281-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.3	1.1	273708	09/10/21	09/10/21	SBW
Arsenic	ND		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Barium	**140**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Beryllium	ND		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Cadmium	ND		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Chromium	**7.4**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Cobalt	**4.1**		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Copper	**8.1**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Lead	**3.6**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Molybdenum	ND		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Nickel	**4.2**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Selenium	ND		mg/Kg	3.3	1.1	273708	09/10/21	09/10/21	SBW
Silver	ND		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Thallium	ND		mg/Kg	3.3	1.1	273708	09/10/21	09/10/21	SBW
Vanadium	**23**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Zinc	**56**		mg/Kg	5.4	1.1	273708	09/10/21	09/10/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.2	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	77%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Trichlorofluoromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,2,3-Trichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
tert-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	101%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	110%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Toluene-d8	101%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	101%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-1-10	Lab ID: 450281-002	Collected: 09/07/21 12:52
	Matrix: Soil	

450281-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.6	0.87	273708	09/10/21	09/10/21	SBW
Arsenic	ND		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Barium	**180**		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Beryllium	ND		mg/Kg	0.43	0.87	273708	09/10/21	09/10/21	SBW
Cadmium	ND		mg/Kg	0.43	0.87	273708	09/10/21	09/10/21	SBW
Chromium	**6.9**		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Cobalt	**4.3**		mg/Kg	0.43	0.87	273708	09/10/21	09/10/21	SBW
Copper	**5.3**		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Lead	**3.4**		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Molybdenum	ND		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Nickel	**3.2**		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Selenium	ND		mg/Kg	2.6	0.87	273708	09/10/21	09/10/21	SBW
Silver	ND		mg/Kg	0.43	0.87	273708	09/10/21	09/10/21	SBW
Thallium	ND		mg/Kg	2.6	0.87	273708	09/10/21	09/10/21	SBW
Vanadium	**24**		mg/Kg	0.87	0.87	273708	09/10/21	09/10/21	SBW
Zinc	**44**		mg/Kg	4.3	0.87	273708	09/10/21	09/10/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.2	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	78%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	**6.1**		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	105%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	110%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Toluene-d8	97%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	99%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

Sample ID: SV-1-15	Lab ID: 450281-003	Collected: 09/07/21 12:56
	Matrix: Soil	

450281-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.3	1.1	273708	09/10/21	09/10/21	SBW
Arsenic	**1.1**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Barium	**130**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Beryllium	ND		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Cadmium	ND		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Chromium	**8.6**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Cobalt	**4.1**		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Copper	**6.3**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Lead	**2.7**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Molybdenum	ND		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Nickel	**4.4**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Selenium	ND		mg/Kg	3.3	1.1	273708	09/10/21	09/10/21	SBW
Silver	ND		mg/Kg	0.54	1.1	273708	09/10/21	09/10/21	SBW
Thallium	ND		mg/Kg	3.3	1.1	273708	09/10/21	09/10/21	SBW
Vanadium	**25**		mg/Kg	1.1	1.1	273708	09/10/21	09/10/21	SBW
Zinc	**44**		mg/Kg	5.4	1.1	273708	09/10/21	09/10/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	89%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	9.1	0.91	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	91	0.91	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	91	0.91	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	9.1	0.91	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	4.5	0.91	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	107%		%REC	70-145	0.91	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	112%		%REC	70-145	0.91	273755	09/12/21	09/12/21	LYZ
Toluene-d8	99%		%REC	70-145	0.91	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	99%		%REC	70-145	0.91	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-1-20	Lab ID: 450281-004	Collected: 09/07/21 13:07
	Matrix: Soil	

450281-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.8	0.94	273708	09/10/21	09/10/21	SBW
Arsenic	ND		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Barium	**350**		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Beryllium	ND		mg/Kg	0.47	0.94	273708	09/10/21	09/10/21	SBW
Cadmium	ND		mg/Kg	0.47	0.94	273708	09/10/21	09/10/21	SBW
Chromium	**9.8**		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Cobalt	**5.5**		mg/Kg	0.47	0.94	273708	09/10/21	09/10/21	SBW
Copper	**5.5**		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Lead	**2.2**		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Molybdenum	ND		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Nickel	**5.2**		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Selenium	ND		mg/Kg	2.8	0.94	273708	09/10/21	09/10/21	SBW
Silver	ND		mg/Kg	0.47	0.94	273708	09/10/21	09/10/21	SBW
Thallium	ND		mg/Kg	2.8	0.94	273708	09/10/21	09/10/21	SBW
Vanadium	**29**		mg/Kg	0.94	0.94	273708	09/10/21	09/10/21	SBW
Zinc	**49**		mg/Kg	4.7	0.94	273708	09/10/21	09/10/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	80%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	**13**		ug/Kg	8.6	0.86	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	86	0.86	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	86	0.86	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	8.6	0.86	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	4.3	0.86	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	100%		%REC	70-145	0.86	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	109%		%REC	70-145	0.86	273755	09/12/21	09/12/21	LYZ
Toluene-d8	103%		%REC	70-145	0.86	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	100%		%REC	70-145	0.86	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

Sample ID: SV-2-5	Lab ID: 450281-005	Collected: 09/07/21 12:38
	Matrix: Soil	

450281-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.8	0.93	273708	09/10/21	09/11/21	SBW
Arsenic	**1.2**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Barium	**220**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Beryllium	**0.53**		mg/Kg	0.46	0.93	273708	09/10/21	09/11/21	SBW
Cadmium	ND		mg/Kg	0.46	0.93	273708	09/10/21	09/11/21	SBW
Chromium	**11**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Cobalt	**6.2**		mg/Kg	0.46	0.93	273708	09/10/21	09/11/21	SBW
Copper	**7.0**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Lead	**3.2**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Molybdenum	ND		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Nickel	**5.5**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Selenium	ND		mg/Kg	2.8	0.93	273708	09/10/21	09/11/21	SBW
Silver	ND		mg/Kg	0.46	0.93	273708	09/10/21	09/11/21	SBW
Thallium	ND		mg/Kg	2.8	0.93	273708	09/10/21	09/11/21	SBW
Vanadium	**33**		mg/Kg	0.93	0.93	273708	09/10/21	09/11/21	SBW
Zinc	**64**		mg/Kg	4.6	0.93	273708	09/10/21	09/11/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.14	1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	88%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	5.1	1	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	102%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	110%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Toluene-d8	102%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	100%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-2-10	Lab ID: 450281-006	Collected: 09/07/21 13:55
	Matrix: Soil	

450281-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.1	1	273708	09/10/21	09/11/21	SBW
Arsenic	ND		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Barium	**230**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Beryllium	**0.57**		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Cadmium	ND		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Chromium	**11**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Cobalt	**6.8**		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Copper	**8.0**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Lead	**3.8**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Molybdenum	ND		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Nickel	**5.8**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Selenium	ND		mg/Kg	3.1	1	273708	09/10/21	09/11/21	SBW
Silver	ND		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Thallium	ND		mg/Kg	3.1	1	273708	09/10/21	09/11/21	SBW
Vanadium	**38**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Zinc	**74**		mg/Kg	5.1	1	273708	09/10/21	09/11/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	74%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	5.0	1	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	104%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	117%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Toluene-d8	98%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	97%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-2-15	Lab ID: 450281-007	Collected: 09/07/21 14:02
	Matrix: Soil	

450281-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.1	1	273708	09/10/21	09/11/21	SBW
Arsenic	ND		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Barium	**160**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Beryllium	ND		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Cadmium	ND		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Chromium	**7.8**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Cobalt	**4.2**		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Copper	**5.2**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Lead	**2.2**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Molybdenum	ND		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Nickel	**4.0**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Selenium	ND		mg/Kg	3.1	1	273708	09/10/21	09/11/21	SBW
Silver	ND		mg/Kg	0.51	1	273708	09/10/21	09/11/21	SBW
Thallium	ND		mg/Kg	3.1	1	273708	09/10/21	09/11/21	SBW
Vanadium	**19**		mg/Kg	1.0	1	273708	09/10/21	09/11/21	SBW
Zinc	**39**		mg/Kg	5.1	1	273708	09/10/21	09/11/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	73%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	9.6	0.96	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	96	0.96	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	96	0.96	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	9.6	0.96	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	4.8	0.96	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	102%		%REC	70-145	0.96	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	113%		%REC	70-145	0.96	273755	09/12/21	09/12/21	LYZ
Toluene-d8	99%		%REC	70-145	0.96	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	101%		%REC	70-145	0.96	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

Sample ID: SV-2-20	Lab ID: 450281-008	Collected: 09/07/21 14:09
	Matrix: Soil	

450281-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.9	0.98	273708	09/10/21	09/11/21	SBW
Arsenic	**1.4**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Barium	**200**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Beryllium	ND		mg/Kg	0.49	0.98	273708	09/10/21	09/11/21	SBW
Cadmium	ND		mg/Kg	0.49	0.98	273708	09/10/21	09/11/21	SBW
Chromium	**7.7**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Cobalt	**4.3**		mg/Kg	0.49	0.98	273708	09/10/21	09/11/21	SBW
Copper	**5.9**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Lead	**2.4**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Molybdenum	ND		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Nickel	**4.4**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Selenium	ND		mg/Kg	2.9	0.98	273708	09/10/21	09/11/21	SBW
Silver	ND		mg/Kg	0.49	0.98	273708	09/10/21	09/11/21	SBW
Thallium	ND		mg/Kg	2.9	0.98	273708	09/10/21	09/11/21	SBW
Vanadium	**23**		mg/Kg	0.98	0.98	273708	09/10/21	09/11/21	SBW
Zinc	**44**		mg/Kg	4.9	0.98	273708	09/10/21	09/11/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	75%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	**23**		ug/Kg	15	1.5	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	150	1.5	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	150	1.5	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	15	1.5	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	7.6	1.5	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	97%		%REC	70-145	1.5	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	107%		%REC	70-145	1.5	273755	09/12/21	09/12/21	LYZ
Toluene-d8	102%		%REC	70-145	1.5	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	101%		%REC	70-145	1.5	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-3-5	Lab ID: 450281-009	Collected: 09/07/21 11:00
	Matrix: Soil	

450281-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.8	0.92	273708	09/10/21	09/11/21	SBW
Arsenic	**1.5**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Barium	**190**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Beryllium	ND		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Cadmium	ND		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Chromium	**7.9**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Cobalt	**5.1**		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Copper	**4.8**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Lead	**2.5**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Molybdenum	**1.1**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Nickel	**4.5**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Selenium	ND		mg/Kg	2.8	0.92	273708	09/10/21	09/11/21	SBW
Silver	ND		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Thallium	ND		mg/Kg	2.8	0.92	273708	09/10/21	09/11/21	SBW
Vanadium	**28**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Zinc	**53**		mg/Kg	4.6	0.92	273708	09/10/21	09/11/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.14	1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	79%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	**6.9**		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	100%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	108%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Toluene-d8	99%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	99%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-4-5	Lab ID: 450281-010	Collected: 09/07/21 11:19
	Matrix: Soil	

450281-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.8	0.92	273708	09/10/21	09/11/21	SBW
Arsenic	**2.0**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Barium	**150**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Beryllium	ND		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Cadmium	ND		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Chromium	**7.7**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Cobalt	**5.1**		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Copper	**5.8**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Lead	**2.5**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Molybdenum	ND		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Nickel	**4.2**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Selenium	ND		mg/Kg	2.8	0.92	273708	09/10/21	09/11/21	SBW
Silver	ND		mg/Kg	0.46	0.92	273708	09/10/21	09/11/21	SBW
Thallium	ND		mg/Kg	2.8	0.92	273708	09/10/21	09/11/21	SBW
Vanadium	**33**		mg/Kg	0.92	0.92	273708	09/10/21	09/11/21	SBW
Zinc	**54**		mg/Kg	4.6	0.92	273708	09/10/21	09/11/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	77%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	**5.8**		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	100	1	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	10	1	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	5.2	1	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	99%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	108%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Toluene-d8	101%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	101%		%REC	70-145	1	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

Sample ID: SV-5-0.5	Lab ID: 450281-011	Collected: 09/07/21 11:47
	Matrix: Soil	

450281-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.1	1	273708	09/10/21	09/13/21	SBW
Arsenic	ND		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Barium	**280**		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Beryllium	**0.73**		mg/Kg	0.52	1	273708	09/10/21	09/13/21	SBW
Cadmium	ND		mg/Kg	0.52	1	273708	09/10/21	09/13/21	SBW
Chromium	**12**		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Cobalt	**8.0**		mg/Kg	0.52	1	273708	09/10/21	09/13/21	SBW
Copper	**8.2**		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Lead	**4.4**		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Molybdenum	ND		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Nickel	**6.5**		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Selenium	ND		mg/Kg	3.1	1	273708	09/10/21	09/13/21	SBW
Silver	ND		mg/Kg	0.52	1	273708	09/10/21	09/13/21	SBW
Thallium	ND		mg/Kg	3.1	1	273708	09/10/21	09/13/21	SBW
Vanadium	**48**		mg/Kg	1.0	1	273708	09/10/21	09/13/21	SBW
Zinc	**94**		mg/Kg	5.2	1	273708	09/10/21	09/13/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	82%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	13	1.3	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	130	1.3	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	**8.1**		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	130	1.3	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	13	1.3	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450281

450281-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	6.3	1.3	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	103%		%REC	70-145	1.3	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	112%		%REC	70-145	1.3	273755	09/12/21	09/12/21	LYZ
Toluene-d8	98%		%REC	70-145	1.3	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	102%		%REC	70-145	1.3	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

Sample ID: SV-5-5	Lab ID: 450281-012	Collected: 09/07/21 11:58
	Matrix: Soil	

450281-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.9	0.97	273708	09/10/21	09/13/21	SBW
Arsenic	**3.9**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Barium	**330**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Beryllium	**0.75**		mg/Kg	0.49	0.97	273708	09/10/21	09/13/21	SBW
Cadmium	ND		mg/Kg	0.49	0.97	273708	09/10/21	09/13/21	SBW
Chromium	**13**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Cobalt	**9.0**		mg/Kg	0.49	0.97	273708	09/10/21	09/13/21	SBW
Copper	**9.0**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Lead	**5.2**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Molybdenum	ND		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Nickel	**7.1**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Selenium	ND		mg/Kg	2.9	0.97	273708	09/10/21	09/13/21	SBW
Silver	ND		mg/Kg	0.49	0.97	273708	09/10/21	09/13/21	SBW
Thallium	ND		mg/Kg	2.9	0.97	273708	09/10/21	09/13/21	SBW
Vanadium	**54**		mg/Kg	0.97	0.97	273708	09/10/21	09/13/21	SBW
Zinc	**99**		mg/Kg	4.9	0.97	273708	09/10/21	09/13/21	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	273783	09/10/21	09/13/21	TNN
Method: EPA 8015B Prep Method: EPA 3580									
TPH (C6-C12)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C13-C22)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
TPH (C23-C44)	ND		mg/Kg	10	1	273786	09/13/21	09/13/21	MES
Surrogates				**Limits**					
n-Triacontane	88%		%REC	70-130	1	273786	09/13/21	09/13/21	MES
Method: EPA 8260B Prep Method: EPA 5035									
3-Chloropropene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
cis-1,4-Dichloro-2-butene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
trans-1,4-Dichloro-2-butene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Isopropyl Ether (DIPE)	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
tert-Butyl Alcohol (TBA)	ND		ug/Kg	12	1.2	273755	09/12/21	09/12/21	LYZ
Freon 12	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Chloromethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Vinyl Chloride	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Bromomethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Chloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Trichlorofluoromethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Acetone	ND		ug/Kg	120	1.2	273755	09/12/21	09/12/21	LYZ
Freon 113	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Methylene Chloride	**8.1**		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
MTBE	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
trans-1,2-Dichloroethene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1-Dichloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
2-Butanone	ND		ug/Kg	120	1.2	273755	09/12/21	09/12/21	LYZ
cis-1,2-Dichloroethene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
2,2-Dichloropropane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Chloroform	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Bromochloromethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1,1-Trichloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1-Dichloropropene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Carbon Tetrachloride	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Benzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Trichloroethene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2-Dichloropropane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Bromodichloromethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Dibromomethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
4-Methyl-2-Pentanone	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
cis-1,3-Dichloropropene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Toluene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
trans-1,3-Dichloropropene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1,2-Trichloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,3-Dichloropropane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Tetrachloroethene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Dibromochloromethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2-Dibromoethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Chlorobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1,1,2-Tetrachloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Ethylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
m,p-Xylenes	ND		ug/Kg	12	1.2	273755	09/12/21	09/12/21	LYZ
o-Xylene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Styrene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Bromoform	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Isopropylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,1,2,2-Tetrachloroethane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichloropropane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Propylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Bromobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,3,5-Trimethylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
2-Chlorotoluene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
4-Chlorotoluene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450281

450281-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
tert-Butylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2,4-Trimethylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
sec-Butylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
para-Isopropyl Toluene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,3-Dichlorobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,4-Dichlorobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
n-Butylbenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2-Dichlorobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2,4-Trichlorobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Hexachlorobutadiene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Naphthalene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
1,2,3-Trichlorobenzene	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Xylene (total)	ND		ug/Kg	6.0	1.2	273755	09/12/21	09/12/21	LYZ
Surrogates				**Limits**					
Dibromofluoromethane	98%		%REC	70-145	1.2	273755	09/12/21	09/12/21	LYZ
1,2-Dichloroethane-d4	103%		%REC	70-145	1.2	273755	09/12/21	09/12/21	LYZ
Toluene-d8	102%		%REC	70-145	1.2	273755	09/12/21	09/12/21	LYZ
Bromofluorobenzene	101%		%REC	70-145	1.2	273755	09/12/21	09/12/21	LYZ

ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC943135**	**Batch: 273708**
Matrix: Soil	**Method: EPA 6010B**	**Prep Method: EPA 3050B**

QC943135 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Antimony	ND		mg/Kg	3.0	09/10/21	09/10/21
Arsenic	ND		mg/Kg	1.0	09/10/21	09/10/21
Barium	1.8		mg/Kg	1.0	09/10/21	09/10/21
Beryllium	ND		mg/Kg	0.50	09/10/21	09/10/21
Cadmium	ND		mg/Kg	0.50	09/10/21	09/10/21
Chromium	ND		mg/Kg	1.0	09/10/21	09/10/21
Cobalt	ND		mg/Kg	0.50	09/10/21	09/10/21
Copper	ND		mg/Kg	1.0	09/10/21	09/10/21
Lead	ND		mg/Kg	1.0	09/10/21	09/10/21
Molybdenum	ND		mg/Kg	1.0	09/10/21	09/10/21
Nickel	ND		mg/Kg	1.0	09/10/21	09/10/21
Selenium	ND		mg/Kg	3.0	09/10/21	09/10/21
Silver	ND		mg/Kg	0.50	09/10/21	09/10/21
Thallium	ND		mg/Kg	3.0	09/10/21	09/10/21
Vanadium	ND		mg/Kg	1.0	09/10/21	09/10/21
Zinc	ND		mg/Kg	5.0	09/10/21	09/10/21

Type: Lab Control Sample	**Lab ID: QC943136**	**Batch: 273708**
Matrix: Soil	**Method: EPA 6010B**	**Prep Method: EPA 3050B**

QC943136 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Antimony	102.7	100.0	mg/Kg	103%		80-120
Arsenic	95.89	100.0	mg/Kg	96%		80-120
Barium	101.0	100.0	mg/Kg	101%		80-120
Beryllium	98.19	100.0	mg/Kg	98%		80-120
Cadmium	96.25	100.0	mg/Kg	96%		80-120
Chromium	95.55	100.0	mg/Kg	96%		80-120
Cobalt	100.5	100.0	mg/Kg	100%		80-120
Copper	94.98	100.0	mg/Kg	95%		80-120
Lead	98.74	100.0	mg/Kg	99%		80-120
Molybdenum	100.3	100.0	mg/Kg	100%		80-120
Nickel	99.95	100.0	mg/Kg	100%		80-120
Selenium	84.65	100.0	mg/Kg	85%		80-120
Silver	45.62	50.00	mg/Kg	91%		80-120
Thallium	102.8	100.0	mg/Kg	103%		80-120
Vanadium	99.03	100.0	mg/Kg	99%		80-120
Zinc	100.8	100.0	mg/Kg	101%		80-120

ENTHALPY ANALYTICAL

Batch QC

Type:	Matrix Spike	Lab ID:	QC943137	Batch:	273708
Matrix (Source ID):	Soil (450084-001)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC943137 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	31.80	1.883	102.0	mg/Kg	29%	*	75-125	1
Arsenic	105.1	1.841	102.0	mg/Kg	101%		75-125	1
Barium	250.6	145.5	102.0	mg/Kg	103%		75-125	1
Beryllium	100.5	0.6850	102.0	mg/Kg	98%		75-125	1
Cadmium	102.1	ND	102.0	mg/Kg	100%		75-125	1
Chromium	126.1	25.71	102.0	mg/Kg	98%		75-125	1
Cobalt	112.3	12.30	102.0	mg/Kg	98%		75-125	1
Copper	123.5	21.21	102.0	mg/Kg	100%		75-125	1
Lead	104.9	7.403	102.0	mg/Kg	96%		75-125	1
Molybdenum	100.6	ND	102.0	mg/Kg	99%		75-125	1
Nickel	115.6	17.03	102.0	mg/Kg	97%		75-125	1
Selenium	90.30	ND	102.0	mg/Kg	88%		75-125	1
Silver	47.89	ND	51.02	mg/Kg	94%		75-125	1
Thallium	97.12	ND	102.0	mg/Kg	95%		75-125	1
Vanadium	167.8	60.23	102.0	mg/Kg	105%		75-125	1
Zinc	175.2	84.28	102.0	mg/Kg	89%		75-125	1

Type:	Matrix Spike Duplicate	Lab ID:	QC943138	Batch:	273708
Matrix (Source ID):	Soil (450084-001)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC943138 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Antimony	26.44	1.883	94.34	mg/Kg	26%	*	75-125	11	41	0.94
Arsenic	96.81	1.841	94.34	mg/Kg	101%		75-125	1	35	0.94
Barium	241.5	145.5	94.34	mg/Kg	102%		75-125	1	20	0.94
Beryllium	93.61	0.6850	94.34	mg/Kg	98%		75-125	1	20	0.94
Cadmium	93.73	ND	94.34	mg/Kg	99%		75-125	1	20	0.94
Chromium	117.5	25.71	94.34	mg/Kg	97%		75-125	1	20	0.94
Cobalt	103.7	12.30	94.34	mg/Kg	97%		75-125	1	20	0.94
Copper	115.2	21.21	94.34	mg/Kg	100%		75-125	1	20	0.94
Lead	96.48	7.403	94.34	mg/Kg	94%		75-125	1	20	0.94
Molybdenum	92.44	ND	94.34	mg/Kg	98%		75-125	1	20	0.94
Nickel	107.2	17.03	94.34	mg/Kg	96%		75-125	1	20	0.94
Selenium	82.98	ND	94.34	mg/Kg	88%		75-125	1	20	0.94
Silver	43.76	ND	47.17	mg/Kg	93%		75-125	1	20	0.94
Thallium	89.58	ND	94.34	mg/Kg	95%		75-125	0	20	0.94
Vanadium	159.1	60.23	94.34	mg/Kg	105%		75-125	0	20	0.94
Zinc	167.8	84.28	94.34	mg/Kg	89%		75-125	0	20	0.94

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID:** QC943236	**Batch:** 273755
Matrix: Soil	**Method:** EPA 8260B	**Prep Method:** EPA 5035

QC943236 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
3-Chloropropene	ND		ug/Kg	5.0	09/12/21	09/12/21
cis-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	09/12/21	09/12/21
trans-1,4-Dichloro-2-butene	ND		ug/Kg	5.0	09/12/21	09/12/21
Isopropyl Ether (DIPE)	ND		ug/Kg	5.0	09/12/21	09/12/21
Ethyl tert-Butyl Ether (ETBE)	ND		ug/Kg	5.0	09/12/21	09/12/21
Methyl tert-Amyl Ether (TAME)	ND		ug/Kg	5.0	09/12/21	09/12/21
tert-Butyl Alcohol (TBA)	ND		ug/Kg	10	09/12/21	09/12/21
Freon 12	ND		ug/Kg	5.0	09/12/21	09/12/21
Chloromethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Vinyl Chloride	ND		ug/Kg	5.0	09/12/21	09/12/21
Bromomethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Chloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Trichlorofluoromethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Acetone	ND		ug/Kg	100	09/12/21	09/12/21
Freon 113	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1-Dichloroethene	ND		ug/Kg	5.0	09/12/21	09/12/21
Methylene Chloride	ND		ug/Kg	5.0	09/12/21	09/12/21
MTBE	ND		ug/Kg	5.0	09/12/21	09/12/21
trans-1,2-Dichloroethene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1-Dichloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
2-Butanone	ND		ug/Kg	100	09/12/21	09/12/21
cis-1,2-Dichloroethene	ND		ug/Kg	5.0	09/12/21	09/12/21
2,2-Dichloropropane	ND		ug/Kg	5.0	09/12/21	09/12/21
Chloroform	ND		ug/Kg	5.0	09/12/21	09/12/21
Bromochloromethane	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1,1-Trichloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1-Dichloropropene	ND		ug/Kg	5.0	09/12/21	09/12/21
Carbon Tetrachloride	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2-Dichloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Benzene	ND		ug/Kg	5.0	09/12/21	09/12/21
Trichloroethene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2-Dichloropropane	ND		ug/Kg	5.0	09/12/21	09/12/21
Bromodichloromethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Dibromomethane	ND		ug/Kg	5.0	09/12/21	09/12/21
4-Methyl-2-Pentanone	ND		ug/Kg	5.0	09/12/21	09/12/21
cis-1,3-Dichloropropene	ND		ug/Kg	5.0	09/12/21	09/12/21
Toluene	ND		ug/Kg	5.0	09/12/21	09/12/21
trans-1,3-Dichloropropene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1,2-Trichloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
1,3-Dichloropropane	ND		ug/Kg	5.0	09/12/21	09/12/21
Tetrachloroethene	ND		ug/Kg	5.0	09/12/21	09/12/21
Dibromochloromethane	ND		ug/Kg	5.0	09/12/21	09/12/21

ENTHALPY ANALYTICAL

Batch QC

QC943236 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
1,2-Dibromoethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Chlorobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1,1,2-Tetrachloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
Ethylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
m,p-Xylenes	ND		ug/Kg	10	09/12/21	09/12/21
o-Xylene	ND		ug/Kg	5.0	09/12/21	09/12/21
Styrene	ND		ug/Kg	5.0	09/12/21	09/12/21
Bromoform	ND		ug/Kg	5.0	09/12/21	09/12/21
Isopropylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,1,2,2-Tetrachloroethane	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2,3-Trichloropropane	ND		ug/Kg	5.0	09/12/21	09/12/21
Propylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
Bromobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,3,5-Trimethylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
2-Chlorotoluene	ND		ug/Kg	5.0	09/12/21	09/12/21
4-Chlorotoluene	ND		ug/Kg	5.0	09/12/21	09/12/21
tert-Butylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2,4-Trimethylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
sec-Butylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
para-Isopropyl Toluene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,3-Dichlorobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,4-Dichlorobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
n-Butylbenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2-Dichlorobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2-Dibromo-3-Chloropropane	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2,4-Trichlorobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
Hexachlorobutadiene	ND		ug/Kg	5.0	09/12/21	09/12/21
Naphthalene	ND		ug/Kg	5.0	09/12/21	09/12/21
1,2,3-Trichlorobenzene	ND		ug/Kg	5.0	09/12/21	09/12/21
Xylene (total)	ND		ug/Kg	5.0	09/12/21	09/12/21
Surrogates				**Limits**		
Dibromofluoromethane	101%		%REC	70-130	09/12/21	09/12/21
1,2-Dichloroethane-d4	104%		%REC	70-145	09/12/21	09/12/21
Toluene-d8	100%		%REC	70-145	09/12/21	09/12/21
Bromofluorobenzene	97%		%REC	70-145	09/12/21	09/12/21

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	Lab ID: QC943237	Batch: 273755
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5035

QC943237 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
1,1-Dichloroethene	52.63	50.00	ug/Kg	105%		70-131
MTBE	49.61	50.00	ug/Kg	99%		69-130
Benzene	47.02	50.00	ug/Kg	94%		70-130
Trichloroethene	49.48	50.00	ug/Kg	99%		70-130
Toluene	48.19	50.00	ug/Kg	96%		70-130
Chlorobenzene	48.04	50.00	ug/Kg	96%		70-130
Surrogates						
Dibromofluoromethane	52.35	50.00	ug/Kg	105%		70-130
1,2-Dichloroethane-d4	51.79	50.00	ug/Kg	104%		70-145
Toluene-d8	49.69	50.00	ug/Kg	99%		70-145
Bromofluorobenzene	52.08	50.00	ug/Kg	104%		70-145

Type: Lab Control Sample Duplicate	Lab ID: QC943238	Batch: 273755
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5035

QC943238 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
1,1-Dichloroethene	52.28	50.00	ug/Kg	105%		70-131	1	33
MTBE	49.82	50.00	ug/Kg	100%		69-130	0	30
Benzene	47.02	50.00	ug/Kg	94%		70-130	0	30
Trichloroethene	49.84	50.00	ug/Kg	100%		70-130	1	30
Toluene	49.01	50.00	ug/Kg	98%		70-130	2	30
Chlorobenzene	48.42	50.00	ug/Kg	97%		70-130	1	30
Surrogates								
Dibromofluoromethane	52.29	50.00	ug/Kg	105%		70-130		
1,2-Dichloroethane-d4	50.88	50.00	ug/Kg	102%		70-145		
Toluene-d8	50.47	50.00	ug/Kg	101%		70-145		
Bromofluorobenzene	51.26	50.00	ug/Kg	103%		70-145		

Type: Blank	Lab ID: QC943330	Batch: 273783
Matrix: Soil	Method: EPA 7471A	Prep Method: METHOD

QC943330 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Mercury	ND		mg/Kg	0.14	09/10/21	09/13/21

Type: Lab Control Sample	Lab ID: QC943331	Batch: 273783
Matrix: Soil	Method: EPA 7471A	Prep Method: METHOD

QC943331 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Mercury	0.7987	0.8333	mg/Kg	96%		80-120

ENTHALPY ANALYTICAL

Batch QC

Type: Matrix Spike	Lab ID: QC943332	Batch: 273783
Matrix (Source ID): Soil (450272-001)	Method: EPA 7471A	Prep Method: METHOD

QC943332 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Mercury	0.9425	0.07399	0.9259	mg/Kg	94%		75-125	1.1

Type: Matrix Spike Duplicate	Lab ID: QC943333	Batch: 273783
Matrix (Source ID): Soil (450272-001)	Method: EPA 7471A	Prep Method: METHOD

QC943333 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Mercury	0.9474	0.07399	0.9259	mg/Kg	94%		75-125	1	20	1.1

Type: Blank	Lab ID: QC943343	Batch: 273786
Matrix: Soil	Method: EPA 8015B	Prep Method: EPA 3580

QC943343 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
TPH (C6-C12)	ND		mg/Kg	10	09/13/21	09/13/21
TPH (C13-C22)	ND		mg/Kg	10	09/13/21	09/13/21
TPH (C23-C44)	ND		mg/Kg	10	09/13/21	09/13/21
Surrogates				Limits		
n-Triacontane	87%		%REC	70-130	09/13/21	09/13/21

Type: Lab Control Sample	Lab ID: QC943344	Batch: 273786
Matrix: Soil	Method: EPA 8015B	Prep Method: EPA 3580

QC943344 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Diesel C10-C28	220.6	250.0	mg/Kg	88%		76-122
Surrogates						
n-Triacontane	8.577	10.00	mg/Kg	86%		70-130

Type: Matrix Spike	Lab ID: QC943345	Batch: 273786
Matrix (Source ID): Soil (450281-005)	Method: EPA 8015B	Prep Method: EPA 3580

QC943345 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Diesel C10-C28	228.0	1.407	250.0	mg/Kg	91%		62-126	1
Surrogates								
n-Triacontane	8.725		10.00	mg/Kg	87%		70-130	1

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Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC943346**	**Batch:**	**273786**
Matrix (Source ID):	**Soil (450281-005)**	**Method:**	**EPA 8015B**	**Prep Method:**	**EPA 3580**

QC943346 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Diesel C10-C28	238.0	1.407	250.0	mg/Kg	95%		62-126	4	35	1
Surrogates										
n-Triacontane	9.071		10.00	mg/Kg	91%		70-130			1

* Value is outside QC limits

ND Not Detected

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

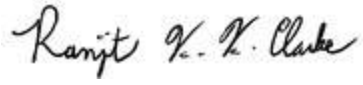
Lab Job Number:	450451
Report Level:	II
Report Date:	09/17/2021

Analytical Report *prepared for:*

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA

Authorized for release by:



Ranjit K Clarke, Project Manager
(714) 771-9906
Ranjit.Clarke@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105, CDC ELITE Member

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 450451
Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA
Date Received: 09/13/21

Sample ID	Lab ID	Collected	Matrix
SV-1-5	450451-001	09/10/21 11:34	Air
SV-1-15	450451-002	09/10/21 11:57	Air
SV-2-5	450451-003	09/10/21 12:10	Air
SV-2-15	450451-004	09/10/21 12:29	Air
SV-3-5	450451-005	09/10/21 13:05	Air
SV-4-5	450451-006	09/10/21 13:56	Air
SV-4-5-DUP	450451-007	09/10/21 14:06	Air
SV-5-5	450451-008	09/10/21 14:12	Air
SV-6-5	450451-009	09/10/21 15:55	Air
SV-7-5	450451-010	09/10/21 16:09	Air
SV-8-5	450451-011	09/10/21 16:48	Air
SV-9-5	450451-012	09/10/21 17:42	Air
SV-9-5-DUP	450451-013	09/10/21 17:53	Air
SV-10	450451-014	09/10/21 16:56	Air

Case Narrative

Roux Associates, Inc. 5150 E. Pacific Coast Hwy. Suite 450 Long Beach, CA 90804 Rocio Quinones	Lab Job Number:	450451
	Location:	Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA
	Date Received:	09/13/21

This data package contains sample and QC results for fourteen air samples, requested for the above referenced project on 09/13/21. The samples were received cold and intact.

Volatile Organics in Air by MS (EPA TO-15):

High responses were observed for benzyl chloride and 1,2,4-trichlorobenzene in the ICV analyzed 09/11/21 23:05; affected data was qualified with "b". No other analytical problems were encountered.

Volatile Organics in Air GC (EPA TO-3M):

No analytical problems were encountered.

ENTHALPY ANALYTICAL

Air Chain of Custody Record

Lab No: 450451

Page: 1 of 2

Turn Around Time (rush by advanced notice only)

Standard: | 5 Day: | 3 Day:

2 Day: | 1 Day: | Custom TAT: 4 day

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Special Instructions:

1,1-DPA tracer used

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux Associates, Inc.	Name:	Shea San Jacinto
Report To:	Rocio Quinones / Drew Williams	Number:	2217.0025L
Email:	rquinones@rouxinc.com / dwilliams@rouxinc.com	P.O. #:	ROU 08201A
Address:	5150 Pacific Coast Hwy, Suite 450 Long Beach, C	Address:	870 N. Sanderson Avenue San Jacinto, CA
Phone:	310-879-4900	Global ID:	
Fax:	--	Sampled By:	Drew Williams

	Sample ID	Type: (I) Indoor (A) Ambient (SV) Soil Vapor (S) Source	Equipment Information: Canister ID	Size (1L, 3L, 6L, 15L)	Flow Controller ID	Sampling Information: Sample Start Date	Sample Start Time	Vacuum Start ("Hg)	Sample End Date	Sample End Time	Vacuum End ("Hg)	Analysis Requested: VOCs by TO-15	Methane by ASTM D-1945
1	SV-1-5	SV	C10084	1.4L	A10194	9/10/21	1126	-28.5	9/10/21	~~1134~~ 1134	-4	X	
2	SV-1-15	"	C10446	"	A10238	"	1148	-28	"	1157	-2	X	
3	SV-2-5	"	C10393	"	A10124	"	1202	-30	"	1210	-4	X	
4	SV-2-15	"	C10230	"	A10233	"	1221	-29	"	1229	-4	X	
5	SV-3-5	"	C10350	"	A10177	"	1257	-28.5	"	1305	-3	X	
6	SV-4-5	"	C10198	"	A10265	"	1349	-29	"	1358	-4	X	
7	SV-4-5-DUP	"	C10685	"	A10265	"	1357	-26	"	1406	-0.5	X	
8	SV-5-5	"	C10689	"	A10255	"	1403	-27	"	1412	-1	X	X
9	SV-6-5	"	C10409	"	A10011	"	1546	-24	"	1555	-0.5		X
10	SV-7-5	"	C10313	"	A10080	"	1601	-24	"	1609	-2		X

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:		Drew Williams	Roux / Proj. Geo	9/13/21 / 1250
1 Received By:		Henry G.	EA	9/13/21 / 1250
2 Relinquished By:		Henry G.	EA	9/17/21 1645
2 Received By:	Geena Sylvestri	Geena Sylvestri	E.A.	9/23/21 16:45
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Air Chain of Custody Record

Lab No: 450451

Page: 2 of 2

Turn Around Time (rush by advanced notice only)

Standard:		5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	4 day

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux Associates, Inc.	Name:	Shea San Jacinto
Report To:	Rocio Quinones / Drew Williams	Number:	2217.0025L
Email:	rquinones@rouxinc.com / dwilliams@rouxinc.com	P.O. #:	ROU08201A
Address:	5150 Pacific Coast Hwy, Suite 450 Long Beach, C	Address:	870 N. Sanderson Avenue San Jacinto, CA
Phone:	310-879-4900	Global ID:	
Fax:	--	Sampled By:	Drew Williams

Special Instructions:

1,1-DFA Tracer

* Reg #A10139 was pretty off

	Sample ID	Type (I) Indoor (A) Ambient (SV) Soil Vapor (S) Source	Equipment Information: Canister ID	Size (1L, 3L, 6L, 15L)	Flow Controller ID	Sampling Information: Sample Start Date	Sample Start Time	Vacuum Start ("Hg)	Sample End Date	Sample End Time	Vacuum End ("Hg)	Analysis Requested: VOCs by TO-15	Methane by ASTM D-1945
1	SV-8-9	SV	C10456	1.4L	A10195	9/10/21	1637	-28	9/10/21	1648	-1		X
2	SV-9-5	"	C10366	"	A10165	"	1733	-29	"	1742	-4		X
3	SV-9-5-DUP	"	C10648	"	A10165	"	1742	-29	"	1753	-3		X
4	SV-10	"	C10308	"	A10139	"	1645	-3.6*	"	1656	-10*		X
5													
6													
7													
8													
9													
10													

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:		Drew Williams	Roux / Proj. Geo	9/13/21 / 1250
[1] Received By:		Heena G	EA	9/15/21 1250
[2] Relinquished By:		Heena G	EA	9/17/21 1645
[2] Received By:	Geena Sylvestri	Geena Sylvestri	E.A.	9/13/21 16:45
[3] Relinquished By:				
[3] Received By:				

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Roux Associates Project: Shea San Jacinto

Date Received: 9/13/21 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☐ Yes, How many? _____ ☑ No (skip section 2) Sample Temp (°C) (No Cooler): 22.5

Sample Temp (°C), One from each cooler: #1: _____ #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☐ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: _____ #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

canisters ambient.

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: Yeena Soghoyan Date: 9/13/21

ENTHALPY ANALYTICAL

Analysis Results for 450451

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 450451
Location: Shea San Jacinto - 870 N. Sanderson Ave., San Jacinto, CA
Date Received: 09/13/21

Sample ID: SV-1-5 **Lab ID: 450451-001** **Collected: 09/10/21 11:34**
Matrix: Air

450451-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.51**		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Freon 12	**2.5**		ug/m3	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Freon 114	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Freon 114	ND		ug/m3	2.4	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chloromethane	ND		ug/m3	0.70	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Vinyl Chloride	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Vinyl Chloride	ND		ug/m3	0.87	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Bromomethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Bromomethane	ND		ug/m3	1.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chloroethane	ND		ug/m3	0.90	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Trichlorofluoromethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Trichlorofluoromethane	ND		ug/m3	1.9	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Freon 113	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Freon 113	ND		ug/m3	2.6	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Acetone	**8.3**		ppbv	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Acetone	**20**		ug/m3	4.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Carbon Disulfide	**0.56**		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Carbon Disulfide	**1.7**		ug/m3	1.1	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Isopropanol (IPA)	**3.5**		ppbv	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Isopropanol (IPA)	**8.6**		ug/m3	4.2	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Methylene Chloride	**0.80**		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Methylene Chloride	**2.8**		ug/m3	1.2	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
MTBE	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
MTBE	ND		ug/m3	1.2	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
n-Hexane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
n-Hexane	ND		ug/m3	1.2	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Vinyl Acetate	ND		ppbv	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Vinyl Acetate	ND		ug/m3	6.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
2-Butanone	ND		ppbv	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
2-Butanone	ND		ug/m3	5.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chloroform	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chloroform	ND		ug/m3	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,1-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,1-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Carbon Tetrachloride	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Carbon Tetrachloride	ND		ug/m3	2.1	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Benzene	**0.48**		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Benzene	**1.5**		ug/m3	1.1	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Trichloroethene	**1.7**		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Trichloroethene	**9.2**		ug/m3	1.8	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dichloropropane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dichloropropane	ND		ug/m3	1.6	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Bromodichloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Bromodichloromethane	ND		ug/m3	2.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
4-Methyl-2-Pentanone	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
4-Methyl-2-Pentanone	ND		ug/m3	1.4	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Toluene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Toluene	ND		ug/m3	1.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,2-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,2-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Tetrachloroethene	**2.1**		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Tetrachloroethene	**14**		ug/m3	2.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
2-Hexanone	ND		ppbv	0.85	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
2-Hexanone	ND		ug/m3	3.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Dibromochloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Dibromochloromethane	ND		ug/m3	2.9	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dibromoethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dibromoethane	ND		ug/m3	2.6	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Chlorobenzene	ND		ug/m3	1.6	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Ethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Ethylbenzene	ND		ug/m3	1.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
m,p-Xylenes	ND		ppbv	0.68	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
m,p-Xylenes	ND		ug/m3	3.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
o-Xylene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
o-Xylene	ND		ug/m3	1.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Styrene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Styrene	ND		ug/m3	1.4	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Bromoform	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Bromoform	ND		ug/m3	3.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,2,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
4-Ethyltoluene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
4-Ethyltoluene	ND		ug/m3	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2,4-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2,4-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,3-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,3-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,4-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,4-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Benzyl chloride	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Benzyl chloride	ND		ug/m3	1.8	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Hexachlorobutadiene	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Hexachlorobutadiene	ND		ug/m3	3.6	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Xylene (total)	ND		ppbv	0.34	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Xylene (total)	ND		ug/m3	1.5	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG
Surrogates				**Limits**					
Bromofluorobenzene	103%		%REC	60-140	1.7	273845	09/14/21 21:36	09/14/21 21:36	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

Sample ID: SV-1-15	Lab ID: 450451-002	Collected: 09/10/21 11:57
	Matrix: Air	

450451-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.53**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Freon 12	**2.6**		ug/m3	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Freon 114	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Freon 114	ND		ug/m3	2.4	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chloromethane	ND		ug/m3	0.70	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Vinyl Chloride	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Vinyl Chloride	ND		ug/m3	0.87	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Bromomethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Bromomethane	ND		ug/m3	1.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chloroethane	ND		ug/m3	0.90	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Trichlorofluoromethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Trichlorofluoromethane	ND		ug/m3	1.9	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Freon 113	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Freon 113	ND		ug/m3	2.6	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Acetone	**12**		ppbv	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Acetone	**28**		ug/m3	4.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Carbon Disulfide	**5.5**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Carbon Disulfide	**17**		ug/m3	1.1	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Isopropanol (IPA)	**4.8**		ppbv	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Isopropanol (IPA)	**12**		ug/m3	4.2	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Methylene Chloride	**0.38**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Methylene Chloride	**1.3**		ug/m3	1.2	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
MTBE	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
MTBE	ND		ug/m3	1.2	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
n-Hexane	**4.2**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
n-Hexane	**15**		ug/m3	1.2	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Vinyl Acetate	ND		ppbv	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Vinyl Acetate	ND		ug/m3	6.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
2-Butanone	**2.7**		ppbv	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
2-Butanone	**8.0**		ug/m3	5.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chloroform	ND		ug/m3	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,1-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,1-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Carbon Tetrachloride	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Carbon Tetrachloride	ND		ug/m3	2.1	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Benzene	**1.4**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Benzene	**4.4**		ug/m3	1.1	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Trichloroethene	**21**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Trichloroethene	**110**		ug/m3	1.8	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dichloropropane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dichloropropane	ND		ug/m3	1.6	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Bromodichloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Bromodichloromethane	ND		ug/m3	2.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
4-Methyl-2-Pentanone	**1.5**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
4-Methyl-2-Pentanone	**6.3**		ug/m3	1.4	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Toluene	**1.4**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Toluene	**5.4**		ug/m3	1.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,2-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,2-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Tetrachloroethene	**2.8**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Tetrachloroethene	**19**		ug/m3	2.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
2-Hexanone	ND		ppbv	0.85	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
2-Hexanone	ND		ug/m3	3.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Dibromochloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Dibromochloromethane	ND		ug/m3	2.9	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dibromoethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dibromoethane	ND		ug/m3	2.6	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Chlorobenzene	ND		ug/m3	1.6	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Ethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Ethylbenzene	ND		ug/m3	1.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
m,p-Xylenes	ND		ppbv	0.68	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
m,p-Xylenes	ND		ug/m3	3.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
o-Xylene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
o-Xylene	ND		ug/m3	1.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Styrene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Styrene	ND		ug/m3	1.4	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Bromoform	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Bromoform	ND		ug/m3	3.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
4-Ethyltoluene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
4-Ethyltoluene	ND		ug/m3	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2,4-Trimethylbenzene	**0.41**		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2,4-Trimethylbenzene	**2.0**		ug/m3	1.7	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,3-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,3-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,4-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,4-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Benzyl chloride	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Benzyl chloride	ND		ug/m3	1.8	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Hexachlorobutadiene	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Hexachlorobutadiene	ND		ug/m3	3.6	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Xylene (total)	ND		ppbv	0.34	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Xylene (total)	ND		ug/m3	1.5	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG
Surrogates				**Limits**					
Bromofluorobenzene	103%		%REC	60-140	1.7	273845	09/14/21 22:27	09/14/21 22:27	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

Sample ID: SV-2-5	Lab ID: 450451-003	Collected: 09/10/21 12:10
	Matrix: Air	

450451-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.53**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Freon 12	**2.6**		ug/m3	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Freon 114	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Freon 114	ND		ug/m3	2.4	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chloromethane	ND		ug/m3	0.70	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Vinyl Chloride	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Vinyl Chloride	ND		ug/m3	0.87	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Bromomethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Bromomethane	ND		ug/m3	1.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chloroethane	ND		ug/m3	0.90	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Trichlorofluoromethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Trichlorofluoromethane	ND		ug/m3	1.9	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Freon 113	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Freon 113	ND		ug/m3	2.6	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Acetone	**13**		ppbv	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Acetone	**30**		ug/m3	4.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Carbon Disulfide	**1.4**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Carbon Disulfide	**4.5**		ug/m3	1.1	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Isopropanol (IPA)	**4.1**		ppbv	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Isopropanol (IPA)	**10**		ug/m3	4.2	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Methylene Chloride	**4.6**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Methylene Chloride	**16**		ug/m3	1.2	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
trans-1,2-Dichloroethene	**0.43**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
trans-1,2-Dichloroethene	**1.7**		ug/m3	1.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
MTBE	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
MTBE	ND		ug/m3	1.2	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
n-Hexane	**2.3**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
n-Hexane	**8.2**		ug/m3	1.2	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Vinyl Acetate	ND		ppbv	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Vinyl Acetate	ND		ug/m3	6.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
cis-1,2-Dichloroethene	**0.75**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
cis-1,2-Dichloroethene	**3.0**		ug/m3	1.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
2-Butanone	**2.3**		ppbv	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
2-Butanone	**6.7**		ug/m3	5.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	**0.44**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chloroform	**2.2**		ug/m3	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,1-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,1-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Carbon Tetrachloride	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Carbon Tetrachloride	ND		ug/m3	2.1	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Benzene	**1.2**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Benzene	**3.9**		ug/m3	1.1	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Trichloroethene	**4.3**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Trichloroethene	**23**		ug/m3	1.8	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dichloropropane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dichloropropane	ND		ug/m3	1.6	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Bromodichloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Bromodichloromethane	ND		ug/m3	2.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
4-Methyl-2-Pentanone	**0.66**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
4-Methyl-2-Pentanone	**2.7**		ug/m3	1.4	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Toluene	**0.89**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Toluene	**3.4**		ug/m3	1.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,2-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,2-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Tetrachloroethene	**0.77**		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Tetrachloroethene	**5.2**		ug/m3	2.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
2-Hexanone	ND		ppbv	0.85	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
2-Hexanone	ND		ug/m3	3.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Dibromochloromethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Dibromochloromethane	ND		ug/m3	2.9	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dibromoethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dibromoethane	ND		ug/m3	2.6	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Chlorobenzene	ND		ug/m3	1.6	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Ethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Ethylbenzene	ND		ug/m3	1.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
m,p-Xylenes	ND		ppbv	0.68	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
m,p-Xylenes	ND		ug/m3	3.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
o-Xylene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
o-Xylene	ND		ug/m3	1.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Styrene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Styrene	ND		ug/m3	1.4	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Bromoform	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Bromoform	ND		ug/m3	3.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
4-Ethyltoluene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
4-Ethyltoluene	ND		ug/m3	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2,4-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2,4-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,3-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,3-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,4-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,4-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Benzyl chloride	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Benzyl chloride	ND		ug/m3	1.8	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Hexachlorobutadiene	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Hexachlorobutadiene	ND		ug/m3	3.6	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Xylene (total)	ND		ppbv	0.34	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Xylene (total)	ND		ug/m3	1.5	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG
Surrogates				**Limits**					
Bromofluorobenzene	104%		%REC	60-140	1.7	273845	09/14/21 23:18	09/14/21 23:18	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

Sample ID: SV-2-15	Lab ID: 450451-004	Collected: 09/10/21 12:29
	Matrix: Air	

450451-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.55**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Freon 12	**2.7**		ug/m3	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Freon 114	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Freon 114	ND		ug/m3	2.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chloromethane	**0.71**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chloromethane	**1.5**		ug/m3	0.74	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Vinyl Chloride	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Vinyl Chloride	ND		ug/m3	0.92	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Bromomethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Bromomethane	ND		ug/m3	1.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chloroethane	ND		ug/m3	0.95	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Trichlorofluoromethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Trichlorofluoromethane	ND		ug/m3	2.0	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1-Dichloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1-Dichloroethene	ND		ug/m3	1.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Freon 113	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Freon 113	ND		ug/m3	2.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Acetone	**15**		ppbv	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Acetone	**35**		ug/m3	4.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Carbon Disulfide	**9.0**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Carbon Disulfide	**28**		ug/m3	1.1	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Isopropanol (IPA)	**3.7**		ppbv	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Isopropanol (IPA)	**9.0**		ug/m3	4.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Methylene Chloride	**1.3**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Methylene Chloride	**4.5**		ug/m3	1.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
MTBE	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
MTBE	ND		ug/m3	1.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
n-Hexane	**8.7**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
n-Hexane	**31**		ug/m3	1.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1-Dichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1-Dichloroethane	ND		ug/m3	1.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Vinyl Acetate	ND		ppbv	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Vinyl Acetate	ND		ug/m3	6.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
2-Butanone	**3.1**		ppbv	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
2-Butanone	**9.0**		ug/m3	5.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

450451-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chloroform	ND		ug/m3	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,1-Trichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,1-Trichloroethane	ND		ug/m3	2.0	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Carbon Tetrachloride	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Carbon Tetrachloride	ND		ug/m3	2.3	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Benzene	**2.0**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Benzene	**6.4**		ug/m3	1.2	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dichloroethane	ND		ug/m3	1.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Trichloroethene	**0.94**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Trichloroethene	**5.0**		ug/m3	1.9	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dichloropropane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dichloropropane	ND		ug/m3	1.7	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Bromodichloromethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Bromodichloromethane	ND		ug/m3	2.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.6	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
4-Methyl-2-Pentanone	**0.98**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
4-Methyl-2-Pentanone	**4.0**		ug/m3	1.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Toluene	**1.2**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Toluene	**4.7**		ug/m3	1.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.6	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,2-Trichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,2-Trichloroethane	ND		ug/m3	2.0	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Tetrachloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Tetrachloroethene	ND		ug/m3	2.4	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
2-Hexanone	ND		ppbv	0.90	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
2-Hexanone	ND		ug/m3	3.7	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Dibromochloromethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Dibromochloromethane	ND		ug/m3	3.1	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dibromoethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dibromoethane	ND		ug/m3	2.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Chlorobenzene	ND		ug/m3	1.7	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Ethylbenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Ethylbenzene	ND		ug/m3	1.6	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
m,p-Xylenes	ND		ppbv	0.72	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
m,p-Xylenes	ND		ug/m3	3.1	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
o-Xylene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
o-Xylene	ND		ug/m3	1.6	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Styrene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Styrene	ND		ug/m3	1.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Bromoform	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Bromoform	ND		ug/m3	3.7	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

450451-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.5	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
4-Ethyltoluene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
4-Ethyltoluene	ND		ug/m3	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2,4-Trimethylbenzene	**1.2**		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2,4-Trimethylbenzene	**5.9**		ug/m3	1.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,3-Dichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,3-Dichlorobenzene	ND		ug/m3	2.2	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,4-Dichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,4-Dichlorobenzene	ND		ug/m3	2.2	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Benzyl chloride	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Benzyl chloride	ND		ug/m3	1.9	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2-Dichlorobenzene	ND		ug/m3	2.2	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.7	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Hexachlorobutadiene	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Hexachlorobutadiene	ND		ug/m3	3.8	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Xylene (total)	ND		ppbv	0.36	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Xylene (total)	ND		ug/m3	1.6	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG
Surrogates				**Limits**					
Bromofluorobenzene	103%		%REC	60-140	1.8	273845	09/15/21 00:09	09/15/21 00:09	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

Sample ID: SV-3-5	Lab ID: 450451-005	Collected: 09/10/21 13:05
	Matrix: Air	

450451-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.52**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Freon 12	**2.6**		ug/m3	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Freon 114	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Freon 114	ND		ug/m3	2.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chloromethane	**2.1**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chloromethane	**4.3**		ug/m3	0.74	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Vinyl Chloride	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Vinyl Chloride	ND		ug/m3	0.92	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Bromomethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Bromomethane	ND		ug/m3	1.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chloroethane	ND		ug/m3	0.95	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Trichlorofluoromethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Trichlorofluoromethane	ND		ug/m3	2.0	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1-Dichloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1-Dichloroethene	ND		ug/m3	1.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Freon 113	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Freon 113	ND		ug/m3	2.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Acetone	**19**		ppbv	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Acetone	**45**		ug/m3	4.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Carbon Disulfide	**1.6**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Carbon Disulfide	**4.8**		ug/m3	1.1	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Isopropanol (IPA)	**6.0**		ppbv	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Isopropanol (IPA)	**15**		ug/m3	4.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Methylene Chloride	**0.96**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Methylene Chloride	**3.3**		ug/m3	1.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
MTBE	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
MTBE	ND		ug/m3	1.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
n-Hexane	**1.9**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
n-Hexane	**6.8**		ug/m3	1.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1-Dichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1-Dichloroethane	ND		ug/m3	1.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Vinyl Acetate	ND		ppbv	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Vinyl Acetate	ND		ug/m3	6.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
2-Butanone	**3.5**		ppbv	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
2-Butanone	**10**		ug/m3	5.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

450451-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	**0.41**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chloroform	**2.0**		ug/m3	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,1-Trichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,1-Trichloroethane	ND		ug/m3	2.0	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Carbon Tetrachloride	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Carbon Tetrachloride	ND		ug/m3	2.3	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Benzene	**0.75**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Benzene	**2.4**		ug/m3	1.2	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dichloroethane	ND		ug/m3	1.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Trichloroethene	**39**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Trichloroethene	**210**		ug/m3	1.9	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dichloropropane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dichloropropane	ND		ug/m3	1.7	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Bromodichloromethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Bromodichloromethane	ND		ug/m3	2.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.6	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
4-Methyl-2-Pentanone	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
4-Methyl-2-Pentanone	ND		ug/m3	1.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Toluene	**1.2**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Toluene	**4.4**		ug/m3	1.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.6	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,2-Trichloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,2-Trichloroethane	ND		ug/m3	2.0	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Tetrachloroethene	**3.2**		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Tetrachloroethene	**22**		ug/m3	2.4	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
2-Hexanone	ND		ppbv	0.90	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
2-Hexanone	ND		ug/m3	3.7	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Dibromochloromethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Dibromochloromethane	ND		ug/m3	3.1	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dibromoethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dibromoethane	ND		ug/m3	2.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Chlorobenzene	ND		ug/m3	1.7	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Ethylbenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Ethylbenzene	ND		ug/m3	1.6	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
m,p-Xylenes	ND		ppbv	0.72	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
m,p-Xylenes	ND		ug/m3	3.1	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
o-Xylene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
o-Xylene	ND		ug/m3	1.6	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Styrene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Styrene	ND		ug/m3	1.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Bromoform	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Bromoform	ND		ug/m3	3.7	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.5	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
4-Ethyltoluene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
4-Ethyltoluene	ND		ug/m3	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2,4-Trimethylbenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2,4-Trimethylbenzene	ND		ug/m3	1.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,3-Dichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,3-Dichlorobenzene	ND		ug/m3	2.2	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,4-Dichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,4-Dichlorobenzene	ND		ug/m3	2.2	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Benzyl chloride	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Benzyl chloride	ND		ug/m3	1.9	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2-Dichlorobenzene	ND		ug/m3	2.2	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.7	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Hexachlorobutadiene	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Hexachlorobutadiene	ND		ug/m3	3.8	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Xylene (total)	ND		ppbv	0.36	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Xylene (total)	ND		ug/m3	1.6	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG
Surrogates				**Limits**					
Bromofluorobenzene	89%		%REC	60-140	1.8	273845	09/15/21 01:00	09/15/21 01:00	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

Sample ID: SV-4-5	Lab ID: 450451-006	Collected: 09/10/21 13:56
	Matrix: Air	

450451-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.51**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Freon 12	**2.5**		ug/m3	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Freon 114	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Freon 114	ND		ug/m3	2.4	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chloromethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chloromethane	ND		ug/m3	0.70	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Vinyl Chloride	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Vinyl Chloride	ND		ug/m3	0.87	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Bromomethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Bromomethane	ND		ug/m3	1.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chloroethane	ND		ug/m3	0.90	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Trichlorofluoromethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Trichlorofluoromethane	ND		ug/m3	1.9	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Freon 113	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Freon 113	ND		ug/m3	2.6	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Acetone	**9.1**		ppbv	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Acetone	**22**		ug/m3	4.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Carbon Disulfide	**0.58**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Carbon Disulfide	**1.8**		ug/m3	1.1	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Isopropanol (IPA)	**3.8**		ppbv	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Isopropanol (IPA)	**9.3**		ug/m3	4.2	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Methylene Chloride	**2.0**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Methylene Chloride	**6.8**		ug/m3	1.2	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
MTBE	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
MTBE	ND		ug/m3	1.2	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
n-Hexane	**0.86**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
n-Hexane	**3.0**		ug/m3	1.2	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Vinyl Acetate	ND		ppbv	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Vinyl Acetate	ND		ug/m3	6.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
2-Butanone	ND		ppbv	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
2-Butanone	ND		ug/m3	5.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chloroform	ND		ug/m3	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,1-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,1-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Carbon Tetrachloride	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Carbon Tetrachloride	ND		ug/m3	2.1	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Benzene	**0.47**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Benzene	**1.5**		ug/m3	1.1	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dichloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dichloroethane	ND		ug/m3	1.4	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Trichloroethene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Trichloroethene	ND		ug/m3	1.8	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dichloropropane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dichloropropane	ND		ug/m3	1.6	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Bromodichloromethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Bromodichloromethane	ND		ug/m3	2.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
4-Methyl-2-Pentanone	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
4-Methyl-2-Pentanone	ND		ug/m3	1.4	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Toluene	**0.47**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Toluene	**1.8**		ug/m3	1.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,2-Trichloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,2-Trichloroethane	ND		ug/m3	1.9	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Tetrachloroethene	**0.67**		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Tetrachloroethene	**4.5**		ug/m3	2.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
2-Hexanone	ND		ppbv	0.85	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
2-Hexanone	ND		ug/m3	3.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Dibromochloromethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Dibromochloromethane	ND		ug/m3	2.9	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dibromoethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dibromoethane	ND		ug/m3	2.6	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chlorobenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Chlorobenzene	ND		ug/m3	1.6	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Ethylbenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Ethylbenzene	ND		ug/m3	1.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
m,p-Xylenes	ND		ppbv	0.68	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
m,p-Xylenes	ND		ug/m3	3.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
o-Xylene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
o-Xylene	ND		ug/m3	1.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Styrene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Styrene	ND		ug/m3	1.4	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Bromoform	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Bromoform	ND		ug/m3	3.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.3	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
4-Ethyltoluene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
4-Ethyltoluene	ND		ug/m3	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2,4-Trimethylbenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2,4-Trimethylbenzene	ND		ug/m3	1.7	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,3-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,3-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,4-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,4-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Benzyl chloride	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Benzyl chloride	ND		ug/m3	1.8	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dichlorobenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2-Dichlorobenzene	ND		ug/m3	2.0	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Hexachlorobutadiene	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Hexachlorobutadiene	ND		ug/m3	3.6	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Xylene (total)	ND		ppbv	0.34	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Xylene (total)	ND		ug/m3	1.5	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG
Surrogates				**Limits**					
Bromofluorobenzene	89%		%REC	60-140	1.7	273845	09/15/21 01:51	09/15/21 01:51	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

Sample ID: SV-4-5-DUP	Lab ID: 450451-007	Collected: 09/10/21 14:06
	Matrix: Air	

450451-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.51**		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Freon 12	**2.5**		ug/m3	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Freon 114	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Freon 114	ND		ug/m3	2.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chloromethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chloromethane	ND		ug/m3	0.66	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Vinyl Chloride	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Vinyl Chloride	ND		ug/m3	0.82	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Bromomethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Bromomethane	ND		ug/m3	1.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chloroethane	ND		ug/m3	0.84	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Trichlorofluoromethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Trichlorofluoromethane	ND		ug/m3	1.8	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1-Dichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1-Dichloroethene	ND		ug/m3	1.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Freon 113	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Freon 113	ND		ug/m3	2.5	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Acetone	**6.1**		ppbv	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Acetone	**15**		ug/m3	3.8	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Carbon Disulfide	**0.54**		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Carbon Disulfide	**1.7**		ug/m3	1.0	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Isopropanol (IPA)	**1.8**		ppbv	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Isopropanol (IPA)	**4.3**		ug/m3	3.9	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Methylene Chloride	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Methylene Chloride	ND		ug/m3	1.1	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
MTBE	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
MTBE	ND		ug/m3	1.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
n-Hexane	**0.67**		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
n-Hexane	**2.4**		ug/m3	1.1	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1-Dichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1-Dichloroethane	ND		ug/m3	1.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Vinyl Acetate	ND		ppbv	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Vinyl Acetate	ND		ug/m3	5.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
2-Butanone	ND		ppbv	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
2-Butanone	ND		ug/m3	4.7	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

450451-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	**0.32**		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chloroform	**1.6**		ug/m3	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,1-Trichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,1-Trichloroethane	ND		ug/m3	1.7	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Carbon Tetrachloride	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Carbon Tetrachloride	ND		ug/m3	2.0	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Benzene	**0.40**		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Benzene	**1.3**		ug/m3	1.0	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dichloroethane	ND		ug/m3	1.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Trichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Trichloroethene	ND		ug/m3	1.7	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dichloropropane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dichloropropane	ND		ug/m3	1.5	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Bromodichloromethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Bromodichloromethane	ND		ug/m3	2.1	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.5	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
4-Methyl-2-Pentanone	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
4-Methyl-2-Pentanone	ND		ug/m3	1.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Toluene	**0.32**		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Toluene	**1.2**		ug/m3	1.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.5	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,2-Trichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,2-Trichloroethane	ND		ug/m3	1.7	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Tetrachloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Tetrachloroethene	ND		ug/m3	2.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
2-Hexanone	ND		ppbv	0.80	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
2-Hexanone	ND		ug/m3	3.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Dibromochloromethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Dibromochloromethane	ND		ug/m3	2.7	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dibromoethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dibromoethane	ND		ug/m3	2.5	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Chlorobenzene	ND		ug/m3	1.5	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Ethylbenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Ethylbenzene	ND		ug/m3	1.4	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
m,p-Xylenes	ND		ppbv	0.64	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
m,p-Xylenes	ND		ug/m3	2.8	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
o-Xylene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
o-Xylene	ND		ug/m3	1.4	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Styrene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Styrene	ND		ug/m3	1.4	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Bromoform	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Bromoform	ND		ug/m3	3.3	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.2	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
4-Ethyltoluene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
4-Ethyltoluene	ND		ug/m3	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2,4-Trimethylbenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2,4-Trimethylbenzene	ND		ug/m3	1.6	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,3-Dichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,3-Dichlorobenzene	ND		ug/m3	1.9	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,4-Dichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,4-Dichlorobenzene	ND		ug/m3	1.9	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Benzyl chloride	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Benzyl chloride	ND		ug/m3	1.7	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2-Dichlorobenzene	ND		ug/m3	1.9	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.4	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Hexachlorobutadiene	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Hexachlorobutadiene	ND		ug/m3	3.4	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Xylene (total)	ND		ppbv	0.32	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Xylene (total)	ND		ug/m3	1.4	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG
Surrogates				**Limits**					
Bromofluorobenzene	104%		%REC	60-140	1.6	273845	09/15/21 02:42	09/15/21 02:42	GSG

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

Sample ID: SV-5-5	Lab ID: 450451-008	Collected: 09/10/21 14:12
	Matrix: Air	

450451-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15 Prep Method: METHOD									
Freon 12	**0.53**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Freon 12	**2.6**		ug/m3	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Freon 114	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Freon 114	ND		ug/m3	2.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chloromethane	**0.57**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chloromethane	**1.2**		ug/m3	0.66	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Vinyl Chloride	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Vinyl Chloride	ND		ug/m3	0.82	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Bromomethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Bromomethane	ND		ug/m3	1.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chloroethane	ND		ug/m3	0.84	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Trichlorofluoromethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Trichlorofluoromethane	ND		ug/m3	1.8	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1-Dichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1-Dichloroethene	ND		ug/m3	1.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Freon 113	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Freon 113	ND		ug/m3	2.5	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Acetone	**15**		ppbv	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Acetone	**35**		ug/m3	3.8	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Carbon Disulfide	**1.1**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Carbon Disulfide	**3.4**		ug/m3	1.0	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Isopropanol (IPA)	**2.3**		ppbv	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Isopropanol (IPA)	**5.6**		ug/m3	3.9	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Methylene Chloride	**2.3**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Methylene Chloride	**8.0**		ug/m3	1.1	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
trans-1,2-Dichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
trans-1,2-Dichloroethene	ND		ug/m3	1.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
MTBE	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
MTBE	ND		ug/m3	1.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
n-Hexane	**12**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
n-Hexane	**41**		ug/m3	1.1	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1-Dichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1-Dichloroethane	ND		ug/m3	1.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Vinyl Acetate	ND		ppbv	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Vinyl Acetate	ND		ug/m3	5.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
cis-1,2-Dichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
cis-1,2-Dichloroethene	ND		ug/m3	1.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
2-Butanone	**2.1**		ppbv	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
2-Butanone	**6.1**		ug/m3	4.7	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Chloroform	**0.41**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chloroform	**2.0**		ug/m3	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,1-Trichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,1-Trichloroethane	ND		ug/m3	1.7	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Carbon Tetrachloride	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Carbon Tetrachloride	ND		ug/m3	2.0	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Benzene	**0.57**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Benzene	**1.8**		ug/m3	1.0	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dichloroethane	ND		ug/m3	1.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Trichloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Trichloroethene	ND		ug/m3	1.7	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dichloropropane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dichloropropane	ND		ug/m3	1.5	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Bromodichloromethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Bromodichloromethane	ND		ug/m3	2.1	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
cis-1,3-Dichloropropene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
cis-1,3-Dichloropropene	ND		ug/m3	1.5	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
4-Methyl-2-Pentanone	**0.42**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
4-Methyl-2-Pentanone	**1.7**		ug/m3	1.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Toluene	**0.54**		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Toluene	**2.0**		ug/m3	1.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
trans-1,3-Dichloropropene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
trans-1,3-Dichloropropene	ND		ug/m3	1.5	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,2-Trichloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,2-Trichloroethane	ND		ug/m3	1.7	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Tetrachloroethene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Tetrachloroethene	ND		ug/m3	2.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
2-Hexanone	ND		ppbv	0.80	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
2-Hexanone	ND		ug/m3	3.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Dibromochloromethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Dibromochloromethane	ND		ug/m3	2.7	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dibromoethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dibromoethane	ND		ug/m3	2.5	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Chlorobenzene	ND		ug/m3	1.5	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Ethylbenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Ethylbenzene	ND		ug/m3	1.4	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
m,p-Xylenes	ND		ppbv	0.64	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
m,p-Xylenes	ND		ug/m3	2.8	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
o-Xylene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
o-Xylene	ND		ug/m3	1.4	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Styrene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Styrene	ND		ug/m3	1.4	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Bromoform	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Bromoform	ND		ug/m3	3.3	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 450451

450451-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
1,1,2,2-Tetrachloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,2,2-Tetrachloroethane	ND		ug/m3	2.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,1,2-Tetrachloroethane	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,1,1,2-Tetrachloroethane	ND		ug/m3	2.2	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
4-Ethyltoluene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
4-Ethyltoluene	ND		ug/m3	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,3,5-Trimethylbenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,3,5-Trimethylbenzene	ND		ug/m3	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2,4-Trimethylbenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2,4-Trimethylbenzene	ND		ug/m3	1.6	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,3-Dichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,3-Dichlorobenzene	ND		ug/m3	1.9	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,4-Dichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,4-Dichlorobenzene	ND		ug/m3	1.9	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Benzyl chloride	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Benzyl chloride	ND		ug/m3	1.7	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2-Dichlorobenzene	ND		ug/m3	1.9	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2,4-Trichlorobenzene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
1,2,4-Trichlorobenzene	ND		ug/m3	2.4	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Hexachlorobutadiene	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Hexachlorobutadiene	ND		ug/m3	3.4	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Xylene (total)	ND		ppbv	0.32	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Xylene (total)	ND		ug/m3	1.4	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
TIC:1,1-Difluoroethane	ND		ppbv		1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
TIC:1,1-Difluoroethane	ND		ug/m3		1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Surrogates				**Limits**					
Bromofluorobenzene	102%		%REC	60-140	1.6	273845	09/15/21 03:34	09/15/21 03:34	GSG
Method: EPA TO-3M									
Methane	**3.7**		ppmv	0.80	1.6	273991	09/16/21	09/16/21	MPD
Methane	**2,400**		ug/m3	520	1.6	273991	09/16/21	09/16/21	MPD

Sample ID: SV-6-5 **Lab ID: 450451-009** **Collected: 09/10/21 15:55**
Matrix: Air

450451-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-3M									
Methane	**2.7**		ppmv	0.75	1.5	273991	09/16/21	09/16/21	MPD
Methane	**1,800**		ug/m3	490	1.5	273991	09/16/21	09/16/21	MPD

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 450451

Sample ID: SV-7-5 **Lab ID: 450451-010** **Collected: 09/10/21 16:09**
Matrix: Air

450451-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-3M									
Methane	**2.6**		ppmv	0.85	1.7	273991	09/16/21	09/16/21	MPD
Methane	**1,700**		ug/m3	560	1.7	273991	09/16/21	09/16/21	MPD

Sample ID: SV-8-5 **Lab ID: 450451-011** **Collected: 09/10/21 16:48**
Matrix: Air

450451-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-3M									
Methane	**2.8**		ppmv	0.75	1.5	273991	09/16/21	09/16/21	MPD
Methane	**1,900**		ug/m3	490	1.5	273991	09/16/21	09/16/21	MPD

Sample ID: SV-9-5 **Lab ID: 450451-012** **Collected: 09/10/21 17:42**
Matrix: Air

450451-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-3M									
Methane	**2.3**		ppmv	0.75	1.5	273991	09/16/21	09/16/21	MPD
Methane	**1,500**		ug/m3	490	1.5	273991	09/16/21	09/16/21	MPD

Sample ID: SV-9-5-DUP **Lab ID: 450451-013** **Collected: 09/10/21 17:53**
Matrix: Air

450451-013 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-3M									
Methane	**2.3**		ppmv	0.75	1.5	273991	09/16/21	09/16/21	MPD
Methane	**1,500**		ug/m3	490	1.5	273991	09/16/21	09/16/21	MPD

Sample ID: SV-10 **Lab ID: 450451-014** **Collected: 09/10/21 16:56**
Matrix: Air

450451-014 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-3M									
Methane	**2.4**		ppmv	0.75	1.5	273991	09/16/21	09/16/21	MPD
Methane	**1,600**		ug/m3	490	1.5	273991	09/16/21	09/16/21	MPD

ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type:	**Lab Control Sample**	**Lab ID:**	**QC943547**	**Batch:**	**273845**
Matrix:	**Air**	**Method:**	**EPA TO-15**	**Prep Method:**	**METHOD**

QC943547 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Freon 12	10.45	10.00	ppbv	104%		70-130
Freon 114	9.963	10.00	ppbv	100%		70-130
Chloromethane	11.60	10.00	ppbv	116%		70-130
Vinyl Chloride	9.581	10.00	ppbv	96%		70-130
Bromomethane	9.128	10.00	ppbv	91%		70-130
Chloroethane	9.239	10.00	ppbv	92%		70-130
Trichlorofluoromethane	9.625	10.00	ppbv	96%		70-130
1,1-Dichloroethene	9.659	10.00	ppbv	97%		70-130
Freon 113	9.718	10.00	ppbv	97%		70-130
Acetone	9.080	10.00	ppbv	91%		70-130
Carbon Disulfide	9.839	10.00	ppbv	98%		70-130
Isopropanol (IPA)	9.057	10.00	ppbv	91%		70-130
Methylene Chloride	9.131	10.00	ppbv	91%		70-130
trans-1,2-Dichloroethene	9.560	10.00	ppbv	96%		70-130
MTBE	9.948	10.00	ppbv	99%		70-130
n-Hexane	9.675	10.00	ppbv	97%		70-130
1,1-Dichloroethane	9.729	10.00	ppbv	97%		70-130
Vinyl Acetate	9.784	10.00	ppbv	98%		70-130
cis-1,2-Dichloroethene	9.542	10.00	ppbv	95%		70-130
2-Butanone	9.093	10.00	ppbv	91%		70-130
Chloroform	9.613	10.00	ppbv	96%		70-130
1,1,1-Trichloroethane	11.52	10.00	ppbv	115%		70-130
Carbon Tetrachloride	11.99	10.00	ppbv	120%		70-130
Benzene	11.25	10.00	ppbv	112%		70-130
1,2-Dichloroethane	10.52	10.00	ppbv	105%		70-130
Trichloroethene	9.636	10.00	ppbv	96%		70-130
1,2-Dichloropropane	9.727	10.00	ppbv	97%		70-130
Bromodichloromethane	10.11	10.00	ppbv	101%		70-130
cis-1,3-Dichloropropene	10.06	10.00	ppbv	101%		70-130
4-Methyl-2-Pentanone	9.589	10.00	ppbv	96%		70-130
Toluene	9.566	10.00	ppbv	96%		70-130
trans-1,3-Dichloropropene	10.36	10.00	ppbv	104%		70-130
1,1,2-Trichloroethane	9.921	10.00	ppbv	99%		70-130
Tetrachloroethene	8.274	10.00	ppbv	83%		70-130
2-Hexanone	9.580	10.00	ppbv	96%		70-130
Dibromochloromethane	9.181	10.00	ppbv	92%		70-130
1,2-Dibromoethane	8.452	10.00	ppbv	85%		70-130
Chlorobenzene	9.565	10.00	ppbv	96%		70-130
Ethylbenzene	9.652	10.00	ppbv	97%		70-130
m,p-Xylenes	19.18	20.00	ppbv	96%		70-130
o-Xylene	9.522	10.00	ppbv	95%		70-130
Styrene	9.725	10.00	ppbv	97%		70-130

ENTHALPY ANALYTICAL

Batch QC

QC943547 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Bromoform	10.39	10.00	ppbv	104%		70-130
1,1,2,2-Tetrachloroethane	9.576	10.00	ppbv	96%		70-130
1,1,1,2-Tetrachloroethane	9.911	10.00	ppbv	99%		70-130
4-Ethyltoluene	9.706	10.00	ppbv	97%		70-130
1,3,5-Trimethylbenzene	9.473	10.00	ppbv	95%		70-130
1,2,4-Trimethylbenzene	9.351	10.00	ppbv	94%		70-130
1,3-Dichlorobenzene	8.638	10.00	ppbv	86%		70-130
1,4-Dichlorobenzene	8.631	10.00	ppbv	86%		70-130
Benzyl chloride	10.63	10.00	ppbv	106%	b	70-130
1,2-Dichlorobenzene	8.796	10.00	ppbv	88%		70-130
1,2,4-Trichlorobenzene	8.502	10.00	ppbv	85%	b	70-130
Hexachlorobutadiene	9.855	10.00	ppbv	99%		70-130
Surrogates						
Bromofluorobenzene	10.09	10.00	ppbv	101%		60-140

ENTHALPY ANALYTICAL

Batch QC

Type:	**Lab Control Sample Duplicate**	**Lab ID:**	**QC943548**	**Batch:**	**273845**
Matrix:	**Air**	**Method:**	**EPA TO-15**	**Prep Method:**	**METHOD**

QC943548 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Freon 12	9.629	10.00	ppbv	96%		70-130	8	30
Freon 114	9.948	10.00	ppbv	99%		70-130	0	30
Chloromethane	9.070	10.00	ppbv	91%		70-130	25	30
Vinyl Chloride	9.343	10.00	ppbv	93%		70-130	3	30
Bromomethane	9.418	10.00	ppbv	94%		70-130	3	30
Chloroethane	8.708	10.00	ppbv	87%		70-130	6	30
Trichlorofluoromethane	9.703	10.00	ppbv	97%		70-130	1	30
1,1-Dichloroethene	9.660	10.00	ppbv	97%		70-130	0	30
Freon 113	9.810	10.00	ppbv	98%		70-130	1	30
Acetone	9.164	10.00	ppbv	92%		70-130	1	30
Carbon Disulfide	9.966	10.00	ppbv	100%		70-130	1	30
Isopropanol (IPA)	9.305	10.00	ppbv	93%		70-130	3	30
Methylene Chloride	9.229	10.00	ppbv	92%		70-130	1	30
trans-1,2-Dichloroethene	9.648	10.00	ppbv	96%		70-130	1	30
MTBE	10.10	10.00	ppbv	101%		70-130	2	30
n-Hexane	9.657	10.00	ppbv	97%		70-130	0	30
1,1-Dichloroethane	9.736	10.00	ppbv	97%		70-130	0	30
Vinyl Acetate	9.934	10.00	ppbv	99%		70-130	2	30
cis-1,2-Dichloroethene	9.609	10.00	ppbv	96%		70-130	1	30
2-Butanone	9.144	10.00	ppbv	91%		70-130	1	30
Chloroform	9.702	10.00	ppbv	97%		70-130	1	30
1,1,1-Trichloroethane	10.00	10.00	ppbv	100%		70-130	14	30
Carbon Tetrachloride	9.916	10.00	ppbv	99%		70-130	19	30
Benzene	9.848	10.00	ppbv	98%		70-130	13	30
1,2-Dichloroethane	9.444	10.00	ppbv	94%		70-130	11	30
Trichloroethene	9.779	10.00	ppbv	98%		70-130	1	30
1,2-Dichloropropane	9.696	10.00	ppbv	97%		70-130	0	30
Bromodichloromethane	9.916	10.00	ppbv	99%		70-130	2	30
cis-1,3-Dichloropropene	10.43	10.00	ppbv	104%		70-130	4	30
4-Methyl-2-Pentanone	9.615	10.00	ppbv	96%		70-130	0	30
Toluene	9.747	10.00	ppbv	97%		70-130	2	30
trans-1,3-Dichloropropene	10.52	10.00	ppbv	105%		70-130	2	30
1,1,2-Trichloroethane	9.748	10.00	ppbv	97%		70-130	2	30
Tetrachloroethene	9.624	10.00	ppbv	96%		70-130	15	30
2-Hexanone	9.911	10.00	ppbv	99%		70-130	3	30
Dibromochloromethane	10.19	10.00	ppbv	102%		70-130	10	30
1,2-Dibromoethane	9.829	10.00	ppbv	98%		70-130	15	30
Chlorobenzene	9.613	10.00	ppbv	96%		70-130	1	30
Ethylbenzene	9.766	10.00	ppbv	98%		70-130	1	30
m,p-Xylenes	19.47	20.00	ppbv	97%		70-130	2	30
o-Xylene	9.601	10.00	ppbv	96%		70-130	1	30

ENTHALPY ANALYTICAL

Batch QC

QC943548 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Styrene	9.864	10.00	ppbv	99%		70-130	1	30
Bromoform	10.56	10.00	ppbv	106%		70-130	2	30
1,1,2,2-Tetrachloroethane	9.638	10.00	ppbv	96%		70-130	1	30
1,1,1,2-Tetrachloroethane	10.02	10.00	ppbv	100%		70-130	1	30
4-Ethyltoluene	9.826	10.00	ppbv	98%		70-130	1	30
1,3,5-Trimethylbenzene	9.618	10.00	ppbv	96%		70-130	2	30
1,2,4-Trimethylbenzene	9.520	10.00	ppbv	95%		70-130	2	30
1,3-Dichlorobenzene	8.760	10.00	ppbv	88%		70-130	1	30
1,4-Dichlorobenzene	8.685	10.00	ppbv	87%		70-130	1	30
Benzyl chloride	10.94	10.00	ppbv	109%	b	70-130	3	30
1,2-Dichlorobenzene	10.47	10.00	ppbv	105%		70-130	17	30
1,2,4-Trichlorobenzene	8.879	10.00	ppbv	89%	b	70-130	4	30
Hexachlorobutadiene	9.452	10.00	ppbv	95%		70-130	4	30
Surrogates								
Bromofluorobenzene	10.09	10.00	ppbv	101%		60-140		

ENTHALPY ANALYTICAL

Batch QC

Type:	**Blank**	**Lab ID:**	**QC943549**	**Batch:**	**273845**
Matrix:	**Air**	**Method:**	**EPA TO-15**	**Prep Method:**	**METHOD**

QC943549 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Freon 12	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Freon 114	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Chloromethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Vinyl Chloride	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Bromomethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Chloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Trichlorofluoromethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,1-Dichloroethene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Freon 113	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Acetone	ND		ppbv	1.0	09/14/21 14:48	09/14/21 14:48
Carbon Disulfide	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Isopropanol (IPA)	ND		ppbv	1.0	09/14/21 14:48	09/14/21 14:48
Methylene Chloride	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
trans-1,2-Dichloroethene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
MTBE	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
n-Hexane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,1-Dichloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Vinyl Acetate	ND		ppbv	1.0	09/14/21 14:48	09/14/21 14:48
cis-1,2-Dichloroethene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
2-Butanone	ND		ppbv	1.0	09/14/21 14:48	09/14/21 14:48
Chloroform	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,1,1-Trichloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Carbon Tetrachloride	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Benzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,2-Dichloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Trichloroethene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,2-Dichloropropane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Bromodichloromethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
cis-1,3-Dichloropropene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
4-Methyl-2-Pentanone	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Toluene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
trans-1,3-Dichloropropene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,1,2-Trichloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Tetrachloroethene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
2-Hexanone	ND		ppbv	0.50	09/14/21 14:48	09/14/21 14:48
Dibromochloromethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,2-Dibromoethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Chlorobenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Ethylbenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
m,p-Xylenes	ND		ppbv	0.40	09/14/21 14:48	09/14/21 14:48
o-Xylene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Styrene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48

ENTHALPY ANALYTICAL

Batch QC

QC943549 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Bromoform	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,1,2,2-Tetrachloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,1,1,2-Tetrachloroethane	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
4-Ethyltoluene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,3,5-Trimethylbenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,2,4-Trimethylbenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,3-Dichlorobenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,4-Dichlorobenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Benzyl chloride	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,2-Dichlorobenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
1,2,4-Trichlorobenzene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Hexachlorobutadiene	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
Xylene (total)	ND		ppbv	0.20	09/14/21 14:48	09/14/21 14:48
TIC:1,1-Difluoroethane	ND		ppbv		09/14/21 14:48	09/14/21 14:48
Surrogates				**Limits**		
Bromofluorobenzene	104%		%REC	60-140	09/14/21 14:48	09/14/21 14:48

Type: Lab Control Sample **Lab ID: QC943900** **Batch: 273991**
Matrix: Air **Method: EPA TO-3M**

QC943900 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Methane	100.5	100.0	ppmv	101%		85-115

Type: Lab Control Sample Duplicate **Lab ID: QC943901** **Batch: 273991**
Matrix: Air **Method: EPA TO-3M**

QC943901 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Methane	99.40	100.0	ppmv	99%		85-115	1	10

Type: Blank **Lab ID: QC943902** **Batch: 273991**
Matrix: Air **Method: EPA TO-3M**

QC943902 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Methane	ND		ppmv	0.50	09/16/21	09/16/21

Type: Sample Duplicate **Lab ID: QC943903** **Batch: 273991**
Matrix (Source ID): Air (450451-009) **Method: EPA TO-3M**

QC943903 Analyte	Result	Source Sample Result	Units	Qual	RPD	RPD Lim	DF
Methane	2.610	2.670	ppmv		2	25	1.5

Batch QC

ND Not Detected
b See narrative

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October 12, 2021

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Highway, Suite 450
Long Beach, CA 90804

Dear Rocio:

This letter presents the results of the soil vapor investigation conducted by Optimal Technology (Optimal), for Roux Associates, Inc. on October 11, 2021. The study was performed at 870 N. Sanderson Ave., San Jacinto, California.

Optimal was contracted to perform a soil vapor survey at this site to screen for possible chlorinated solvents and aromatic hydrocarbons. The primary objective of this soil vapor investigation was to determine if soil vapor contamination is present in the subsurface soil.

Gas Sampling Method

At each sampling location, an electric vacuum pump set to draw 0.2 liters per minute (L/min) of soil vapor was attached to the existing well and purged prior to sample collection. Vapor samples were obtained in gas-tight syringes by drawing the sample through a luer-lock connection which connects the sampling probe and the vacuum pump. Samples were immediately injected into the gas chromatograph/purge and trap after collection. New tubing was used at each sampling point to prevent cross contamination.

All analyses were performed on a laboratory grade Agilent model 6890N gas chromatograph equipped with an Agilent model 5973N Mass Spectra Detector and Tekmar LSC 3100 Purge and Trap. A Restek column using helium as the carrier gas was used to perform all analysis. All results were collected on a personal computer utilizing Agilent's MS and chromatographic data collection and handling system.

Quality Assurance

5-Point Calibration
The initial five-point calibration consisted of 20, 50, 100, 200 and 500 ul injections of the calibration standard. A calibration factor on each analyte was generated using a best fit line method using the Agilent data system. If the r^2 factor generated from this line was not greater

than 0.990, an additional five-point calibration would have been performed. Method reporting limits were calculated to be 1-1000 micrograms per cubic meter (ug/m^3) for the individual compounds.

A daily calibration check was performed using a pre-mixed standard supplied by Scotty Analyzed Gases. The standard contained common halogenated solvents and aromatic hydrocarbons (see Table 1). The individual compound concentrations in the standards ranged between 0.025 nanograms per microliter (ng/ul) and 0.25 ng/ul.

TABLE 1

Acetone	Benzene	Bromobenzene	Bromochloromethane
Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)
n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon Tetrachloride
Chlorobenzene	Chloroethane	Chloroform	Chloromethane
2-Chlorotoluene	4-Chlorotoluene	Cyclohexane	Dibromochloromethane
1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	Dibromomethane	1,2-Dichlorobenzene
1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,2-Dichloroethane
1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
1,2-Dichloropropane	2,2-Dichloropropane	1,3-Dichloropropane	1,1-Dichloropropene
Ethylbenzene	Freon 113	Hexachlorobutadiene	Isopropylbenzene
p-Isopropyltoluene	Methylene Chloride	4-Methyl-2-Pentanone	Naphthalene
n-Propylbenzene	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene
1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane
1,2,3-Trichloropropane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride
m/p-Xylene	o-Xylene	Diisopropyl Ether	Ethyl Tert Butyl Ether
MTBE	Tert-Amyl Methyl Ether	Tertiary Butyl Alcohol	Isobutane

Sample Replicates
A replicate analysis (duplicate) was run to evaluate the reproducibility of the sampling system and instrument. The difference between samples did not vary more than 20%.

Equipment Blanks
Blanks were run at the beginning of each workday and after calibrations. The blanks were collected using an ambient air sample. These blanks checked the septum, syringe, GC column, GC detector and the ambient air. Contamination was not found in any of the blanks analyzed during this investigation. Blank results are given along with the sample results.

Purge Volume
The standard purge volume of three volumes was purged in accordance with the July 2015 DTSC/RWQCB Advisory for Active Soil Gas Investigations.

Tracer Gas Leak Test
A tracer gas was applied to the soil gas probes at each point of connection in which ambient air could enter the sampling system. These points include the top of the sampling probe where the tubing meets the probe connection and the surface bentonite seals. Isobutane was used as the tracer gas. No Isobutane was found in any of the samples collected.

Shut-in Test
A shut-in test was conducted prior to purging or sampling each location to check for leaks in the above-ground sampling system. The system was evaluated to a minimum measured vacuum of 100 inches of water. The vacuum gauge was calibrated and sensitive enough to indicate a water pressure change of at least 0.5 inches.

Scope of Work

To achieve the objective of this investigation a total of 20 vapor samples were collected from 7 locations at the site. Sampling depths, vacuum readings, purge volume and sampling volumes are given on the analytical results page. All the collected vapor samples were analyzed on-site using Optimal's mobile laboratory.

Subsurface Conditions

Subsurface soil conditions offered sampling flows at 0" water vacuum.

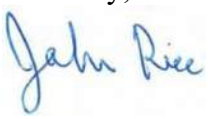
Results

During this vapor investigation, two samples contained levels of Chloroform ranging from 13 ug/m^3 to 17 ug/m^3. One sample contained 16 ug/m^3 of Tetrachloroethene (PCE). One sample contained 5 ug/m^3 of Benzene. None of the other compounds listed in Table 1 above were detected above the listed reporting limits. A complete table of analytical results is included with this report.

Disclaimer

All conclusions presented in this letter are based solely on the information collected by the soil vapor survey conducted by Optimal Technology. Soil vapor testing is only a subsurface screening tool and does not represent actual contaminant concentrations in either the soil and/or groundwater. We enjoyed working with you on this project and look forward to future projects. If you have any questions, please contact me at (877) 764-5427.

Sincerely,



John Rice
Project Manager

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SOIL VAPOR RESULTS

Site Name: 870 N. Sanderson Ave., San Jacinto, CA **Lab Name:** Optimal Technology **Date:** 10/11/21
Analyst: J. Rice **Collector:** J. Rice **Inst. ID:** Agilent 6890N
Method: Modified EPA 8260B **Detector:** Agilent 5973N Mass Spectrometer **Page:** 1 of 6

SAMPLE ID	BLANK-1	SV-12-5	SV-12-15	SV-12-25	SV-1A-25	SV-13-5	SV-13-15	SV-13-25
Sampling Depth (Ft.)	N/A	5.0	15.0	25.0	25.0	5.0	15.0	25.0
Purge Volume (ml)	N/A	3,226	2,329	2,474	2,474	3,226	2,329	2,474
Vacuum (in. of Water)	N/A	0	0	0	0	0	0	0
Injection Volume (ul)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Dilution Factor	1	1	1	1	1	1	1	1

COMPOUND	REP. LIMIT	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	3	ND	ND	ND	ND	ND	ND	ND	**5**
Bromobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	2	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	150	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	2	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	4	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	1000	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	1	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	1	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	8	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	3	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	50	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	200	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	9	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	1000	ND	ND	ND	ND	ND	ND	ND	ND

Note: ND = Below Listed Reporting Limit

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SOIL VAPOR RESULTS

Site Name: 870 N. Sanderson Ave., San Jacinto, CA **Lab Name:** Optimal Technology **Date:** 10/11/21
Analyst: J. Rice **Collector:** J. Rice **Inst. ID:** Agilent 6890N
Method: Modified EPA 8260B **Detector:** Agilent 5973N Mass Spectrometer **Page:** 2 of 6

SAMPLE ID	BLANK-1	SV-12-5	SV-12-15	SV-12-25	SV-1A-25	SV-13-5	SV-13-15	SV-13-25
Sampling Depth (Ft.)	N/A	5.0	15.0	25.0	25.0	5.0	15.0	25.0
Purge Volume (ml)	N/A	3,226	2,329	2,474	2,474	3,226	2,329	2,474
Vacuum (in. of Water)	N/A	0	0	0	0	0	0	0
Injection Volume (ul)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Dilution Factor	1	1	1	1	1	1	1	1

COMPOUND	REP. LIMIT	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)
1,1-Dichloropropene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	30	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	1000	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	4	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	30	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	1000	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	2	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	10	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	10	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	60	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	10	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	10	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1	ND	ND	ND	ND	ND	ND	ND	ND
m/p-Xylene	1000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	1000	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	1000	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	350	ND	ND	ND	ND	ND	ND	ND	ND
Tert-Amyl Methyl Ether (TAME)	1000	ND	ND	ND	ND	ND	ND	ND	ND
Tertiary Butyl Alcohol	1000	ND	ND	ND	ND	ND	ND	ND	ND
Isobutane (Tracer Gas)	1000	ND	ND	ND	ND	ND	ND	ND	ND
SURROGATE	**QC LIMITS**	**Recovery %**	**Recovery %**	**Recovery %**	**Recovery %**	**Recovery %**	**Recovery %**	**Recovery %**	**Recovery %**
Dibromofluoromethane	70-130%	N/A	89%	99%	93%	105%	117%	114%	108%
4-Bromofluorobenzene	70-130%	N/A	105%	115%	110%	125%	123%	118%	119%

Note: ND = Below Listed Reporting Limit

OPTIMAL TECHNOLOGY
Specializing in Environmental Field Services

SOIL VAPOR RESULTS

Site Name: 870 N. Sanderson Ave., San Jacinto, CA **Lab Name:** Optimal Technology **Date:** 10/11/21
Analyst: J. Rice **Collector:** J. Rice **Inst. ID:** Agilent 6890N
Method: Modified EPA 8260B **Detector:** Agilent 5973N Mass Spectrometer

SAMPLE ID	SV-14-5	SV-14-15	SV-14-25	SV-14-25 Dup	SV-15-5	SV-15-15	SV-15-25	SV-3A-15
Sampling Depth (Ft.)	5.0	15.0	25.0	25.0	5.0	15.0	25.0	15.0
Purge Volume (ml)	3,226	2,329	2,474	2,474	3,226	2,329	2,474	2,329
Vacuum (in. of Water)	0	0	0	0	0	0	0	0
Injection Volume (ul)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Dilution Factor	1	1	1	1	1	1	1	1

COMPOUND	REP. LIMIT	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	3	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	2	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	150	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	2	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	4	**17**	**13**	ND	ND	ND	ND	ND	ND
Chloromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	1000	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	1	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	1	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	8	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	3	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	50	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	200	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	9	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	1000	ND	ND	ND	ND	ND	ND	ND	ND

Note: ND = Below Listed Reporting Limit

OPTIMAL TECHNOLOGY
Specializing in Environmental Field Services

SOIL VAPOR RESULTS

Site Name: 870 N. Sanderson Ave., San Jacinto, CA **Lab Name:** Optimal Technology **Date:** 10/11/21
Analyst: J. Rice **Collector:** J. Rice **Inst. ID:** Agilent 6890N
Method: Modified EPA 8260B **Detector:** Agilent 5973N Mass Spectrometer

SAMPLE ID	SV-14-5	SV-14-15	SV-14-25	SV-14-25 Dup	SV-15-5	SV-15-15	SV-15-25	SV-3A-15
Sampling Depth (Ft.)	5.0	15.0	25.0	25.0	5.0	15.0	25.0	15.0
Purge Volume (ml)	3,226	2,329	2,474	2,474	3,226	2,329	2,474	2,329
Vacuum (in. of Water)	0	0	0	0	0	0	0	0
Injection Volume (ul)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Dilution Factor	1	1	1	1	1	1	1	1

COMPOUND	REP. LIMIT	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)
1,1-Dichloropropene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	30	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	1000	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	4	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	30	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	1000	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	2	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	10	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	10	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	60	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	10	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	10	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1	ND	ND	ND	ND	ND	ND	ND	ND
m/p-Xylene	1000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	1000	ND	ND	ND	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	1000	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	1000	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	350	ND	ND	ND	ND	ND	ND	ND	ND
Tert-Amyl Methyl Ether (TAME)	1000	ND	ND	ND	ND	ND	ND	ND	ND
Tertiary Butyl Alcohol	1000	ND	ND	ND	ND	ND	ND	ND	ND
Isobutane (Tracer Gas)	1000	ND	ND	ND	ND	ND	ND	ND	ND
SURROGATE	**QC LIMITS**	Recovery %	Recovery %	Recovery %	Recovery %	Recovery %	Recovery %	Recovery %	Recovery %
Dibromofluoromethane	70-130%	96%	101%	99%	90%	87%	98%	109%	114%
4-Bromofluorobenzene	70-130%	106%	117%	105%	104%	106%	113%	116%	111%

Note: ND = Below Listed Reporting Limit

OPTIMAL TECHNOLOGY
Specializing in Environmental Field Services

SOIL VAPOR RESULTS

Site Name: 870 N. Sanderson Ave., San Jacinto, CA **Lab Name:** Optimal Technology **Date:** 10/11/21
Analyst: J. Rice **Collector:** J. Rice **Inst. ID:** Agilent 6890N
Method: Modified EPA 8260B **Detector:** Agilent 5973N Mass Spectrometer

SAMPLE ID	SV-3A-25	SV-11-5	SV-11-15	SV-11-25	SV-11-25 Dup			
Sampling Depth (Ft.)	25.0	5.0	15.0	25.0	25.0			
Purge Volume (ml)	2,474	3,226	2,329	2,474	2,474			
Vacuum (in. of Water)	0	0	0	0	0			
Injection Volume (ul)	100,000	100,000	100,000	100,000	100,000			
Dilution Factor	1	1	1	1	1			

COMPOUND	REP. LIMIT	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)			
Acetone	1000	ND	ND	ND	ND	ND			
Benzene	3	ND	ND	ND	ND	ND			
Bromobenzene	1000	ND	ND	ND	ND	ND			
Bromochloromethane	1000	ND	ND	ND	ND	ND			
Bromodichloromethane	2	ND	ND	ND	ND	ND			
Bromoform	80	ND	ND	ND	ND	ND			
Bromomethane	150	ND	ND	ND	ND	ND			
2-Butanone (MEK)	1000	ND	ND	ND	ND	ND			
n-Butylbenzene	1000	ND	ND	ND	ND	ND			
sec-Butylbenzene	1000	ND	ND	ND	ND	ND			
tert-Butylbenzene	1000	ND	ND	ND	ND	ND			
Carbon Tetrachloride	2	ND	ND	ND	ND	ND			
Chlorobenzene	1000	ND	ND	ND	ND	ND			
Chloroethane	1000	ND	ND	ND	ND	ND			
Chloroform	4	ND	ND	ND	ND	ND			
Chloromethane	1000	ND	ND	ND	ND	ND			
2-Chlorotoluene	1000	ND	ND	ND	ND	ND			
4-Chlorotoluene	1000	ND	ND	ND	ND	ND			
Cyclohexane	1000	ND	ND	ND	ND	ND			
Dibromochloromethane	1000	ND	ND	ND	ND	ND			
1,2-Dibromo-3-chloropropane	1	ND	ND	ND	ND	ND			
1,2-Dibromoethane	1	ND	ND	ND	ND	ND			
Dibromomethane	1000	ND	ND	ND	ND	ND			
1,2-Dichlorobenzene	1000	ND	ND	ND	ND	ND			
1,3-Dichlorobenzene	1000	ND	ND	ND	ND	ND			
1,4-Dichlorobenzene	8	ND	ND	ND	ND	ND			
Dichlorodifluoromethane	1000	ND	ND	ND	ND	ND			
1,2-Dichloroethane	3	ND	ND	ND	ND	ND			
1,1-Dichloroethane	50	ND	ND	ND	ND	ND			
1,1-Dichloroethene	1000	ND	ND	ND	ND	ND			
cis-1,2-Dichloroethene	200	ND	ND	ND	ND	ND			
trans-1,2-Dichloroethene	1000	ND	ND	ND	ND	ND			
1,2-Dichloropropane	9	ND	ND	ND	ND	ND			
2,2-Dichloropropane	1000	ND	ND	ND	ND	ND			
1,3-Dichloropropane	1000	ND	ND	ND	ND	ND			

Note: ND = Below Listed Reporting Limit

OPTIMAL TECHNOLOGY
Specializing in Environmental Field Services

SOIL VAPOR RESULTS

Site Name: 870 N. Sanderson Ave., San Jacinto, CA **Lab Name:** Optimal Technology **Date:** 10/11/21
Analyst: J. Rice **Collector:** J. Rice **Inst. ID:** Agilent 6890N
Method: Modified EPA 8260B **Detector:** Agilent 5973N Mass Spectrometer **Page:** 6 of 6

SAMPLE ID	SV-3A-25	SV-11-5	SV-11-15	SV-11-25	SV-11-25 Dup			
Sampling Depth (Ft.)	25.0	5.0	15.0	25.0	25.0			
Purge Volume (ml)	2,474	3,226	2,329	2,474	2,474			
Vacuum (in. of Water)	0	0	0	0	0			
Injection Volume (ul)	100,000	100,000	100,000	100,000	100,000			
Dilution Factor	1	1	1	1	1			

COMPOUND	REP. LIMIT	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)	CONC (ug/m^3)			
1,1-Dichloropropene	1000	ND	ND	ND	ND	ND			
Ethylbenzene	30	ND	ND	ND	ND	ND			
Freon 113	1000	ND	ND	ND	ND	ND			
Hexachlorobutadiene	4	ND	ND	ND	ND	ND			
Isopropylbenzene	1000	ND	ND	ND	ND	ND			
p-Isopropyltoluene	1000	ND	ND	ND	ND	ND			
Methylene Chloride	30	ND	ND	ND	ND	ND			
4-Methyl-2-Pentanone	1000	ND	ND	ND	ND	ND			
Naphthalene	2	ND	ND	ND	ND	ND			
n-Propylbenzene	1000	ND	ND	ND	ND	ND			
Styrene	1000	ND	ND	ND	ND	ND			
1,1,1,2-Tetrachloroethane	10	ND	ND	ND	ND	ND			
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND			
Tetrachloroethene (PCE)	10	ND	**16**	ND	ND	ND			
Toluene	1000	ND	ND	ND	ND	ND			
1,2,3-Trichlorobenzene	1000	ND	ND	ND	ND	ND			
1,2,4-Trichlorobenzene	60	ND	ND	ND	ND	ND			
1,1,1-Trichloroethane	1000	ND	ND	ND	ND	ND			
1,1,2-Trichloroethane	5	ND	ND	ND	ND	ND			
Trichloroethene (TCE)	10	ND	ND	ND	ND	ND			
Trichlorofluoromethane	1000	ND	ND	ND	ND	ND			
1,2,3-Trichloropropane	10	ND	ND	ND	ND	ND			
1,2,4-Trimethylbenzene	1000	ND	ND	ND	ND	ND			
1,3,5-Trimethylbenzene	1000	ND	ND	ND	ND	ND			
Vinyl Chloride	1	ND	ND	ND	ND	ND			
m/p-Xylene	1000	ND	ND	ND	ND	ND			
o-Xylene	1000	ND	ND	ND	ND	ND			
Diisopropyl Ether (DIPE)	1000	ND	ND	ND	ND	ND			
Ethyl Tert Butyl Ether	1000	ND	ND	ND	ND	ND			
MTBE	350	ND	ND	ND	ND	ND			
Tert-Amyl Methyl Ether (TAME)	1000	ND	ND	ND	ND	ND			
Tertiary Butyl Alcohol	1000	ND	ND	ND	ND	ND			
Isobutane (Tracer Gas)	1000	ND	ND	ND	ND	ND			
SURROGATE	**QC LIMITS**	Recovery %	Recovery %	Recovery %	Recovery %	Recovery %			
Dibromofluoromethane	70-130%	110%	103%	88%	83%	80%			
4-Bromofluorobenzene	70-130%	94%	105%	97%	99%	89%			

Note: ND = Below Listed Reporting Limit

OPTIMAL TECHNOLOGY
Specializing in Environmental Field Services

CHAIN OF CUSTODY FORM

Site Name/Number		PO# / Project Ref#	
Site Address	**870 N. Sanderson Ave., San Jacinto, CA**		
Company Name			
Contact Person(s):		Phone#	Email:
Comments:			

				TESTS REQUIRED (please mark with an "X")			
Sample Identification	Sampling Device	Date Collected	Time Collected	**Soil Gas Mod 8260B**	**Soil Gas Mod 8021B**	**Soil Gas Mod 8015**	**Notes**
BLANK-1	Syringe	10/11/21	9:00 AM	x			
SV-12-5	Syringe	10/11/21	9:27 AM	x			
SV-12-15	Syringe	10/11/21	9:47 AM	x			
SV-12-25	Syringe	10/11/21	10:08 AM	x			
SV-1A-25	Syringe	10/11/21	10:28 AM	x			
SV-13-5	Syringe	10/11/21	10:53 AM	x			
SV-13-15	Syringe	10/11/21	11:15 AM	x			
SV-13-25	Syringe	10/11/21	11:34 AM	x			
SV-14-5	Syringe	10/11/21	12:00 PM	x			
SV-14-15	Syringe	10/11/21	12:18 PM	x			
SV-14-25	Syringe	10/11/21	12:36 PM	x			
SV-14-25 Dup	Syringe	10/11/21	12:36 PM	x			
SV-15-5	Syringe	10/11/21	1:00 PM	x			
SV-15-15	Syringe	10/11/21	1:19 PM	x			
SV-15-25	Syringe	10/11/21	1:37 PM	x			
SV-3A-15	Syringe	10/11/21	1:57 PM	x			
SV-3A-25	Syringe	10/11/21	2:16 PM	x			
SV-11-5	Syringe	10/11/21	2:35 PM	x			
SV-11-15	Syringe	10/11/21	2:58 PM	x			
SV-11-25	Syringe	10/11/21	3:17 PM	x			
SV-11-25 Dup	Syringe	10/11/21	3:37 PM	x			

Collected & Tested by:

John Rice

1667 Cross Bridge Place, Thousand Oaks, CA 91362 • Toll Free (877) SOIL GAS (764-5427) • (818) 734-6230 • Fax (818) 734-6235

ATTACHMENT B

Boring Logs

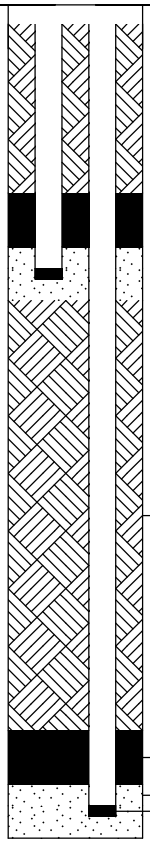
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

5150 E. Pacific Coast Highway, Suite 450
Long Beach, California 90804
Telephone: (310) 879 - 4900

BORING LOG

WELL NO.: **SV-1**	NORTHING: **Not Measured**	EASTING: **Not Measured**		
PROJECT NO./NAME: **2217.0025L / Shea San Jacinto**		LOCATION: **870 North Sanderson Avenue, San Jacinto, California**		
APPROVED BY: **D. Williams**	LOGGED BY: **D. Williams**			
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: **2.25-in. Drive Sampler**	BOREHOLE DIAMETER: **2.25/2.75-in.**	DRILLING EQUIPMENT/METHOD: **Geoprobe 6620DT / DPT**	SAMPLING METHOD: **1.5" Large Bore**	START-FINISH DATE: **9/7/21-9/7/21**
CASING MAT./DIA.: **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: (Feet) GROUND SURFACE			GRAVEL PACK SIZES: **#3 Sand**	

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), dry, nonplastic, fine sand, trace angular gravel to 1/4", (fines: 85%, sand: 10%, gravel: 5%).			Hand augered to 5 ft below ground surface (bgs)
		@ 3 feet bgs: As above, except brown (10YR 5/3), slightly moist, (fines: 75%, sand: 20%, gravel: 5%).			Temporary soil-vapor probes at 5 and 15 feet bgs
5		Poorly-Graded SAND with Silt (SP-SM): dark gray (10YR 4/1), moist, fine to medium grained sand, few silt, (fines: 10%, sand: 90%, gravel: 0%).		1.6	Soil Sample SV-1-5 @ 1108
10		SILT with Sand (ML): grayish brown (10YR 5/2), moist, nonplastic, fine sand, (fines: 85%, sand: 15%, gravel: 0%).		0.2	Soil Sample SV-1-10 @ 1252
15				0.2	Soil Sample SV-1-15 @ 1256
		Silty SAND (SM): very dark gray (10YR 3/1), moist, fine to medium grained sand, trace fine calcitic gravel to 1/4", (fines: 20%, sand: 75%, gravel: 5%)			
20				0.1	Soil Sample SV-1-20 @ 1307



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 20' bgs.

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

5150 E. Pacific Coast Highway, Suite 450
Long Beach, California 90804
Telephone: (310) 879 - 4900

BORING LOG

WELL NO. **SV-1A**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue**		
APPROVED BY **D. Williams**	LOGGED BY **J. Knight**	**San Jacinto, California**		
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental /**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **2.25-in. Drive Sampler**	BOREHOLE DIAMETER **2.25-in.**	DRILLING EQUIPMENT/METHOD **Geoprobe 6620DT / DPT**	SAMPLING METHOD **1.5" Large Bore**	START-FINISH DATE **10/8/21-10/8/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)			GRAVEL PACK SIZES **#3 Sand**	

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT (ML): gray (10YR 5/1), dry, few fine Sand, trace angular gravel to 5mm (85% Silt, 10% Sand, 5% Gravel), non-plastic.		10.0	Hand augered to 5 ft below ground surface (bgs)
5		Silty SAND (SM): brown (10YR 5/3), slightly moist, fine Sand, little Silt, trace angular gravel, (70% Sand, 25% Silt, 5% Gravel), non-plastic.			5
		Poorly-Graded SAND with Silt (SP-SM): dark gray (10YR 5/1), moist, fine to medium Sand, few Silt, no Gravel (90% Sand, 10% Silt), non-plastic.		7.5	
10		SILT with Sand (ML): grayish brown (10YR 5/2), moist, little fine Sand, trace Clay, (85% Silt, 15% Sand, <5% Clay).		3.2	10
15				5.3	15
20				1.7	20
25				2.7	Temporary 1" stainless steel soil vapor probe at 25' bgs 25

Hydrated Bentonite
Dry Bentonite
#3 Sand
1" Probe

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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Long Beach, California 90804
Telephone: (310) 879 - 4900

BORING LOG

WELL NO.	NORTHING	EASTING
SV-2	**Not Measured**	**Not Measured**

PROJECT NO./NAME	LOCATION
2217.0025L / Shea San Jacinto	**870 North Sanderson Avenue**
APPROVED BY: **D. Williams** / LOGGED BY: **D. Williams**	**San Jacinto, California**
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**	GEOGRAPHIC AREA

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2.25-in. Drive Sampler	**2.25/2.75-in.**	**Geoprobe 6620DT / DPT**	**1.5" Large Bore**	**9/7/21-9/7/21**

CASING MAT./DIA.: **Nylaflow / 1/4"**
SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**

ELEVATION OF: GROUND SURFACE (Feet)
GRAVEL PACK SIZES: **#3 Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), dry, nonplastic, fine sand, trace angular gravel to 1/4", (fines: 85%, sand: 10%, gravel: 5%).			Hand augered to 5 ft below ground surface (bgs)
		@ 3 feet bgs: As above, except brown (10YR 5/3), slightly moist, fine to medium grained sand, angular calcitic gravel to 1/2", (fines: 75%, sand: 20%, gravel: 5%).			
5				0.2	Soil Sample SV-2-5 @ 1238
		SILT (ML): gray (10YR 5/1), moist, nonplastic, trace fine sand, (fines: 95%, sand: 5%, gravel: 0%)			
10				0.0	Soil Sample SV-2-10 @ 1355
		Sandy Lean CLAY (CL): very dark gray (10YR 3/1), moist, medium plasticity, fine to medium grained sand, (fines: 70%, sand: 30%, gravel: 0%)			
		Silty SAND (SM): very dark gray (10YR 3/1), moist, fine to medium grained sand, (fines: 30%, sand: 70%, gravel: 0%)			
15		@ 14 feet bgs: As above, except dark grey (10YR 4/1), fine sand, (fines: 20%, sand: 80%, gravel: 0%)		0.0	Soil Sample SV-2-15 @ 1402
					Temporary soil-vapor probes at 5 and 15 feet bgs
20					Soil Sample SV-2-20 @ 1409

Hydrated Bentonite
Dry Bentonite
#3 Sand
1" Stainless Steel Probe

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 20 bgs.

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

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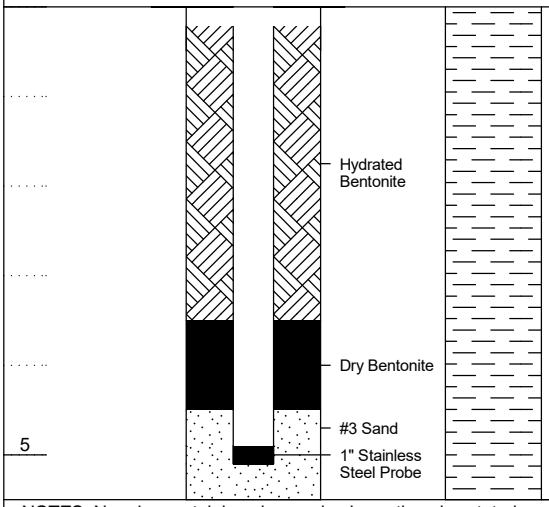
BORING LOG

WELL NO.: **SV-3**	NORTHING: **Not Measured**	EASTING: **Not Measured**		
PROJECT NO./NAME: **2217.0025L / Shea San Jacinto**		LOCATION: **870 North Sanderson Avenue, San Jacinto, California**		
APPROVED BY: **D. Williams**	LOGGED BY: **D. Williams**			
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: **NA**	BOREHOLE DIAMETER: **2.75-in.**	DRILLING EQUIPMENT/METHOD: **Hand Auger / HA**	SAMPLING METHOD: **Hand Auger**	START-FINISH DATE: **9/7/21-9/7/21**
CASING MAT./DIA.: **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: (Feet) GROUND SURFACE		GRAVEL PACK SIZES: **#3 Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), fine Sand, trace angular Gravel to 1/4", (fines: 85%, sand: 10%, gravel: 5%), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		Sandy SILT (ML): brown (10YR 5/3), slightly moist, fine to medium Sand (fines: 70%, sand: 25%, gravel: 5%), non-plastic.			
5				0.0	Soil Sample SV-3-5 @ 1100 5 Temporary soil-vapor probe at 5 feet bgs



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

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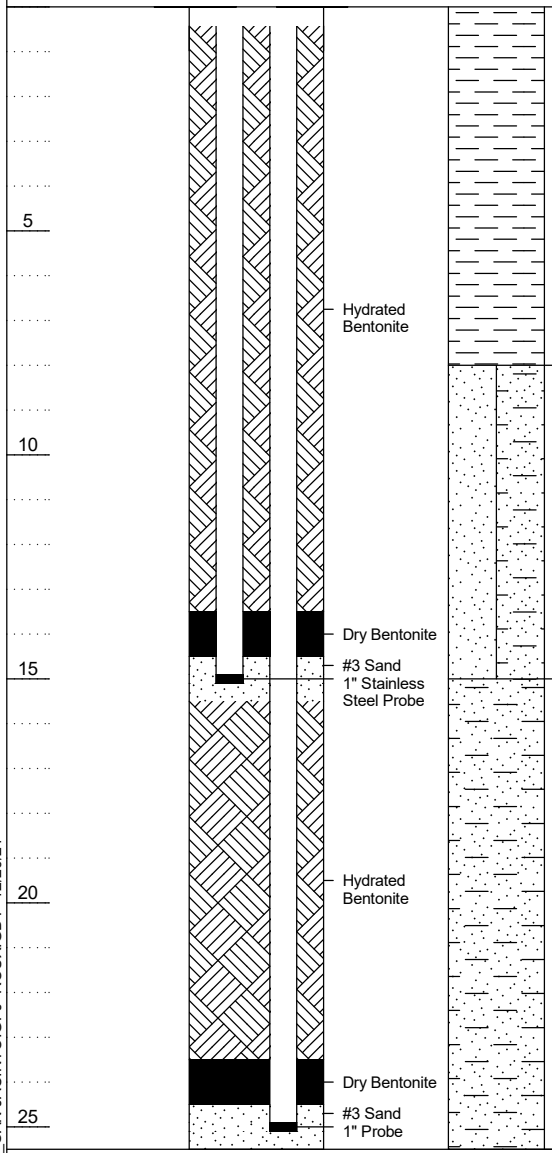
BORING LOG

WELL NO.: **SV-3A**	NORTHING: **Not Measured**	EASTING: **Not Measured**		
PROJECT NO./NAME: **2217.0025L / Shea San Jacinto**		LOCATION: **870 North Sanderson Avenue, San Jacinto, California**		
APPROVED BY: **D. Williams**	LOGGED BY: **J. Knight**			
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental /**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: **2.25-in. Drive Sampler**	BOREHOLE DIAMETER: **2.25-in.**	DRILLING EQUIPMENT/METHOD: **Geoprobe 6620DT / DPT**	SAMPLING METHOD: **1.5" Large Bore**	START-FINISH DATE: **10/8/21-10/8/21**
CASING MAT./DIA.: **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: (Feet) GROUND SURFACE			GRAVEL PACK SIZES: **#3 Sand**	



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
0		SILT with Sand (ML): grayish brown (10YR 5/2), dry, few fine Sand, trace angular Gravel to 5mm, (85% Silt, 10% Sand, 5% Gravel), non-plastic			Hand augered to 5 ft below ground surface (bgs)
5				2.0	
10		Poorly-graded SAND with Silt (SP-SM): brown (10YR 5/3), moist, few Gravel to 5mm, few Silt, (80% Sand, 10% Gravel, 10% Silt).		3.1	
15		Silty SAND (SM): grayish brown (10YR 5/2), fine to medium Sand, little Silt (80% Sand, 20% Silt).		1.7	
20					
25		Silty SAND (SM): very dark gray (10YR 3/1), moist, fine to medium Sand, some Silt, trace Gravel to 1/4" (70% Sand, 30% Silt, <5% Gravel).		1.0	Temporary soil vapor probes at 15' and 25' bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

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BORING LOG

WELL NO.	NORTHING	EASTING
SV-4	**Not Measured**	**Not Measured**

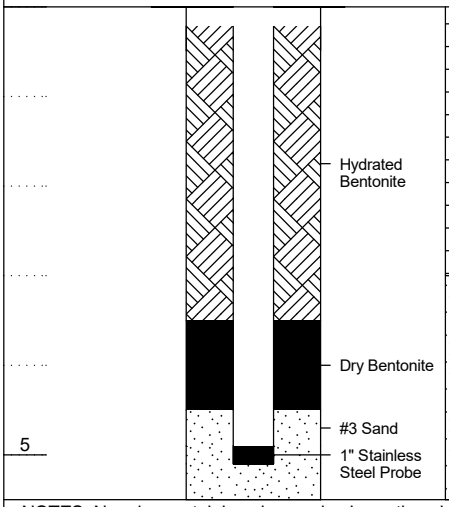
PROJECT NO./NAME	LOCATION
2217.0025L / Shea San Jacinto	**870 North Sanderson Avenue**
APPROVED BY: **D. Williams** / LOGGED BY: **D. Williams**	**San Jacinto, California**
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**	GEOGRAPHIC AREA

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
NA	**3.25-in.**	**Hand Auger / HA**	**Hand Auger**	**9/7/21-9/7/21**

CASING MAT./DIA.: **Nylaflow / 1/4"** | SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**

ELEVATION OF: GROUND SURFACE (Feet) | GRAVEL PACK SIZES: **#3 Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), dry, fine Sand, trace angular gravel to 1/2", (fines: 85%, sand: 10%, gravel: 5%), medium plasticity, no odor or staining.			Hand augered to 5 ft below ground surface (bgs)
		Poorly-Graded SAND (SP): brown (10YR 5/3), slightly moist, fine to medium Sand, (fines: 5%, sand: 95%, gravel: 0%).			
5				0.1	Soil Sample SV-4-5 @ 1119 5 Temporary soil-vapor probe at 5 feet bgs



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

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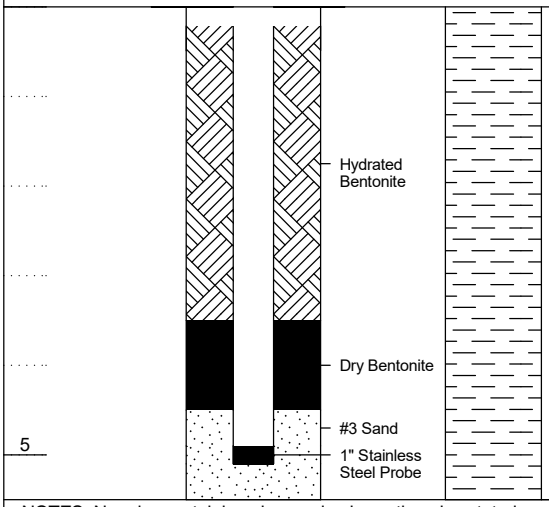
BORING LOG

WELL NO. **SV-5**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue** **San Jacinto, California**		
APPROVED BY **D. Williams**	LOGGED BY **D. Williams**			
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental / Frank Rodriquez**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **NA**	BOREHOLE DIAMETER **3.25-in.**	DRILLING EQUIPMENT/METHOD **Hand Auger / HA**	SAMPLING METHOD **Hand Auger**	START-FINISH DATE **9/7/21-9/7/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)			GRAVEL PACK SIZES **#3 Sand**	

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), dry, little fine Sand, trace fine Gravel to 1/4" (fines: 85%, sand: 10%, gravel: 5%).			Hand augered to 5 ft below ground surface (bgs) Soil Sample SV-5-0.5 @ 1147
		@ 3 feet bgs: Same as above, except angular calcite Gravel to 1/3".			
5				0.0	Soil Sample SV-5-5 @ 1158 5 Temporary soil-vapor probe at 5 feet bgs



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

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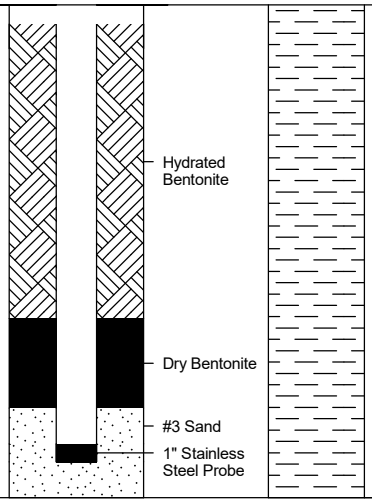
BORING LOG

WELL NO. **SV-6**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue San Jacinto, California**		
APPROVED BY **D. Williams**	LOGGED BY **D. Williams**			
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental / Frank Rodriquez**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **NA**	BOREHOLE DIAMETER **2.75-in.**	DRILLING EQUIPMENT/METHOD **Hand Auger / HA**	SAMPLING METHOD **Hand Auger**	START-FINISH DATE **9/7/21-9/7/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)		GRAVEL PACK SIZES **#3 Sand**		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): pale brown (10YR 6/3), dry, fine Sand, angular Gravel to 1/2" (fines: 70%, sand: 20%, gravel: 10%), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		SILT (ML): grayish brown (10YR 5/2), slighly moist, fine sand, trace angular gravel to 1/4", non-plastic			
5				0.1	Temporary soil-vapor probe at 5 feet bgs



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

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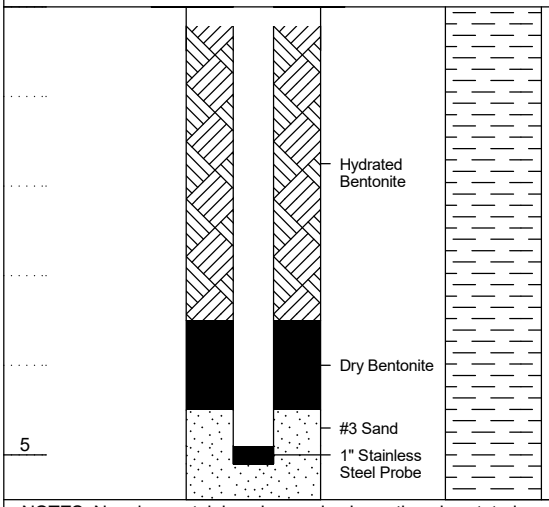
BORING LOG

WELL NO. **SV-7**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue** **San Jacinto, California**		
APPROVED BY **D. Williams**	LOGGED BY **D. Williams**			
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental / Frank Rodriquez**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **NA**	BOREHOLE DIAMETER **2.75-in.**	DRILLING EQUIPMENT/METHOD **Hand Auger / HA**	SAMPLING METHOD **Hand Auger**	START-FINISH DATE **9/7/21-9/7/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)			GRAVEL PACK SIZES **#3 Sand**	

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Sandy SILT (ML): pale brown (10YR 6/3), dry, fine Sand, angular Gravel to 1/2" (fines: 70%, sand: 20%, gravel: 10%), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		SILT with Sand (ML): grayish brown (10YR 5/2), slighly moist, trace fine Gravel (fines: 85%, sand: 10%, gravel: 5%), non-plastic.			
5				0.1	Temporary soil-vapor probe at 5 feet bgs



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

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BORING LOG

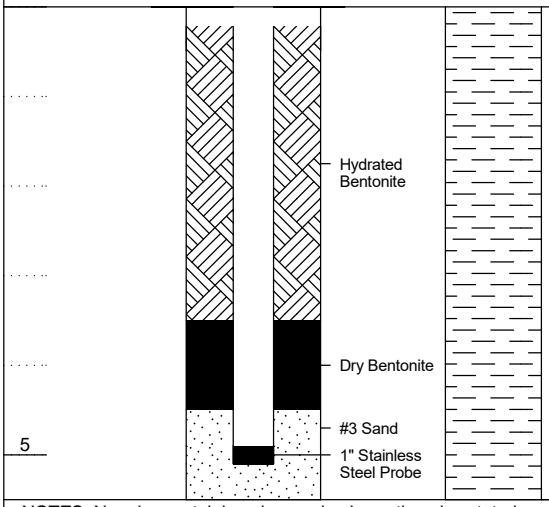
WELL NO.	NORTHING	EASTING
SV-8	**Not Measured**	**Not Measured**

PROJECT NO./NAME	LOCATION
2217.0025L / Shea San Jacinto	**870 North Sanderson Avenue**
APPROVED BY: **D. Williams** / LOGGED BY: **D. Williams**	**San Jacinto, California**
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**	GEOGRAPHIC AREA

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
NA	**2.75-in.**	**Hand Auger / HA**	**Hand Auger**	**9/7/21-9/7/21**

CASING MAT./DIA.: **Nylaflow / 1/4"** | SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**

ELEVATION OF: GROUND SURFACE (Feet) | GRAVEL PACK SIZES: **#3 Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Sandy SILT (ML): pale brown (10YR 6/3), dry, fine Sand, angular gravel to 1/2" (fines: 70%, sand: 20%, gravel: 10%), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		SILT with Sand (ML): grayish brown (10YR 5/2), slighly moist, trace fine Gravel (fines: 85%, sand: 10%, gravel: 5%), non-plastic.			
5				0.0	Temporary soil-vapor probe at 5 feet bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

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BORING LOG

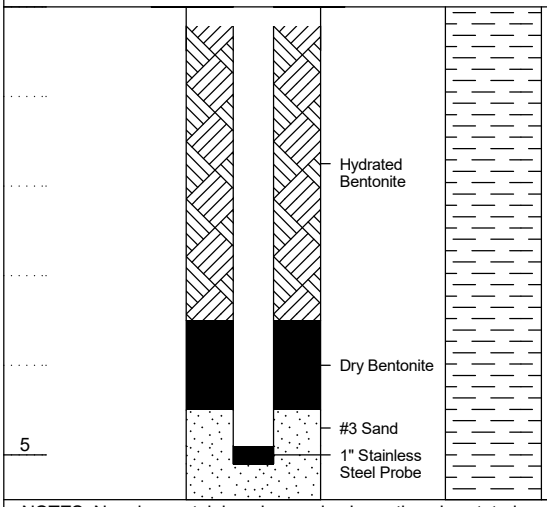
WELL NO.	NORTHING	EASTING
SV-9	**Not Measured**	**Not Measured**

PROJECT NO./NAME	LOCATION
2217.0025L / Shea San Jacinto	**870 North Sanderson Avenue**
APPROVED BY: **D. Williams** / LOGGED BY: **D. Williams**	**San Jacinto, California**
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**	GEOGRAPHIC AREA

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
NA	**2.75-in.**	**Hand Auger / HA**	**Hand Auger**	**9/7/21-9/7/21**

CASING MAT./DIA.: **Nylaflow / 1/4"**
SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**

ELEVATION OF: GROUND SURFACE (Feet)
GRAVEL PACK SIZES: **#3 Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Sandy SILT (ML): pale brown (10YR 6/3), dry, fine Sand, angular gravel to 1/2" (fines: 70%, sand: 20%, gravel: 10%), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		SILT with Sand (ML): grayish brown (10YR 5/2), slighly moist, trace fine Gravel to 1/4" (fines: 85%, sand: 10%, gravel: 5%), non-plastic.			
5				0.1	Temporary soil-vapor probe at 5 feet bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

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BORING LOG

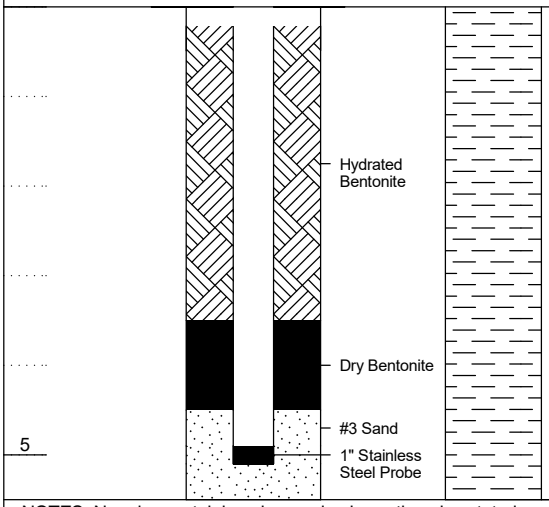
WELL NO.	NORTHING	EASTING
SV-10	**Not Measured**	**Not Measured**

PROJECT NO./NAME	LOCATION
2217.0025L / Shea San Jacinto	**870 North Sanderson Avenue**
APPROVED BY: **D. Williams** / LOGGED BY: **D. Williams**	**San Jacinto, California**
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental / Frank Rodriquez**	GEOGRAPHIC AREA

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
NA	**2.75-in.**	**Hand Auger / HA**	**Hand Auger**	**9/7/21-9/7/21**

CASING MAT./DIA.: **Nylaflow / 1/4"**
SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**

ELEVATION OF: GROUND SURFACE (Feet)
GRAVEL PACK SIZES: **#3 Sand**

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Sandy SILT (ML): pale brown (10YR 6/3), dry, fine Sand, angular gravel to 1/2" (fines: 70%, sand: 20%, gravel: 10%), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		SILT with Sand (ML): grayish brown (10YR 5/2), slighly moist, trace fine Gravel (fines: 85%, sand: 10%, gravel: 5%), non-plastic.			
5				0.0	Temporary soil-vapor probe at 5 feet bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 5.5' bgs

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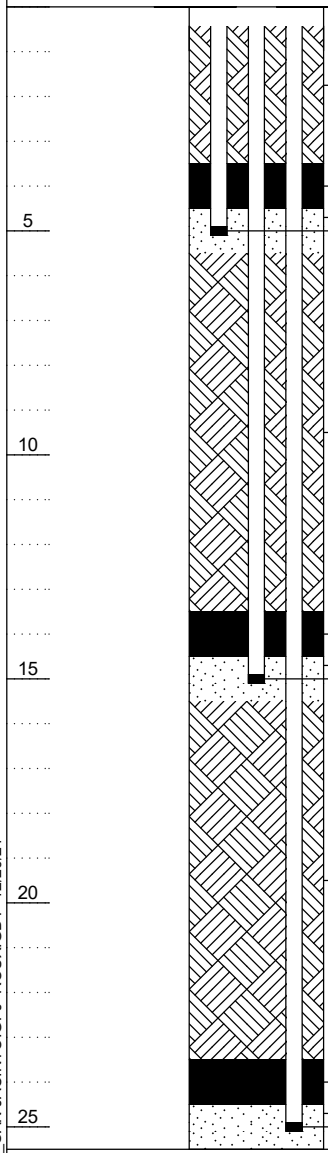
BORING LOG

WELL NO. **SV-11**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue**		
APPROVED BY **D. Williams**	LOGGED BY **J. Knight**	**San Jacinto, California**		
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental /**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **2.25-in. Drive Sampler**	BOREHOLE DIAMETER **2.25-in.**	DRILLING EQUIPMENT/METHOD **Geoprobe 6620DT / DPT**	SAMPLING METHOD **1.5" Large Bore**	START-FINISH DATE **10/8/21-10/8/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)			GRAVEL PACK SIZES **#3 Sand**	



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), dry, fine Sand, little Silt, trace angular gravel to 1cm (80% Silt, 15% Sand, 5% Gravel), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
5		SILT (ML): gray (10YR 5/1), moist, few fine Sand (90% Silt, 10% Sand, 0% Gravel), non-plastic.		1.3	
10		Silty SAND (SM): very dark gray (10YR 3/1), moist, medium to fine Sand, some Silt, trace Clay, (70% Sand, 30% Silt, <5% Clay), non-plastic.		1.0	
15		Poorly-Graded SAND (SP): dark gray (10YR 4/1), moist, fine Sand, few Silt (90% Sand, 10% Silt).		3.2	
20				3.1	
25				1.5	Temporary soil vapor probes at 5', 15', and 25' bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

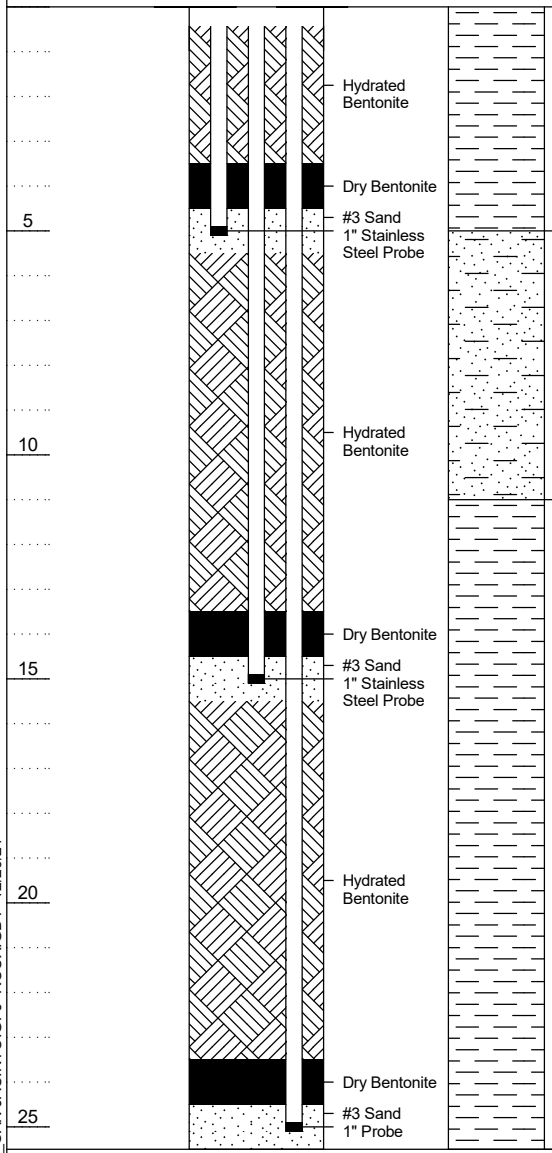
BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

5150 E. Pacific Coast Highway, Suite 450
Long Beach, California 90804
Telephone: (310) 879 - 4900

BORING LOG

WELL NO. **SV-12**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue, San Jacinto, California**		
APPROVED BY **D. Williams**	LOGGED BY **J. Knight**			
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental /**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **2.25-in. Drive Sampler**	BOREHOLE DIAMETER **2.25-in.**	DRILLING EQUIPMENT/METHOD **Geoprobe 6620DT / DPT**	SAMPLING METHOD **1.5" Large Bore**	START-FINISH DATE **10/8/21-10/8/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: (Feet) GROUND SURFACE			GRAVEL PACK SIZES **#3 Sand**	



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
0		SILT (ML): grayish brown (10YR 5/2), few fine Sand, trace angular gravel, non-plastic.			Hand augered to 5 ft below ground surface (bgs)
5		Silty SAND (SM): brown (10YR 5/3), fine Sand, little Silt, trace angular Gravel (80% Sand, 15% Silt, 5% Gravel), non-plastic.		1.2	
10		SILT with Sand (ML): grayish brown (10YR 5/2), moist, litltle Sand, (85% Silt, 15% Sand).		2.3	
15				5.5	
20				3.3	
25				4.0	Temporary soil vapor probes at 5', 15', and 25' bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

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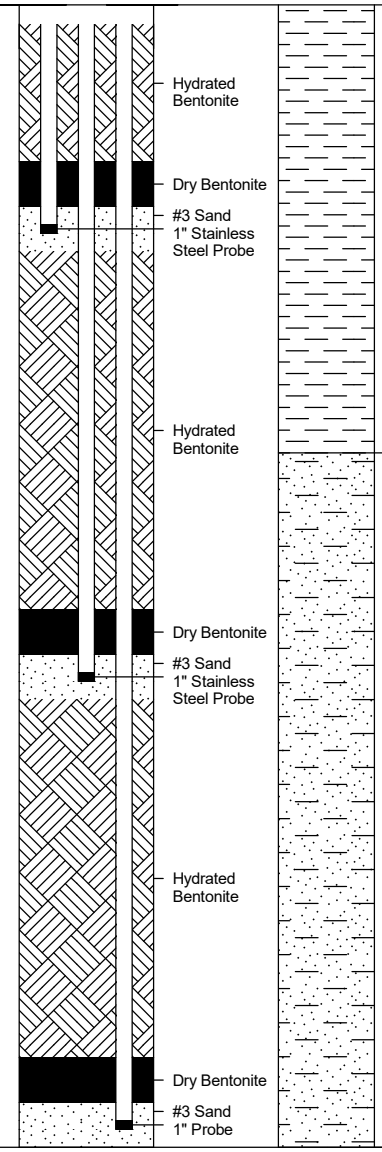
BORING LOG

WELL NO. **SV-13**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue** **San Jacinto, California**		
APPROVED BY **D. Williams**	LOGGED BY **J. Knight**			
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental /**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **2.25-in. Drive Sampler**	BOREHOLE DIAMETER **2.25-in.**	DRILLING EQUIPMENT/METHOD **Geoprobe 6620DT / DPT**	SAMPLING METHOD **1.5" Large Bore**	START-FINISH DATE **10/8/21-10/8/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)			GRAVEL PACK SIZES **#3 Sand**	

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand (ML): grayish brown (10YR 5/2), dry, few fine Sand, trace angular Gravel to 1cm (85% Silt, 10% Sand, 5% Gravel).			Hand augered to 5 ft below ground surface (bgs)
5		SILT (ML): gray (10YR 5/1), moist, trace fine Sand (95% Silt, 5% Sand), non-plastic.		1.1	
10		Silty SAND (SM): very dark gray (10YR 3/1), moist, fine to medium Sand, little Silt, trace Clay (75% Sand, 20% Silt, 5% Clay).		2.5	
15		@15' bgs: As above, except dark gray (10YR 4/1), no Clay, (80% Sand, 20% Silt).		3.0	
20				1.5	
25				1.3	Temporary soil vapor probes at 5', 15', and 25' bgs



NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

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BORING LOG

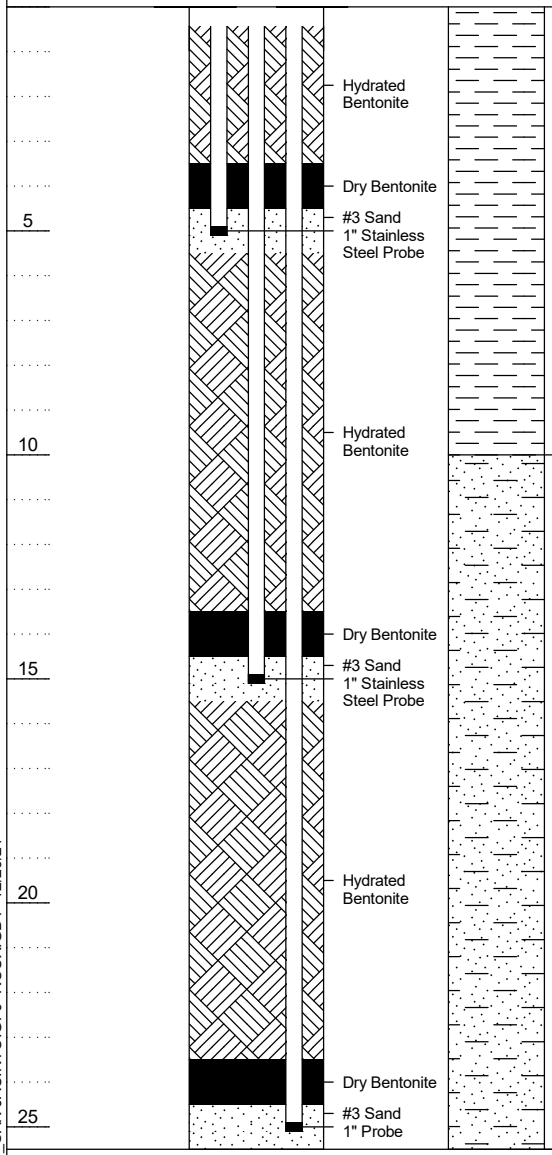
WELL NO.	NORTHING	EASTING
SV-14	**Not Measured**	**Not Measured**

PROJECT NO./NAME	LOCATION
2217.0025L / Shea San Jacinto	**870 North Sanderson Avenue**
APPROVED BY: **D. Williams** / LOGGED BY: **J. Knight**	**San Jacinto, California**
DRILLING CONTRACTOR/DRILLER: **Strong Arm Environmental /**	GEOGRAPHIC AREA

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2.25-in. Drive Sampler	**2.25-in.**	**Geoprobe 6620DT / DPT**	**1.5" Large Bore**	**10/8/21-10/8/21**

CASING MAT./DIA.: **Nylaflow / 1/4"** | SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**

ELEVATION OF: GROUND SURFACE (Feet) | GRAVEL PACK SIZES: **#3 Sand**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT (ML): grayish brown (10YR 5/2), dry, few fine Sand, trace angular gravel to 5mm, (85% Silt, 10% Sand, 5% Gravel), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
5		@ 5' bgs: moist, trace fine Sand, no Gravel (95% Silt, 5% Sand).		3.7	
10		Silty SAND (SM): very dark gray (10YR 3/1), moist, fine to medium sand, some Silt, trace Clay, (70% Sand, 30% Silt, <5% Clay), non-plastic.		0.0	
15		@ 15' bgs: As above, except dark gray (10YR 4/1), moist, fine Sand, little Silt, (80% Sand, 20% Silt).		3.1	
20					
25					Temporary soil vapor probes at 5', 15', and 25' bgs

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

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Telephone: (310) 879 - 4900

BORING LOG

WELL NO. **SV-15**	NORTHING **Not Measured**	EASTING **Not Measured**		
PROJECT NO./NAME **2217.0025L / Shea San Jacinto**		LOCATION **870 North Sanderson Avenue** **San Jacinto, California**		
APPROVED BY **D. Williams**	LOGGED BY **J. Knight**			
DRILLING CONTRACTOR/DRILLER **Strong Arm Environmental /**		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE **2.25-in. Drive Sampler**	BOREHOLE DIAMETER **2.25-in.**	DRILLING EQUIPMENT/METHOD **Geoprobe 6620DT / DPT**	SAMPLING METHOD **1.5" Large Bore**	START-FINISH DATE **10/8/21-10/8/21**
CASING MAT./DIA. **Nylaflow / 1/4"**	SCREEN: TYPE **Porous Filter** MAT. **S. Steel** TOTAL LENGTH **0.1** ft DIA. **1/4"** SLOT SIZE **150 micron**			
ELEVATION OF: GROUND SURFACE (Feet)			GRAVEL PACK SIZES **#3 Sand**	

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		SILT with Sand and Gravel (ML): brown (10YR 5/3), dry, few fine Sand, few angular Gravel (80% Silt, 10% Sand, 10% Gravel), non-plastic.			Hand augered to 5 ft below ground surface (bgs)
		SILT with Sand (ML): brown (10YR 5/3), slightly moist, little fine Sand, no Gravel (80% Silt, 20% Sand), non-plastic.			
5				3.5	5
		Poorly-Graded SAND with Silt(SP-SM): grayish brown (10YR 5/2), moist, fine to medium Sand, few Silt (90% Sand, 10% Silt).			
10				2.1	10
		Silty SAND (SM): very dark gray (10YR 3/1), moist, fine to medium Sand, some Silt, trace Gravel to 1/4", (70% Sand, 30% Silt, <5% Gravel).			
15				1.7	15
20				2.1	20
25				1.5	Temporary soil vapor probes at 5', 15', and 25' bgs 25

Hydrated Bentonite
Dry Bentonite
#3 Sand
1" Stainless Steel Probe
Hydrated Bentonite
Dry Bentonite
#3 Sand
1" Stainless Steel Probe
Hydrated Bentonite
Dry Bentonite
#3 Sand
1" Probe

NOTES: No odor or staining observed unless otherwise stated.

Terminal Depth: 25.5' bgs

BORING/FEET 2021_1220_SAN JACINTO.GPJ ROUX.GDT 12/20/21

Phase I Environmental Site Assessment

South-Southwest of North Sanderson Avenue and North Ramona Boulevard
San Jacinto, California

August 30, 2023

Prepared for:

Shea Properties

Prepared by:
Roux Associates, Inc.
5150 E. Pacific Coast Highway, Suite 450
Long Beach, California, 90804

2217.0030L.100/R

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& Management
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Executive Summary

Shea Properties (User) retained Roux Associates, Inc. (Roux) to perform a Phase I Environmental Site Assessment (ESA) of the property located approximately 1,800 feet south-southwest of the corner of North Sanderson Avenue and North Ramona Boulevard in the City of San Jacinto, Riverside County, California (the Subject Property). Roux performed this Phase I ESA in general accordance with the American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-21) in an effort to identify, to the extent feasible, the presence of recognized environmental conditions (RECs) with respect to the Subject Property as defined in ASTM E1527-21. Exceptions to, or deletions from, this practice are described in Section 9.1 of this report.

The Subject Property consists of one approximately 38-acre parcel, identified by Assessor's Parcel Number (APN, 432-030-012), located on the west side of North Sanderson Avenue in an agricultural area of San Jacinto, California. The Subject Property is currently used for agricultural production (unknown row crop). According to historical sources, the Subject Property was vacant land as early as 1901. By at least 1949, agricultural operations began at the Subject Property and are currently present. Since initial agricultural development of the Subject Property, a rotation of row crops, feed crops for livestock, and fallow land have been present at the Subject Property.

On July 28, 2023, Roux visually assessed the Subject Property during the site reconnaissance for potential RECs, including, but not limited to, potential underground storage tanks (USTs), aboveground storage tanks (ASTs), polychlorinated biphenyl (PCB)-containing equipment, hazardous materials storage or handling areas, containerized or bulk wastes, and visual indications of impacted soil.

Roux also performed a records review in an effort to identify RECs in connection with the Subject Property. This records review addressed the Subject Property and surrounding properties. Roux reviewed commercially available records associated with the Subject Property and nearby properties to assess potential concerns associated with the migration of hazardous substances. The records review also included reasonably ascertainable historical data, which can be helpful in identifying the past uses of the Subject Property and surrounding areas, as it may relate to the environmental condition of the Subject Property.

Roux performed interviews and/or file reviews with various government agencies and other parties with possible knowledge of the Subject Property and surrounding properties in an effort to identify current and past uses of the Subject Property and surrounding areas, as they may relate to the environmental condition of the Subject Property.

ASTM E 1527-21 defines a Recognized Environmental Condition (REC) as:

> "The presence of hazardous substances or petroleum products in, on, or at the Subject Property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on or at the Subject Property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on or at the Subject Property under conditions that pose a material threat of a future release to the environment. A de minimis condition is not a recognized environmental condition."

A Controlled Recognized Environmental Condition (cREC) as:

> "A recognized environmental condition affecting the Subject Property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or

petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations and other property use limitations."

And a Historical Recognized Environmental Condition (hREC) as:

> "A previous release of hazardous substances or petroleum products affecting the Subject Property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the Subject Property to any controls (for example, activity and use limitations and other property use limitations."

The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

This Executive Summary provides a brief overview of the findings of this Phase I ESA. Although the Executive Summary is an integral part of a report, it does not substitute for reading the entire report or the appended or referenced documents in order to fully understand the findings and potential environmental concerns associated with the Subject Property.

Recognized Environmental Conditions (RECs)

Based on the information obtained through the performance of this Phase I ESA, Roux identified the following RECs in connection with the current and historical operations at the Subject Property or adjoining properties. To the extent possible, the locations of the RECs are shown in Figure 2. To avoid confusion, all RECs, cRECs, hRECs, and OEFs are numbered sequentially.

> **REC 1 - Former Agricultural Applied Pesticide Area**. Based on a review of historical sources, the Subject Property was developed for agricultural use (row crops and feed crops) as early as 1949, with increased agricultural development noted from at least 1978 to 2016. During the site reconnaissance, row crops were observed on the Subject Property. Agricultural production history at the Subject Property is not currently known. Based on the long term agricultural use, it is likely that agricultural chemicals, such as pesticides, herbicides, and fertilizers, have been used on-site, and the potential for impacts from agricultural chemicals to on-site soils is considered a REC.

Controlled Recognized Environmental Conditions (cRECs)

Roux did not identify known or suspected cRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

Historical Recognized Environmental Conditions (hRECs)

Roux did not identify known or suspected hRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

Other Environmental Features (OEFs)

Roux did not identify known or suspected OEFs in connection with the current and historical operations at the Subject Property or adjoining properties.

1. Introduction

Roux Associates, Inc. (Roux) completed this Phase I Environmental Site Assessment (ESA) of the property located approximately 1,800 feet south-southwest of the corner of North Sanderson Avenue and North Ramona Boulevard in the City of San Jacinto, Riverside County, California (the Subject Property). The Subject Property location is shown in Figure 1 and the Subject Property and vicinity is shown in Figure 2. Roux performed this Phase I ESA in compliance with the scope and limitations of American Society for Testing Materials (ASTM) E1527-21 and the terms and conditions of Roux' proposal dated May 24, 2023. Roux conducted this Phase I ESA for the benefit of Shea Properties (the User).

The following sections of this report present our Phase I ESA findings and conclusions. A glossary containing terms and definitions presented in ASTM E1527-21 is included in Appendix A – Glossary of Terms. Other appendices presented at the end of the report include historical topographic maps, historical aerial photographs, regulatory records review documentation, applicable historical records, and personnel qualifications.

1.1 Purpose

The purpose of this Phase I ESA is to identify and report, to the extent feasible, recognized environmental conditions (RECs) with respect to the Subject Property. Performing a Phase I ESA in general compliance with ASTM E 1527-21 may enable a User to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability. That is, the practice that constitutes one of the requirements for "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC Section 9601(35) (B).

1.2 Scope of Services

The scope of services for this Phase I ESA included, but was not limited to, the activities listed below.

- A review of reasonably ascertainable and practicably reviewable topographic maps, historical aerial photographs, and city directories, if available, to investigate current and past uses of the Subject Property and surrounding properties;
- A review of specific government lists pursuant to ASTM Standard E 1527-21 regarding environmental activities for the Subject Property and local area properties;
- A review of recorded land title records, building, assessors, and fire department records, for permits, citations, and reports connected to the Subject Property that were reasonably ascertainable, practicably reviewable, and publicly available within reasonable time and cost;
- An inspection by an environmental professional to investigate the current use of the Subject Property and to identify environmental concerns including but not limited to, the presence of hazardous substances or petroleum products, wastes, underground storage tanks (USTs), aboveground storage tanks (ASTs), or other environmental concerns;
- Interviews with available representatives of the owner of the Subject Property, occupants, and local government officials by an environmental professional; and
- Preparation of this Phase I ESA report.

Roux initiated this Phase I ESA pursuant to receipt of written authorization to proceed on May 24, 2023.

1.3 Standard of Care

Roux conducted this Phase I ESA using a defined scope of services considered appropriate and agreed upon by all parties on the date the service was authorized, unless the scope of services or the methods used were later modified, in writing, and accepted by all parties prior to performance. Roux conducted this Phase I ESA in accordance with generally accepted practices in a manner consistent with that level of care exercised by other members of our profession in the same locality and under similar conditions of time and accessibility of improvements and information. No other representations, expressed or implied, and no warranty or guarantee is included or intended to be part of this Phase I ESA.

Please note that the scope of services performed in execution of this assessment may not be appropriate to satisfy the needs of other parties. We, therefore, are not responsible for independent conclusions, opinions, or recommendations of others based on our assessment. Furthermore, this Phase I ESA relates to the environmental conditions of the Subject Property and does not address issues raised in transactions such as business risk, purchase of business entities, or interests therein, or of their assets, that may well involve environmental liabilities pertaining to properties previously owned or operated or other off-site liabilities.

Additionally, the findings of this Phase I ESA are based on Roux' observations, inquiries, and historical research using reasonably ascertainable and practically reviewable information obtained within reasonable time and cost constraints. Roux does not represent that this Phase I ESA is an exhaustive investigation that reflects the findings of all of the information available for the Subject Property, nor is it representative of future Subject Property conditions. If additional information is generated from the Subject Property, it should be provided to Roux so that we may evaluate its impact on our conclusions. As such, activities or episodes that transpire subsequent to this Phase I ESA are not considered in this assessment. It is not intended that a Phase I ESA in accordance with ASTM E1527-21 be an exhaustive assessment of a property nor can it wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property.

1.4 Assumptions

This Phase I ESA Report, including the exhibits attached hereto, describes the results of Roux' investigation to identify the presence of *recognized environmental conditions* connected with the Subject Property in accordance with ASTM E1527-21, as allowed by and consistent with the regulatory requirements of the All Appropriate Inquiry Rule, 40 CFR Part 312, Amendment to Standards and Practices for All Appropriate Inquires Under CERCLA, Final Rule, published December 30, 2013 (AAI Rule). Specifically, the preamble to the amended AAI Rule states:

> *The Environmental Protection Agency (EPA) today is taking final action to amend the standards and practices for conducting all appropriate inquiries under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to reference a standard practice recently made available by ASTM International, a widely recognized standards development organization. Specifically, this final rule amends the "All Appropriate Inquiries Rule" at 40 CFR Part 312 to reference ASTM International's E1527–13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" and make clear that persons conducting all appropriate inquiries may use the procedures included in this standard to comply with the All Appropriate Inquiries Rule*[1].

[1] Federal Register: December 30, 2013 (Volume 78, Number 250) Page 79319

As of February 13, 2023, the EPA indicated that the updated standard ASTM E1527-21 is now AAI compliant. While ASTM E1527-21 is now the current standard, the previous standard (ASTM E1527-13) is still AAI compliant until February 13, 2024.

One of the requirements that a person acquiring real property must meet in order to qualify for either the innocent landowner, contiguous owner, or bona fide prospective purchaser (collectively hereinafter "Prospective Purchaser") defense to liability under the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and the Small Business Liability Relief and Brownfields' Revitalization Act of 2002, 42 U.S.C. 9601-9675 (collectively referred to hereafter as "CERCLA") is that person must conduct all appropriate inquiries into the previous ownership and uses of the property in conformance with the AAI Rule (or the ASTM E1527-21) prior to acquisition of the property. The User has acknowledged that, under the AAI Rule, Roux' performance of this Phase I ESA in accordance with ASTM E1527-21 will not alone result in the User satisfying all requirements of the AAI Rule and will not in itself provide a defense to CERCLA liability. The User has acknowledged that the AAI Rule also requires that the Prospective Purchaser undertake certain additional inquiries and post-acquisition activities to satisfy the CERCLA AAI requirements. Accordingly, Roux makes no guarantees or warranties, expressed or implied, regarding this Phase I ESA, including without limitation, that this Phase I ESA will qualify the User for a defense to CERCLA liability.

Roux has performed this Phase I ESA in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. Professional judgments expressed herein are based on the facts currently available to Roux.

The AAI Rule requires, and the conclusions and recommendations stated herein represent, the application of a variety of engineering and technical disciplines to material facts and conditions associated with the Subject Property. As such, these conclusions and recommendations are based on subjective interpretations and the exercise of discretion based on the facts available to Roux and conditions at the time of the performance of this Phase I ESA. Many of these facts and conditions are subject to change over time. Accordingly, the conclusions and recommendations must be considered within this context.

The User has agreed that Roux shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time this Phase I ESA was performed. To the extent practicable, Roux has identified data gaps, and has evaluated the potential significance of such data gaps. Recommendations to address those data gaps are presented herein and are based on the data available at the time of the performance of this Phase I ESA. Implementation of the recommendations may not fully address the data gaps, and the information obtained from execution of those recommendations may alter and/or modify the interpretation of the Subject Property conditions and conclusions, herein. This Phase I ESA does not include consideration of matters specifically excluded by ASTM E1527-21, including but not limited to, asbestos-containing building materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, and mold unless specifically identified herein. Emerging contaminants that are not defined as hazardous substances under CERCLA including, but not limited to per- and polyfluoroalkyl substances (PFAS) are outside the scope of the Phase I ESA. This Phase I ESA does not include the completion of searches for recorded environmental liens.

Roux has not collected any soil and/or groundwater samples on the Subject Property for Phase I purposes, and is relying on information presented by others, often in preliminary, draft, or verbal form. By referencing

this information, Roux does not accept responsibility for the accuracy of the underlying data, sampling methods, laboratory analysis, or documentation.

This Phase I ESA Report should not be considered a legal interpretation of existing environmental laws and regulations. This Phase I ESA was conducted with a reasonable degree of inquiry to identify *recognized environmental conditions*, but uncertainty is not eliminated. No Phase I ESA can wholly eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property. The Phase I ESA process is intended to reduce, but not eliminate, the uncertainty involved with identifying *recognized environmental conditions*.

This Phase I ESA Report is not an appraisal or value judgment of the Subject Property. The User has agreed that Roux shall not be liable for any use of this Phase I ESA Report as an appraisal or value judgment of the Subject Property.

This Phase I ESA Report has been prepared for the exclusive use of the User for specific application to the Subject Property covered by this Phase I ESA Report. The User has agreed that any third-party use of this Phase I ESA Report, upon disclosure by the User, is the sole responsibility and at the sole liability of the User.

1.5 User Reliance

No additional parties may use the information contained in this report without obtaining the written permission of Roux or the User. Roux' duties and obligations extend to the User and to no other party. Roux' duties and obligations to the User are not transferable to persons, corporations, or organizations without the express written consent of the User and Roux. The User may rely upon the information provided in this Phase I ESA report for a period of 180 days from the earliest of the previously listed components. After 180 days, this Phase I ESA should be updated in accordance with ASTM E1527-21 guidance. Roux will not be liable for any consequential damages arising from the use of this report for other than its intended purpose, for use of this report beyond 180 days of its issue date, or from unauthorized use by third parties. Dates components used in the preparation of this Phase I ESA were obtained are summarized below:

Phase ESA Component Dates		
Component	**Date Obtained**	**Expiration Date**
Radius Report	May 31, 2023	November 27, 2023
Knowledgeable Person Interview	August 10, 2023	February 6, 2024
Site Reconnaissance	July 28, 2023	January 24, 2023

This Phase I ESA report must be read and interpreted as a whole and can only be considered representative of the conditions of the Subject Property as of the date of our site reconnaissance described herein. Roux makes no representation whatsoever concerning the condition of the Subject Property beyond the date of our site reconnaissance described herein. Individual sections and appendices of this report are dependent on the balance of this report, and on the terms, conditions, and stipulations contained in the proposal and written amendments accepted by Roux.

2. Subject Property Description

2.1 Subject Property Location and Description

Subject Property Information	
Legal Description	Lot 128 MB 008/357 SD San Jacinto Rancho
Address	No assigned addresses currently exist
City	City of San Jacinto
County	Riverside
State	California
Location	Approximately 1,800 feet south-southwest of the corner of North Sanderson Avenue and North Ramona Boulevard
Assessor's Parcel Number (APN)	432-030-012
Site Acreage (per Los Angeles County Assessor Website)	38.15 acres
Site Occupant(s)	None
On-site Operations	Agricultural production (unknown row crops)
Description of On-site Structures	No structures currently occupy the Subject Property
Site Paving	Unpaved
Site Vicinity	Agricultural (dry farming, animal grazing pastures, dairies), commercial, and residential use

Refer to Section 5.0 for a detailed description of the current condition of the Subject Property and operations.

2.2 Vicinity General Characteristics

The facilities and improvements which are adjoining to the Subject Property are provided in the following table. Selected adjoining and nearby properties are shown in Figure 2.

Direction from Subject Property	Improvements / Use (Addresses)
North	Agricultural land
East	North Sanderson Avenue followed by a single-family residential dwelling (1727 North Sanderson Avenue) and agricultural land
South	Agricultural land
West	Agricultural land

2.3 Past Use of the Subject Property

The Subject Property was vacant land as early as 1901. By at least 1949, agricultural operations began at the Subject Property. Since initial agricultural development of the Subject Property, a rotation of row crops,

feed crops for livestock, and fallow land have been present at the Subject Property. At the time of site reconnaissance, row crops were present at the Subject Property.

2.4 Physical Setting

Roux obtained and reviewed published, reasonably ascertainable information concerning the physical setting of the Subject Property. The following is a summary of the information reviewed from those physical setting sources.

Physical Setting Summary	
United States Geological Survey (USGS) Topographic Map	Lakeview, California Quadrangle
Approximate Subject Property Elevation / Source	1,465 feet above mean sea level (msl) / Lakewood, California (2018) 7.5-minute quadrangle topographic map published by the USGS
Nearest Surface Water Features / Approximate Distance	A pond associated with the California Equine Retirement Foundation is located approximately 4,500 feet south-southeast, reclamation ponds associated with the San Jacinto Valley Regional Reclamation Facility are located approximately 5,100 feet to the south and south-southwest, the San Jacinto Reservoir is located approximately 6,050 feet to the southeast, and the San Jacinto River is located approximately 7,000 feet to the north of the Subject Property.
Regional Geology / Source	Quaternary deposits: alluvium, lake, playa and terrace, consolidated and semi-consolidated / California Department of Conservation, 2010 Geologic Map of California
Subject Property Topography / Source	Generally flat with a gradual slope to the north / Site observation and USGS topographic map
Hydrogeological Region / Source	Located along the eastern portion of the San Jacinto Groundwater Basin / *California Department of Water Resources Bulletin 118, Update 2003 and Interim Update 2016*
Depth to Groundwater / Source	Perched groundwater zones in the site vicinity were reported to be approximately 11 to 13 feet below ground surface (bgs) / Monitoring well installation report for a facility approximately 2,600 feet north-northeast of the Subject Property (Leighton, 2009)
Groundwater Gradient Direction / Source	Groundwater in the site vicinity is reported to flow to the southwest with a hydraulic gradient of approximately 0.004 feet per foot / Monitoring well installation report for a facility approximately 2,600 feet north-northeast of the Subject Property (Leighton, 2009)
On-site or Nearby Soils	Soils in the site vicinity are reported to be silty sands to a depth of approximately 16 feet bgs, fine-grained sand from 16 to 20 feet bgs, and silty sand from 20 feet bgs to a total depth explored of 22 feet bgs / Monitoring well installation report for a facility approximately 2,600 feet north-northeast of the Subject Property (Leighton, 2009)

3. Sources of Information

Sources of information utilized in preparing this Phase I ESA report included historical topographic maps; historical aerial photographs; a walkover survey of the Subject Property and adjoining properties; in-person discussions with User and tenant personnel; a review of records available at selected local and state regulatory agencies; a review of databases maintained by local, state, and federal government agencies; and other records available from commercial and online sources.

3.1 Historical Sources

To help understand the history of the Subject Property and adjoining properties, historical sources were obtained from Environmental Data Resources, Inc. (EDR), of Shelton, Connecticut. The sources and locations within the Appendices are provided in the table below.

EDR Historical Sources		
Historical Range	**Source**	**Appendix**
1901 – 2018	U.S. Geological Survey Topographic Maps	B
1938 – 2020	EDR Aerial Photographs "Decade Package"	C
No Available Coverage	EDR "Certified Sanborn® Map Report"	D
1971 – 2020	EDR "City Directory Image Report"	E

3.2 Government Databases

To document potential sources of contamination at or near the Subject Property, a government records search was conducted by EDR. The search included local, state, and federal records for the Subject Property and for other properties within ASTM-standard distances of the Subject Property. The records search is summarized in Section 8.0 and a copy of "The EDR Radius Map™ Report with GeoCheck®," dated May 31, 2023, is included in its entirety as Appendix F. As recommended by ASTM, all but a few of the databases searched were "current," i.e., had been updated within 90 days prior to the search date.

3.3 Site Reconnaissance

On July 28, 2023, Roux personnel conducted a reconnaissance of the Subject Property. During the site reconnaissance, Roux representative Ms. Audrey Clark was able to access all areas of the Subject Property, which was used for agricultural production at the time of the reconnaissance. The observations made during the site reconnaissance are discussed in Section 5.0 and throughout the report. A photographic log of the site reconnaissance is included as Appendix G.

3.4 Interviews

On August 10, 2023, Roux contacted Mr. Jay Pierce, a representative of the Subject Property ownership, via telephone for an interview regarding the history of the Subject Property. Mr. Pierce has been associated with the Subject Property since approximately 2001 and was not aware of the current type of crop being grown on-site. Mr. Pierce confirmed that crop production has varied over the years and has included watermelon

and grain for animal feed. Mr. Pierce referred to a previous Phase I ESA report which is discussed below in Section 6.0.

No previous Subject Property owners/operators were available for an interview. This data gap is not considered significant due to sufficient information regarding Subject Property history available from EDR historical documents and public records requests.

3.5 User Provided Information

ASTM E1527-21 provides an optional User Questionnaire to present select User-provided information that can assist in identifying possible RECs in connection with the Subject Property. According to ASTM E1527-21, these tasks do not require the technical expertise of an environmental professional and the environmental professional generally does not perform these tasks. Roux administered the optional questionnaire to the User at the beginning of this Phase I ESA to assist them with these tasks; however, the completed questionnaire has not been returned to Roux as of this report date.

3.6 Regulatory Agencies

Roux contacted governmental agencies for reasonably ascertainable information concerning environmental conditions at the Subject Property. Roux contacted or reviewed information from the agencies provided in the following table. Refer to Appendix H – Pertinent Historical Documentation for copies of the records reviewed. A summary of the information gathered from the regulatory agencies is provided in the table and details regarding the records were incorporated into applicable sections as noted.

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
Federal				
U.S. Environmental Protection Agency (EPA) – FOIAonline	5/30/2023	Pending	A response has not been received as of this report date.	N/A
National Pipeline Mapping System (NPMS) Online Database	5/31/2023	N/A	No pipelines were found within 1,000 feet of the Subject Property.	N/A
State				
State Water Resources Control Board (SWRCB): GeoTracker Online Database	5/31/2023	N/A	No records were associated with the Subject Property and no records were identified within 1,000 feet of the Subject Property.	N/A
SWRCB: Storm Water Multiple Application and Report Tracking System (SMARTS) Online Database	5/31/2023	N/A	No records were associated with the Subject Property.	N/A
Department of Toxic Substances Control (DTSC) Sacramento Office	5/30/2023	6/1/2023	No records were associated with the Subject Property.	N/A
DTSC Chatsworth Office	5/30/2023	5/31/2023	No records were associated with the Subject Property.	N/A
DTSC Cypress Office	5/30/2023	6/6/2023	No records were associated with the Subject Property.	N/A
DTSC: EnviroStor Online Database	5/31/2023	N/A	No records were associated with the Subject Property. One EnviroStor record was listed on an adjoining property west of the Subject Property. The Proposed High School at the Villages of San Jacinto facility is listed as a DTSC Site Cleanup Program and discussed below in Section 7.1.2.	7.1.2
DTSC: Hazardous Waste Tracking System (HWTS) Online Database	5/31/2023	N/A	No records were associated with the Subject Property.	N/A

Agency	Date Requested / Accessed	Response Date	Description of Records	Section Discussed
California Air Resources Board (CARB)	5/30/2023	5/31/2023	No records were associated with the Subject Property.	N/A
California Office of Environmental Health Hazard Assessment (OEHHA)	5/30/2023	Pending	A response has not been received as of this report date.	N/A
CalEPA CalRecycle	5/30/2023	6/23/2023	No records were associated with the Subject Property.	N/A
CalEPA CalRecycle Solid Waste Information System (SWIS) Online Database	5/31/2023	N/A	No records were associated with the Subject Property.	N/A
State of California Department of Conservation: Geological Energy Management (CalGEM) Online Database	5/31/2023	N/A	No on-site and nearby oil well records.	N/A
County / Regional				
Santa Ana Regional Water Quality Control Board (SARWQCB)	5/31/2023	6/5/2023	No records were associated with the Subject Property as the SARWQCB does not store records by APN.	N/A
South Coast Air Quality Management District (SCAQMD)	5/30/2023	5/30/2023	No records were associated with the Subject Property.	N/A
SCAQMD Facility Information Detail (FIND) Online Database	5/31/2023	N/A	No records were associated with the Subject Property.	N/A
Riverside County Department of Environmental Health (RCDEH) Land Use and Water Resources	5/30/2023	6/14/2023	No records were associated with the Subject Property as the RCDEH does not store records by APN.	N/A
RCDEH Hazardous Materials and Underground Storage Tanks (USTs)	5/30/2023	5/31/2023	No records were associated with the Subject Property.	N/A
Riverside County Building and Safety Department (RCBSD)	5/30/2023	5/30/2023	No records were associated with the Subject Property.	N/A
RCBSD Online Database	5/30/2032	N/A	No records were associated with the Subject Property.	N/A
City / Local				
City of San Jacinto City Clerk	5/30/2023	6/15/2023	No records were associated with the Subject Property.	N/A

4. Subject Property History

This section documents the history of the Subject Property and adjoining properties and describes current conditions and existing or former environmental features.

4.1 Subject Property History

The history of the Subject Property and, to a lesser extent, the surrounding area, including previous land use, has been compiled based on information from the exhaustive list of sources provided in Section 3.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property Description**	**Vicinity Description**
Predevelopment History				
1900s	1901	Historical Topographic Map: Elsinore / San Jacinto (30-minute)	The Subject Property appear to be undeveloped vacant land.	Adjoining properties appear as vacant land. Roads are depicted to the north (currently Ramona Expressway) and east (currently Ramona Boulevard). Minor homesteads or residential dwellings are depicted during this period.
1920s	No sources available.			
1930s	1938	EDR Aerial Photograph	The Subject Property is depicted as undeveloped vacant land.	The Colorado River Aqueduct is depicted to the north of the Subject Property.
Early Agricultural Use				
1940s	1943	Historical Topographic Map: Perris / Banning (15-minute)	No significant changes from prior topographic maps.	No significant changes from prior Subject Property history except for some additional residential dwellings to the north and east and the appearance of a dirt road in the Subject Property's vicinity on the west.
	1948	Historical Topographic Map: Banning (15-minute)	The Subject Property is located in an unmapped region of the topographic map.	No significant changes from prior topographic maps.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property Description**	**Vicinity Description**
	1949	EDR Aerial Photograph	The Subject Property is depicted as developed by agricultural related activities (row crops). An unpaved road is depicted along the eastern boundary of the Subject Property.	Adjoining properties are depicted as developed by row crops.
1950s	1953	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	The Subject Property is depicted as vacant land (identified as developed by row crops in aerial photos). A dirt road is depicted to run along the eastern boundary of the of the Subject Property's parcel.	The Colorado River Aqueduct is present to the north of the Subject Property. The San Jacinto Reservoir is depicted approximately 1-mile southeast of the Subject Property.
		EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	1956	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	The Subject Property is located in an unmapped region of the topographic map.	No significant changes from prior topographic maps.
1960s	1961	EDR Aerial Photograph	No significant changes from prior aerial photographs.	Adjoining properties during this period are depicted as being developed by duck ponds to the north and east of the Subject Property. No other configurational changes were noted.
	1967	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
1970s	1967 / 1972	Historical Topographic Map: Lakeview / San Jacinto (15-minute)	No significant changes from prior topographic maps.	No significant changes from prior topographic maps.
	1975	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	1978	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	1979	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	No significant changes from prior topographic maps.	Asphalt surfacing of the former identified unpaved road on the eastern elevation of the Subject Property (North Sanderson Avenue).

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property Description**	**Vicinity Description**
1980s	1985	EDR Aerial Photograph	No significant changes from prior aerial photographs.	Adjoining properties to the north and to the east following North Sanderson Avenue appear to be vacant land covered in native vegetation. Adjoining properties to the west and south appear to be agriculturally developed by row crops as identified previously.
	1989	EDR Aerial Photograph	No agricultural activities appear to be present. The Subject Property is vacant.	Limited row crops appear to the east following North Sanderson Avenue. The other adjoining properties have had no significant changes from what has been identified previously.
1990s	1996	EDR Aerial Photograph	Agricultural activities resume with row crops.	Agricultural fields to the east following North Sanderson Avenue appear to be dormant as well as to the west. Row crops are developed on the northern and southern adjoining properties. Potential construction is noted to the northeast across from North Sanderson Avenue.
		Historical Topographic Map: San Jacinto (7.5-minute)	The Subject Property is located in an unmapped region of the topographic map.	No significant changes from prior topographic maps.
2000s	2002	EDR Aerial Photograph	No agricultural activities appear to be present. The Subject Property is vacant.	Agricultural fields to the east following North Sanderson Avenue have had no significant changes. Adjoining properties to the north, south and appear to be fallow land. Limited row crops are depicted on the western adjoining property.
	2006	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior history except the western adjoining property, which appears to be dormant.
	2009	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.

Summary of Historical Sources				
Decade	**Year**	**Source**	**Subject Property Description**	**Vicinity Description**
2010s	2012	Historical Topographic Map: Lakeview / Sab Jacinto (7.5-minute)	No significant changes from prior topographic maps.	No significant changes from prior topographic maps.
	2012	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	2015	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	No significant changes from prior topographic maps.	No significant changes from prior topographic maps.
	2016	EDR Aerial Photograph	No significant changes from prior aerial photographs.	No significant changes from prior aerial photographs.
	2018	Historical Topographic Map: Lakeview / San Jacinto (7.5-minute)	No significant changes from prior topographic maps.	No significant changes from prior topographic maps.
2020s	2020	EDR Aerial Photograph	No significant changes from prior aerial photographs; however, the Subject Property appears to have active agricultural growth.	No significant changes from prior aerial photographs.

The Subject Property continued to be used for agricultural purposes (row crops). Environmental concerns associated with historical and current agricultural operations are discussed below in Section 5.2.

5. Current Subject Property Conditions

A Roux representative conducted a reconnaissance of the Subject Property and surrounding areas on July 28, 2023. During the Subject Property visit, Roux representative, Ms. Audrey Clark, observed the Subject Property and adjoining properties from reasonably accessible locations on the Subject Property and public thoroughfares. During the site reconnaissance, the weather was clear, and the temperature was approximately 100° Fahrenheit. The following sections summarize observations during the inspection. Roux documented the site reconnaissance with photographs which are provided in Appendix G.

5.1 Site Reconnaissance

The Subject Property is currently agricultural land used for growing row crops. Roux observed a PVC-piping irrigation system used at the Subject property and surrounding properties. North Sanderson Avenue is located immediately east of the Subject Property. The adjoining properties to the north, east, south, and west are mainly agricultural and/or fallow land. To the east, there is a single-family residence and agricultural land.

5.2 Phase I ESA Observations

During the site reconnaissance, Roux personnel attempted to identify any environmental features that may be relevant in the context of the Phase I ESA. The features identified are summarized in the table below. Any such features are discussed in the following subsections.

Feature	Observed on the Subject Property	Observed on an Adjoining Property
Areas of stressed vegetation		
Areas which receive flood or storm water from potentially contaminated areas		
Air Compressor Vent Discharges		
Chemical Storage and/or Use		
Drainage Swales and Culverts		
Discharge Areas		
Discolored or Spill Areas		
Drums (55 Gallons or Larger)		
Electrical Transformers		
Former Agricultural Applied Pesticide Area	X	X
Hydraulic Lifts		
Incinerators		
Landfills or Landfarms		

Feature	Observed on the Subject Property	Observed on an Adjoining Property
Loading and Unloading Areas		
Non-Contact Cooling Water Discharge		
Oil-Water Separator(s)		
Open Areas Away from Production Areas		
Process Area Sinks and Piping		
Rail Cars/Railroad Spurs		
Septic Systems Leach Fields or Seepage Pits		
Silos		
Sprayfields		
Storm Sewer and Spill Containment Collection System		
Storm Water Detention Pond		
Surface Impoundments and Lagoons		
Underground / Aboveground Storage Tanks and Associated Piping		
Waste Piles		

5.2.1 Former Agricultural Applied Pesticide Area

The Subject Property has been primarily developed for agricultural purposes (row crops and feed crops) since 1949. At the time of Roux's site reconnaissance, the Subject Property was primarily developed with row crops (unknown crop). According to a representative of the Subject Property owner, agricultural production at the site has included watermelon and grain (likely wheat). Agricultural production history at the Subject Property is not currently known. Based on the long term agricultural use, it is likely that agricultural chemicals, such as pesticides, herbicides, and fertilizers, have been used on-site, and the potential for impacts from agricultural chemicals to on-site soils is considered a REC.

6. Summary of Key Previous Investigations

The following sections provide a summary of previous environmental investigations at the Subject Property. Previous environmental investigation reports are included in Appendix H.

Roux conducted previous investigations at the southwest adjoining property in 2021. The off-site investigations were prepared under separate covers and no environmental issues were identified that would be considered a REC to the Subject Property in the context of this Phase I ESA.

6.1 Phase I ESA (South Shore, 2021)

South Shore Testing and Environmental (South Shore) conducted a Phase I ESA of the Subject Property in 2021 on behalf of the current property owner, J.D. Pierce Company, Inc. At the time of the assessment, the Subject Property was vacant agricultural land and proposed to be redeveloped for residential use. South Shore identified the potential presence of pesticides in soil from historical agricultural use as a REC and recommended further investigation.

According to Mr. Pierce, while the previous site assessment recommended further investigation into the presence of pesticides in shallow soil, no such subsurface investigations have been conducted to date.

7. Database Records Review

7.1 Standard Environmental Record Sources

According to ASTM Standard E1527-21, the purpose of reviewing regulatory records is to obtain and review records that will help identify *recognized environmental conditions* in connection with the Subject Property. In addition, some records to be reviewed pertain not only to the Subject Property, but also to properties within an additional "approximate minimum search distance" in order to help assess the likelihood of problems from migrating hazardous substances or petroleum products. The basis of the "approximate minimum search distance" is the Subject Property boundary.

Roux retained EDR of Shelton, Connecticut to provide an ASTM Radius Map Report (EDR Report) for this Subject Property. This report is a computerized search of select state and federal environmental databases that identify various properties with a record of environmental activity. Roux reviewed the report and summarized the relevant findings in the following sections. A copy of the compiled EDR Report has been included as Appendix F. The EDR report includes a detailed description of each of the databases searched, providing a summary of the type of information provided by each. A summary of Roux' review of the EDR Report listings is provided in Table 1.

The following section describes the findings of the database search. Roux used professional judgement in determining which EDR-listed sites to include in the narrative of this report. Facilities adjoining the Subject Property were included due to their proximity to the Subject Property and the potential for surface water discharges (e.g., storm water runoff, surface water effluent discharges) to enter the Subject Property or through the migration of groundwater. Sites with listings indicative of a release (e.g., SHWS, LUST, RELEASE) are likewise discussed below. Non-adjoining facilities with database listings not necessarily indicative of a release (hazardous waste generator, FINDS, ECHO, NPDES, HAZNET, AST, or UST) will not be discussed unless considered potentially relevant in context of the Phase I ESA.

7.1.1 Subject Property (Target Property)

No listings for the Subject Property were identified in the EDR Report.

7.1.2 Adjoining and Nearby Properties

Discussions of adjoining and nearby properties of potential environmental concern as noted in Table 1 are provided below.

- **Proposed High School at the Villages of San Jacinto (Ramona Boulevard and Cawston Avenue).** The Proposed High School at the Villages of San Jacinto (Proposed High School) was located approximately 0.15 mile west of the Subject Property and is listed on the ENVIROSTOR and SCH databases. The ENVIROSTOR listing indicates soil samples, composite surface soil samples, and discrete soil samples were collected from the property to determine potential threat to public health and/or the environment related to former agricultural use of the site. A letter of "No Further Action" was given on September 24, 2008. Based on the "No Further Action" letter and the lack of additional investigation, the Proposed High School property is not considered an environmental concern in the context of the Phase I ESA.

- **San Jacinto Mobil (2070 North Sanderson Avenue).** The San Jacinto Mobil facility is located approximately 0.5 mile northeast of the Subject Property and is listed on the LUST (Leaking Underground Storage Tank), CORTESE, and CERS databases. The LUST database indicates there is a cleanup case for diesel, gasoline, waste oil, motor oil, hydraulic oil, and lubricating oil in

groundwater. According to groundwater monitoring reports, samples collected towards the direction of the Subject Property were non-detectable or had low detections of chemicals of concern (Leighton, 2009). On May 27, 2010, the facility was granted case closure by RCDEH. Due to the closure status and low detections, the San Jacinto Mobil facility is not considered an environmental concern in the context of the Phase I ESA.

7.1.3 Orphan Subject Properties

The EDR Report includes a section addressing "Orphan" sites. Orphan listings are sites, which, due to incomplete geographic location data, incomplete address information or incorrect address information, cannot be plotted correctly. The database report identified no unmapped facilities.

8. Findings

Roux has performed this Phase I ESA in general compliance with the scope and limitations of ASTM Standard Practice E1527-21. Roux separated the findings of this assessment into the following four categories: *recognized environmental conditions*, *controlled recognized environmental conditions*, *historical recognized environmental conditions* and *other environmental features*.

8.1 Data Gaps

During conduct of this ESA, the following data gaps, as defined in ASTM Standard E1527-21 were identified:

- The timing of the report did not allow for all contacted agencies to respond to the records requests issued. This data gap is not considered significant due to sufficient information available from previous environmental reports, the EDR report, and city, county, and state websites.
- Previous Subject Property owners/operators were not available for an interview. This data gap is not considered significant due to sufficient information regarding Subject Property history available from EDR historical documents and FOIA requests.

8.2 Recognized Environmental Conditions

Based on the information obtained through the performance of this ESA, Roux identified the following RECs in connection with the current and historical operations at the Subject Property or adjoining properties. To the extent possible, the locations of the RECs are shown in Figure 2. To avoid confusion, all RECs, cRECs, hRECs, and OEFs are numbered sequentially.

REC 1 - Former Agricultural Applied Pesticide Area. Based on a review of historical sources, the Subject Property was developed for agricultural use (row crops and feed crops) as early as 1949, with increased agricultural development noted from at least 1978 to 2016. During the site reconnaissance in July 2023, row crops were observed on the Subject Property. Agricultural production history at the Subject Property is not currently known. Based on the long term agricultural use, it is likely that agricultural chemicals, such as pesticides, herbicides, and fertilizers, have been used on-site, and the potential for impacts from agricultural chemicals to on-site soils is considered a REC.

8.3 Controlled Recognized Environmental Conditions

Roux did not identify known or suspected cRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

8.4 Historical Recognized Environmental Conditions

Roux did not identify known or suspected hRECs in connection with the current and historical operations at the Subject Property or adjoining properties.

8.5 Other Environmental Features

Roux did not identify known or suspected OEFs in connection with the current and historical operations at the Subject Property or adjoining properties.

9. References

American Society for Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-21)

EDR, *The EDR Radius Map™ Report with GeoCheck®*, May 31, 2023

EDR, *The EDR Aerial Photo Decade Package*, May 31, 2023

EDR, *EDR Historical Topo Map Report*, May 31, 2023

EDR, *Certified Sanborn Map Report*, May 31, 2023

EDR, *The EDR-City Directory Abstract*, June 2, 2023

Leighton Consulting, Inc. (Leighton), *Groundwater Monitoring Well Installation Report and Results of Groundwater Monitoring, Former San Jacinto Mobil, Site No. 200824216, 2070 North Sanderson Avenue, San Jacinto, California*, August 24, 2009

South Shore Testing and Environmental (South Shore), *Phase I Environmental Site Assessment, Undeveloped Agricultural Land, Tentative Tract Map No. 38107, APN 432-030-012, San Jacinto, California,* June 28, 2021.

10. Signature of Environmental Professional

Roux performed this assessment in accordance with the generally accepted practices for environmental assessments at the time of implementation. Roux made a reasonable effort to ensure that the information presented in this report is materially complete and accurate.

Roux completed a Phase I ESA in general compliance with the scope and limitations of ASTM Practice E1527-21 of the property located along North Sanderson Avenue, approximately 1,800 feet south-southwest of the corner of North Sanderson Avenue and North Ramona Boulevard, San Jacinto, Riverside County, California.

“We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental professional as defined in §312.10 of 40 CFR 312” and,

“We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.”

Roux performed this Phase I ESA by, or under direct supervision of, the undersigned environmental professionals. Copies of professional profiles for the undersigned environmental professionals and report preparers are included in Appendix I.

Respectfully Submitted,

ROUX ASSOCIATES, INC.

Rocio Quinones
Project Scientist

Mauricio Escobar, P.G.
Vice President / Principal Geologist

TABLES

1. Standard Environmental Record Sources (EDR Report) Summary

Table 1: Standard Environmental Record Sources (EDR Report) Summary
Avenue and Ramona Boulevard, San Jacinto, California

Site Name	Address	Database Listings	Distance (Miles)	Direction	Discussed in Report Text
PROPOSED HIGH SCHOOL AT THE VILLAGES OF SAN JACINT	RAMONA BOULEVARD/CAWSTON AVENUE	ENVIROSTOR,SCH	0.148	WSW	No
BETTY GOEDHART	2004 N. RAMONA BLVD.	RCRA NONGEN / NLR	0.193	NE	No
SAN JACINTO MOBIL	2070 N SANDERSON AVE.	LUST,CORTESE,CERS	0.493	NNE	Yes
MOBIL SAN JACINTO	2070 SANDERSON	LUST	0.493	NNE	Yes

Notes

Blue: Facility does not have associated database listings indicative of a release or contamination

Green: Facility is hydraulically downgradient or crossgradient and/or is a closed release case

Orange: Facility has an associated release case impacting soil only and/or VOCs are not a potential contaminant of concern

FIGURES

1. Site Location Map
2. Site Plan



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

SOUTH-SOUTHWEST OF NORTH SANDERSON AVENUE AND NORTH RAMONA BOULEVARD
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: O.B.	Date: 06/09/23	FIGURE
Prepared by: O.B.	Scale: AS SHOWN	1
Project Mgr: R.Q.	Project: 2217.0030L	
File: Site Location.mxd		

\\SRVLACAFP1\LA SHARED\CLIENTS\2217.0030L SHEA SAN JACINTO SEC SANDERSON MHE\09GIS\SITE LOCATION.MXD



LEGEND

- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- (1) RECOGNIZED ENVIRONMENTAL CONDITION (REC)

N

200' 0' 200'

Aerial Image © Microsoft Corporation 2021

Title:

SITE PLAN

SOUTH-SOUTHWEST OF NORTH SANDERSON AVENUE AND NORTH RAMONA AVENUE, SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: C.J.	Date: 27 JULY 2023	FIGURE
Prepared by: M.B.	Scale: AS SHOWN	2
Project Mgr: R.Q.	Project: 2217.0025L	
File: 001_2217.00XX_SITE PLAN.DWG		

\\SRVLACAFP1\LA SHARED\CLIENTS\2217.0030L SHEA SAN JACINTO SEC SANDERSON MHE\10CAD\001_2217.00XX_SITE PLAN.DWG

APPENDICES

A. Glossary of Terms

B. Historical Topographic Maps

C. Historical Aerial Photographs

D. Certified Sanborn Report

E. EDR City Directory Image Report

F. EDR Radius Map Report with GeoCheck®

G. Photographic Log

H. Pertinent Historical Documentation

I. Professional Profiles

APPENDIX G

Photographic Log



Photo 1 View of Subject Property facing northwest from North Sanderson Avenue



Photo 2 View of North Sanderson Road and eastern adjoining property



Photo 3 Agricultural crops



Photo 4 Southern property boundary



Photo 5 Southern adjoining property



Photo 6 View of Subject Property facing west



Photo 7 View of northern adjoining property



Photo 8 Adjoining residence to the east



Photo 9 Adjoining property to the east



Photo 10 View of southern adjoining property



Photo 11 Irrigation system



Photo 12 Piping along southern edge of Subject Property



Photo 13 Irrigation water delivery



Photo 14 View of Subject Property facing northeast



Photo 15 View of Subject Property facing east



Photo 16 View of western adjoining property



Photo 17 View of western property boundary



Photo 18 Irrigation water delivery system



Photo 19 View of northwestern area of Subject Property



Photo 20 Northern adjoining property



Photo 21 Northern property boundary



Photo 22 View of Subject Property facing south



Photo 23 View of Subject Property facing

November 15, 2023

Steven Perales
Director, Industrial Acquisitions & Development
Shea Properties
130 Vantis Drive, Suite 200
Aliso Viejo, California 92656

Re: Phase II Subsurface Investigation Letter Report, J.D. Pierce Property, Approximately 38-Acre Property, North Sanderson Avenue, San Jacinto, Riverside County, California

Dear Mr. Perales:

Roux Associates, Inc. (Roux) has prepared this Phase II Subsurface Investigation Letter Report (Phase II Report) to Shea Properties (Client), to summarize the findings of shallow soil sampling conducted at the 38-acre vacant property located approximately 1,800 feet south-southwest of the corner of North Sanderson Avenue and North Ramona Boulevard in the City of San Jacinto, California (Site; Figure 1). Roux completed a Phase I Environmental Site Assessment (ESA), dated August 30, 2023, which identified a recognized environmental concern (REC) associated with potential pesticide impacts to shallow soils from agricultural (row crop) use as early as 1949, with increased agricultural use noted from at least 1978 to 2016.

To address the identified environmental concern, Roux collected composite and discrete soil samples from twelve locations (quadrants) across the Site to establish baseline conditions and identify potential impacts in the shallow soil associated with historical agricultural use. Soil sampling was conducted in general accordance with the California Department of Toxic Substances Control (DTSC) *Interim Guidance for Sampling Agricultural Properties*, dated August 7, 2008.

BACKGROUND

The Site consists of approximately 38 acres of agricultural land bounded to the east by North Sanderson Avenue. The adjoining properties to the north, south, and west, as well as east beyond North Sanderson Avenue, are mainly agricultural and/or fallow land. No mailing addresses are currently assigned to the Site. The Site has been primarily developed for agricultural purposes (row crops and feed crops) since 1949. According to a representative of the Site owner, agricultural production at the Site has included watermelon and grain for animal feed. At the time of Roux's Phase II fieldwork, the Site was being used to grow corn. As discussed above, the extensive agricultural use of the Site and therefore, likely use of pesticides represents a REC. Typical pesticide uses during this time period included the use of arsenic-based and lead-based pesticides (up until the 1960s) and organochlorine pesticides (OCPs, 1940s to 1970s).

At the time of the Roux's sampling event, the Site had been cleared with four evenly spaced aisles, each approximately 10 to 12 feet wide. Due to the presence of corn crops in the remaining areas of the Site, sample collection in a grid formation was not feasible. However, because application of pesticides is expected to have been to be uniform across the Site, the samples collected and data generated during this investigation are considered representative of the entire Site.

METHODS OF INVESTIGATION

The following sections summarize the investigation methods used during soil sampling events, including pre-field activities, sampling locations and procedures, and field observations.

5150 East Pacific Coast Highway, Suite 450 ■ Long Beach, California 90804 ■ +1.310.879.4900 ■ www.rouxinc.com
California ■ Illinois ■ Massachusetts ■ New Jersey ■ New York ■ Texas ■ Virginia

Pre-Field Activities

Prior to the start of field activities, Roux prepared a Site-specific Health and Safety Plan (HASP) to ensure worker safety. In addition to containing information regarding Roux's standard safety practices, the HASP contained information about potential hazards related to Site activities and provided the locations and contact information of nearby emergency services. Field workers acknowledged their familiarity with all safety procedures and indicated their intent to follow the HASP by signing the HASP after the tailgate safety meeting, which took place at the beginning of each field day. All personnel working in the exclusion zone were Occupational Safety and Health Administration (OSHA) trained, consistent with federal regulation 29 CFR 1910.120. At least 48 hours prior to fieldwork, the Site boundary was marked in white paint and Underground Service Alert (USA) of Southern California was notified of the intended work (USA Ticket Number B232820188). USA notified companies and agencies that may have underground utilities in the vicinity to mark their respective utilities on the ground with spray paint so that they were avoided during drilling.

Shallow Soil Sampling

On October 13, 2023, a total of 28 soil samples were collected from 12 quadrants (Figure 2). In addition, one randomly selected discrete soil sample (14 total) was collected from each quadrant (SS-1 through SS-12), including two duplicates (SS-Q1-DUP and SS-Q9-DUP). Four samples were collected with a trowel from each quadrant and composited in the field into a laboratory-provided glass jar. Twelve (12) composite samples (SS-COMP-1 through SS-COMP-12) were collected from the 12 quadrants with two duplicate composite samples (SS-COMP-4-DUP and SS-COMP-12-DUP).

All soil samples were collected across the Site at a depth of 0.5 feet below ground surface (bgs) as shown in Figure 2. Sampling equipment was cleaned in a solution of laboratory-grade detergent and rinsed with distilled water prior to sample collection at each quadrant location.

Composite and discrete soil samples were labeled with unique sample identifiers, placed on ice, and transported under proper chain-of-custody procedures to Enthalpy Analytical (Enthalpy) of Orange, California, a California-certified laboratory, for analysis. A total of 14 composite soil samples (12 primary and 2 duplicate) were analyzed for organochlorine pesticides (OCPs) by USEPA Method 8081A. A total of 14 discrete soil samples were analyzed for lead and arsenic by USEPA Method 6010B.

RESULTS

Analytical results were compared to the United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) and/or Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note Number 3 DTSC-modified Screening Levels (DTSC SLs) for commercial/industrial soil. In addition, total lead and arsenic concentrations were compared with regional background levels, as presented in *Background Concentrations of Trace and Major Elements in California Soils*[1] and *Determination of a Southern California Regional Background Arsenic Concentration in Soil*[2]. Summaries of analytical results are provided in Tables 1 and 2. The analytical laboratory report is provided in Appendix A.

Organochlorine Pesticides in Soil

No OCP constituents were reported at concentrations above their respective laboratory method reporting limits (MRLs), as presented in Table 1. All MRLs were below applicable USEPA RSLs and DTSC SLs.

---

[1] Bradford, G. R., Change, A. C., Page, A. L., Bakhtar, D., Frampton, J. A., and Wright, H. Background Concentrations of Trace and Major Elements in California Soils. March 1996.
[2] Chernoff, G., Bosan, W., and Oudiz, D. and DTSC, Determination of a Southern California Regional Background Arsenic Concentration in Soil. March 2008.

Arsenic in Soil

Arsenic was detected above the laboratory reporting limit in 11 of the 12 samples at concentrations ranging from 1.5 to 2.9 milligrams per kilogram (mg/kg). Arsenic was detected above the DTSC SL of 0.36 mg/kg for commercial/industrial soil; however, detections of arsenic did not exceed the regional background concentration of 12 mg/kg in any sample (Table 2). Detections of arsenic did not exceed the USEPA RSL of 3.0 mg/kg for commercial/industrial soil.

Lead in Soil

Lead was detected above the laboratory reporting limit in all 12 samples at concentrations ranging from 3.8 to 9.9 mg/kg, well below the DTSC SL for commercial/industrial soil of 500 mg/kg and USEPA RSL for commercial/industrial soil of 800 mg/kg (Table 2).

CONCLUSIONS

The results of the Phase II Subsurface Investigation indicate that shallow soil OCP and select metals concentrations are below conservative regulatory thresholds for commercial/industrial land use and/or regional background concentrations. The REC identified in the Phase I ESA has been addressed and no further investigation is recommended at this time.

CLOSING

Should you have any questions or require any further information regarding the contents of this Report, please do not hesitate to contact Rocio Quinones by telephone at 562-446-8638 or by email at rquinones@rouxinc.com or Mauricio Escobar by telephone at 310-879-4920 or by email at mescobar@rouxinc.com.

Sincerely,

ROUX ASSOCIATES, INC.

Rocio Quinones
Project Scientist



Mauricio Escobar, P.G. - CA
Principal Geologist

Enclosures:

Table 1	Organochlorine Pesticides in Soil
Table 2	Arsenic and Lead in Soil
Figure 1	Site Location Map
Figure 2	Soil Sampling Locations
Appendix A	Laboratory Analytical Reports

TABLES

1. Organochlorine Pesticides in Soil
2. Arsenic and Lead in Soil

Table 1
Organochlorine Pesticides in Soil
South-Southwest of the Corner of North Ramona Boulevard and North Sanderson Avenue,
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Date Sampled	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	Endosulfan I	Dieldrin	4,4'-DDE	Endrin	Endosulfan II	Endosulfan sulfate	4,4'-DDD	Endrin aldehyde	Endrin ketone	4,4'-DDT	Methoxychlor	Toxaphene	Chlordane (Technical)
Analytical Method			USEPA 8081																			
Units			ug/Kg																			
USEPA Industrial Soil RSLs			360	1300	2500	NS	630	180	330	NS	140	9300	250000	NS	4900000	9600	NS	NS	8500	4100000	2100	NS
DTSC Commercial/Industrial Soil SL			240	820	2000	NS	630	180	330	NS	93	9300	160000	NS	3200000	6200	NS	NS	7100	2600000	1200	NS
SS-COMP-Q1	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q2	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q3	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q4	0.5	10/13/2023	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<100	<50
SS-COMP-Q4-DUP	*0.5*	*10/13/2023*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<10*	*<100*	*<51*
SS-COMP-Q5	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q6	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q7	0.5	10/13/2023	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<9.9	<99	<50
SS-COMP-Q8	0.5	10/13/2023	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<100	<50
SS-COMP-Q9	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q10	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q11	0.5	10/13/2023	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<9.8	<98	<49
SS-COMP-Q12	0.5	10/13/2023	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
SS-COMP-Q12-DUP	*0.5*	*10/13/2023*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<10*	*<100*	*<51*

Notes:
OCPs = organochlorine pesticides
USEPA = United States Environmental Protection Agency
USEPA RSL = USEPA Regional Screening Levels for Soil, Hazard Quotient (HQ) = 1.0, May 2023.
DTSC SL = Human Health Risk Assessment (HHRA) Note 3, Department of Toxic Substances Control Screening Levels (DTSC-SLs) for Soil, revised May 2022.
µg/Kg = microgram per kilogram
bgs = below ground surface
NS = No standard established
Italics indicates duplicate sample
<X = analyte not detected above laboratory RDL

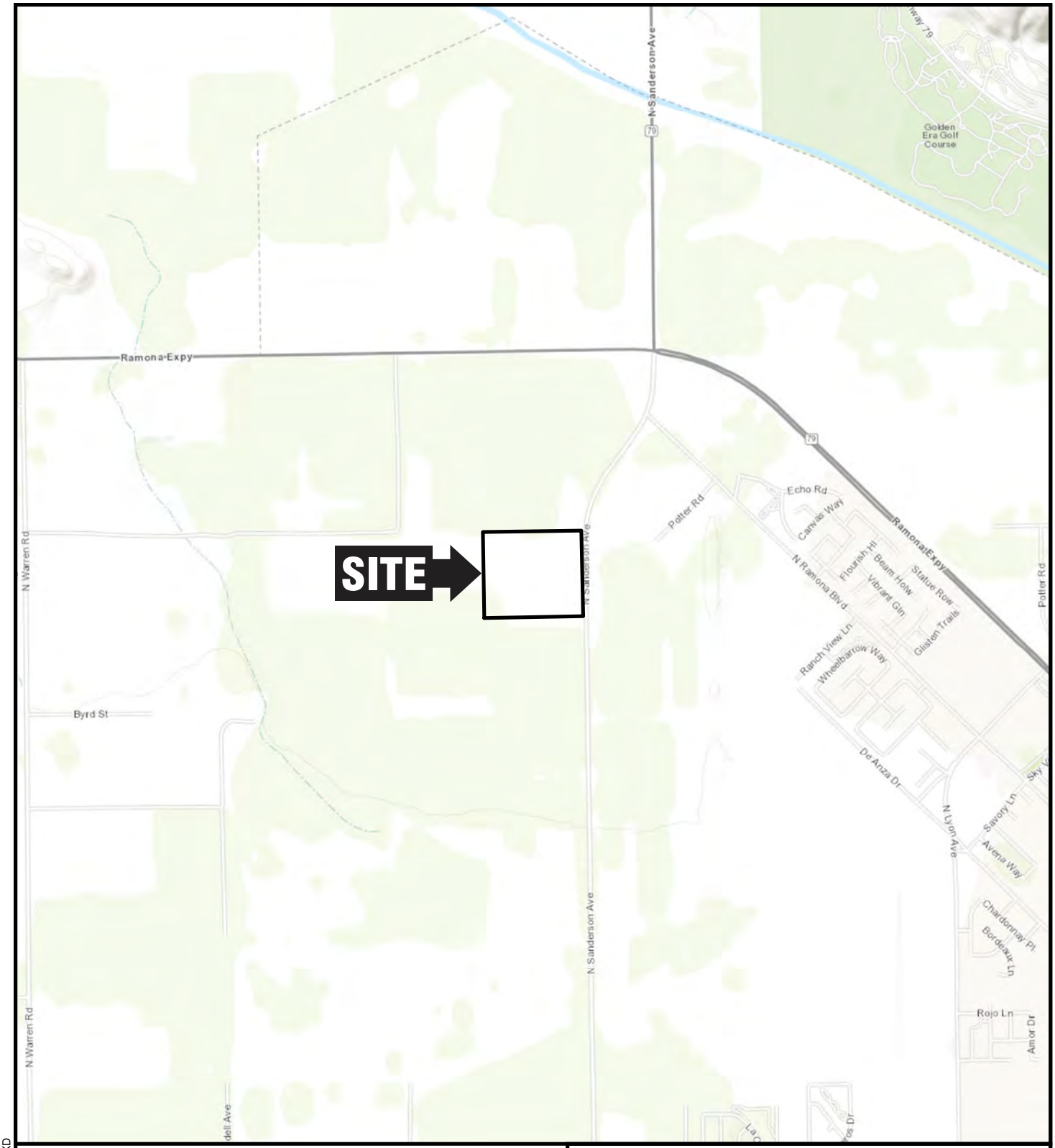
Table 2
Arsenic and Lead in Soil
South-Southwest of the Corner of North Ramona Boulevard and North Sanderson Avenue,
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Date Sampled	Arsenic	Lead
		Analytical Method	USEPA 6010B	
		Units	mg/Kg	
		Typical range for California Soil[1]	12[a]	12.4-97.1
		USEPA RSL - Industrial Soil	3.0	800
		DTSC Commercial/Industrial Soil SL	0.36	500*
SS-Q1	0.5	10/13/2023	**1.9**	**9.8**
SS-Q1-DUP	*0.5*	*10/13/2023*	***2.1***	***9.9***
SS-Q2	0.5	10/13/2023	**1.7**	**5.7**
SS-Q3	0.5	10/13/2023	**1.7**	**4.5**
SS-Q4	0.5	10/13/2023	**1.8**	**4.8**
SS-Q5	0.5	10/13/2023	**1.8**	**6.7**
SS-Q6	0.5	10/13/2023	**1.8**	**3.8**
SS-Q7	0.5	10/13/2023	**1.5**	**4.8**
SS-Q8	0.5	10/13/2023	**2.9**	**6.4**
SS-Q9	0.5	10/13/2023	<0.97	**4.2**
SS-Q9-DUP	*0.5*	*10/13/2023*	***2.0***	***4.4***
SS-Q10	0.5	10/13/2023	**1.8**	**4.8**
SS-Q11	0.5	10/13/2023	**1.8**	**5.6**
SS-Q12	0.5	10/13/2023	**2.0**	**4.9**

Notes:
[1]Bradford, G.R., Chang, A.C., Page, A.L., Bakhtar, D., Frampton, J.A., and Wright, H., 1996, Background of Trace and Major Elements in California Soils, Kearney Foundation of Soil Sciences Special Report, Division of Agriculture and Natural Resources, University of California
[a]Upper-bound background concentrations from Chernoff, G., Bosan, W., and Outiz, D., DTSC. Determination of a Southern California Regional Background Arsenic Concentration in Soil.
USEPA = United States Environmental Protection Agency
USEPA RSL = USEPA Regional Screening Level for industrial soil, dated May 2023
DTSC SL = Department of Toxic Substances Control Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3 Screening Level for industrial/commercial soil, revised May 2022
* SL is for "Lead and Compounds"
mg/Kg = milligram per kilogram
bgs = below ground surface
NS = No standard established
Italics indicates duplicate sample
Bold indicates that sample exceeds laboratory reporting detection limit (RDL)
<X = analyte not detected above laboratory RDL
Highlight indicates detection exceeds at least one SL

FIGURES

1. Site Location Map
2. Soil Sampling Locations



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: O.B.	Date: 11/03/23	FIGURE
Prepared by: O.B.	Scale: AS SHOWN	1
Project Mgr: R.Q.	Project: 2217.0030L	
File: Site Location.mxd		

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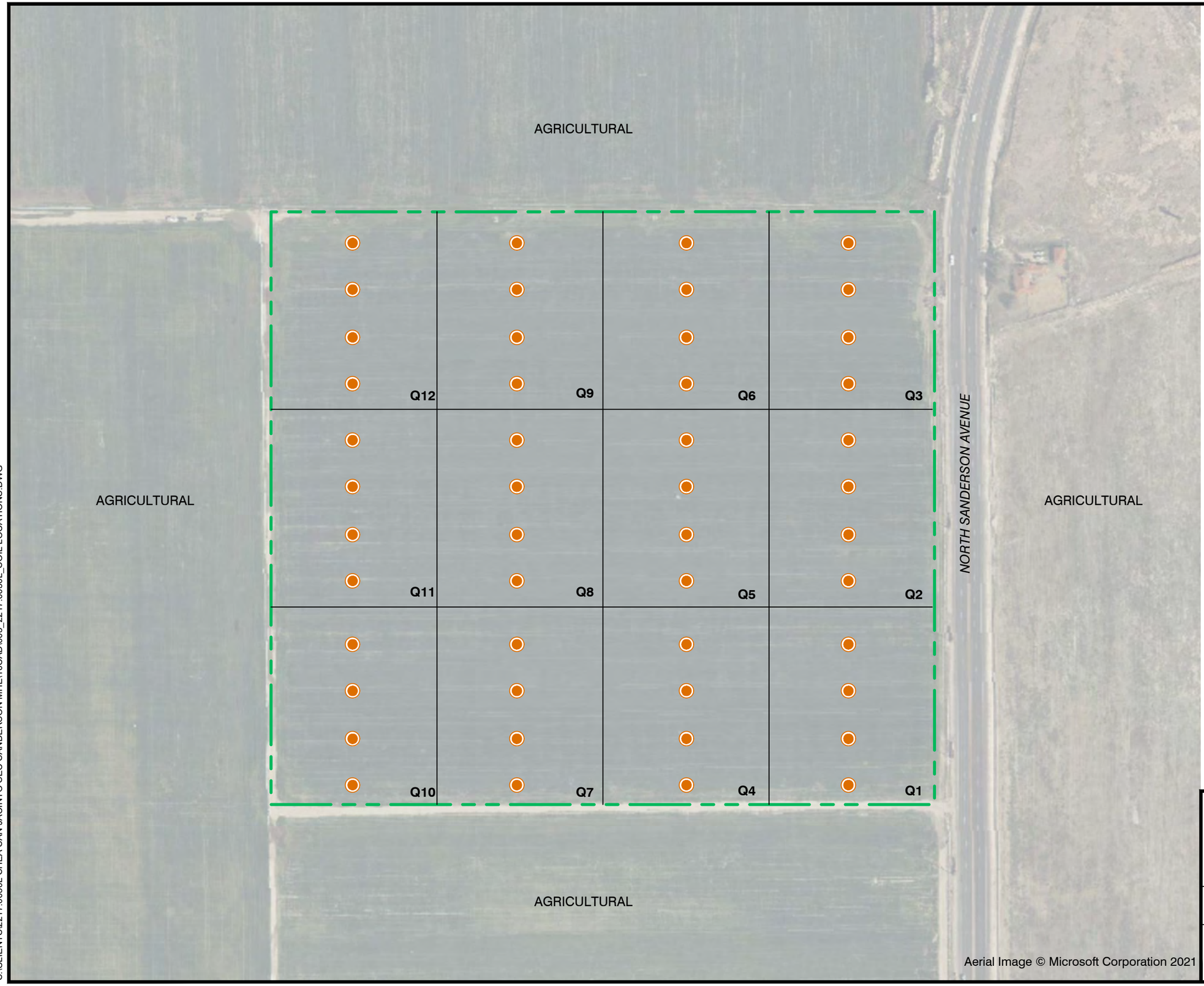

LEGEND

- APPROXIMATE SITE BOUNDARY
- ROUX INDIVIDUAL SAMPLING LOCATION
- **Q1** QUADRANT NUMBER

N

200' 0' 200'

Aerial Image © Microsoft Corporation 2021

Title:

SOIL SAMPLING LOCATIONS

NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: A.P.	Date: 31 OCT 2023	FIGURE
Prepared by: A.P.	Scale: 1" = 200'	2
Project Mgr: R.Q.	Project: 2217.0030L	
File: 003_2217.0030L_SOIL LOCATIONS.DWG		

S:\CLIENTS\2217.0030L SHEA SAN JACINTO SEC SANDERSON MHE\10CAD\003_2217.0030L_SOIL LOCATIONS.DWG

APPENDIX A

Laboratory Analytical Reports

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 494008
Report Level: II
Report Date: 10/25/2023

Analytical Report *prepared for:*

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Location: Shea San Jacinto, 2217.0030L

Authorized for release by:

Diane Galvan, Project Manager
714-771-9928
diane.galvan@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 494008
Location: Shea San Jacinto, 2217.0030L
Date Received: 10/16/23

Sample ID	Lab ID	Collected	Matrix
SS-COMP-Q1	494008-001	10/13/23 07:27	Soil
SS-COMP-Q2	494008-002	10/13/23 07:35	Soil
SS-COMP-Q3	494008-003	10/13/23 07:43	Soil
SS-COMP-Q4	494008-004	10/13/23 08:06	Soil
SS-COMP-Q5	494008-005	10/13/23 08:15	Soil
SS-COMP-Q6	494008-006	10/13/23 08:24	Soil
SS-COMP-Q7	494008-007	10/13/23 09:02	Soil
SS-COMP-Q8	494008-008	10/13/23 09:16	Soil
SS-COMP-Q9	494008-009	10/13/23 09:28	Soil
SS-COMP-Q10	494008-010	10/13/23 10:23	Soil
SS-COMP-Q11	494008-011	10/13/23 10:16	Soil
SS-COMP-Q12	494008-012	10/13/23 10:10	Soil
SS-Q1	494008-013	10/13/23 07:24	Soil
SS-Q2	494008-014	10/13/23 07:32	Soil
SS-Q3	494008-015	10/13/23 07:40	Soil
SS-Q4	494008-016	10/13/23 08:03	Soil
SS-Q5	494008-017	10/13/23 08:12	Soil
SS-Q6	494008-018	10/13/23 08:22	Soil
SS-Q7	494008-019	10/13/23 08:56	Soil
SS-Q8	494008-020	10/13/23 09:16	Soil
SS-Q9	494008-021	10/13/23 09:30	Soil
SS-Q10	494008-022	10/13/23 10:22	Soil
SS-Q11	494008-023	10/13/23 10:14	Soil
SS-Q12	494008-024	10/13/23 10:11	Soil
SS-Q1-DUP	494008-025	10/13/23 07:24	Soil
SS-COMP-Q4-DUP	494008-026	10/13/23 08:06	Soil

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 494008
Location: Shea San Jacinto, 2217.0030L
Date Received: 10/16/23

Sample ID	Lab ID	Collected	Matrix
SS-Q9-DUP	494008-027	10/13/23 09:30	Soil
SS-COMP-Q12-DUP	494008-028	10/13/23 10:10	Soil

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 494008

Page: 1 of 3

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	ROUX	Quote #:	
Report To:	Rocio Quinones	Proj. Name:	Shea San Jacinto
Email:	rquinones@rouxinc.com	Proj. #:	2217.00301
Address:	5150 E. Pacific Coast Hwy. Ste 450	P.O. #:	
	Long Beach, CA 90804	Address:	
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	AW/FC

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	Analysis Request: Metals (Pb and As only)	Analysis Request: Pesticides	Test Instructions / Comments
1	SS-comp-91	10/13/23	0727	S	4 oz jar	N/A		X	
2	SS-comp-92	"	0735	"	"	"		X	
3	SS-comp-93	"	0743	"	"	"		X	
4	SS-comp-94	"	0806	"	"	"		X	
5	SS-comp-95	"	0815	"	"	"		X	
6	SS-comp-96	"	0824	"	"	"		X	
7	SS-comp-97	"	0902	"	"	"		X	
8	SS-comp-98	"	0916	"	"	"		X	
9	SS-comp-99	"	0928	"	"	"		X	
10	SS-comp-910	↓	1023	↓	↓	↓		X	

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Franchine Casan	Franchine Casan	Staff Eco / Roux	10/16/2023 1110
1 Received By:		Hem G	EA	10/16/23 1110
2 Relinquished By:		Hem G	EA	10/16/23 1215
2 Received By:		Angela Smallwood	EA	10/16/23 1215
3 Relinquished By:				
3 Received By:				

0.7 3.4

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 494008

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Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 S = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Quote #:	
Report To:	Rocio Quinones	Proj. Name:	Shea San Jacinto
Email:	rquinones@rouxinc.com	Proj. #:	2217.0030L
Address:	5150 E. Pacific Coast Hwy, Ste 450	P.O. #:	
	Long Beach, CA 90804	Address:	
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	

Analysis Request

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	Metals (Pb and As only)	Pesticides	Test Instructions / Comments
1	SS-comp-q11	10/13/23	1016	S	4oz jar	N/A		X	
2	SS-comp-q12	↓	1010	↓	↓	↓		X	
3	SS-q1	↓	0724	↓	↓	↓	X		
4	SS-q2	↓	0732	↓	↓	↓	X		
5	SS-q3	↓	0740	↓	↓	↓	X		
6	SS-q4	↓	0803	↓	↓	↓	X		
7	SS-q5	↓	0812	↓	↓	↓	X		
8	SS-q6	↓	0822	↓	↓	↓	X		
9	SS-q7	↓	0856	↓	↓	↓	X		
10	SS-q8	↓	0916	↓	↓	↓	X		

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Francine Cason	Francine Cason	Staff Geo / Rans	10/16/2023 / 1110
1 Received By:	[signature]	Henry G	EA	10/16/23 1110
2 Relinquished By:	[signature]	Henry G	EA	10/16/23 1215
2 Received By:	[signature]	Analesa Smallcombe	EA	10/16/23 1215
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: L24100S

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Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange
931 W. Barkley Avenue, Orange, CA 92868
Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Quote #:	
Report To:	Rocio Quinones	Proj. Name:	Shell San Jacinto
Email:	rquinones@rouxinc.com	Proj. #:	2217.00306
Address:	5150 E. Pacific Coast Hwy, Ste 450	P.O. #:	
	Long Beach, CA 90804	Address:	
Phone:	424-232-9444	Global ID:	
Fax:		Sampled By:	

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	Analysis Request: Metals (Pb and As only)	Analysis Request: Pesticides	Test Instructions / Comments
1	SS-9,9	10/13/23	0930	S	4oz jar	N/A	X		
2	SS-9,10	"	1022	"	"	"	X		
3	SS-9,11	"	1014	"	"	"	X		
4	SS-9,12	"	1011	"	"	"	X		
5	SS-9,1-dup	"	0724	"	"	"	X		
6	SS-comp-9,4-dup	"	0806	"	"	"		X	
7	SS-9,9-dup	"	0930	"	"	"	X		
8	SS-comp-9,12-dup	"	1010	"	"	"		X	
9					AN				
10									

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	Francine Carson	Francine Carson	Staff Geologist / Roux	10/16/2023 | 1110
1 Received By:		Hem G	EA	10/16/23 1110
2 Relinquished By:		Hem G	EA	10/16/23 1215
2 Received By:		[illegible]	EA	10/16/23 | 215
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Rax Project: Shea San Jacinto

Date Received: 10/16/23 Sampler's Name Present: ☒ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☒ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each coole #1: 3.9 #2: _____ #3: _____ #4: _____

(Acceptance ronge is < 6°C but not frozen (for Microbiology samples, occeptance ronge is < 10°C but not frozen). It is occeptable for samples collected the same day as somple receipt to hove a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☒ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0-7 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	X		
Are sample IDs present?	X		
Are sampling dates & times present?	X		
Is a relinquished signature present?	X		
Are the tests required clearly indicated on the COC?	X		
Are custody seals present?		X	
If custody seals are present, were they intact?			X
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			X
Did all samples arrive intact? If no, indicate in Section 4 below.	X		
Did all bottle labels agree with COC? (ID, dates and times)	X		
Were the samples collected in the correct containers for the required tests?	X		
Are the containers labeled with the correct preservatives?			X
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			X
Was a sufficient amount of sample submitted for the requested tests?	X		

Section 5 Explanations/Comments

_____

_____

_____

Section 6

For discrepancies, how was the Project Manager notified? ☒ Verbal PM Initials: _____ ☐ Email (email sent to/on): _____

Project Manager's response:

_____

_____

Completed By: _____ Date: 10/16/23

ENTHALPY ANALYTICAL

Analysis Results for 494008

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 494008
Location: Shea San Jacinto, 2217.0030L
Date Received: 10/16/23

Sample ID: SS-COMP-Q1 **Lab ID: 494008-001** **Collected: 10/13/23 07:27**
Matrix: Soil

494008-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	76%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	65%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 494008

Sample ID: SS-COMP-Q2	Lab ID: 494008-002	Collected: 10/13/23 07:35
	Matrix: Soil	

494008-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	85%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	73%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 494008

Sample ID: SS-COMP-Q3	Lab ID: 494008-003	Collected: 10/13/23 07:43
	Matrix: Soil	

494008-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	71%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	65%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 494008

Sample ID: SS-COMP-Q4	Lab ID: 494008-004	Collected: 10/13/23 08:06
	Matrix: Soil	

494008-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	50	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	69%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 494008

Sample ID: SS-COMP-Q5	Lab ID: 494008-005	Collected: 10/13/23 08:15
	Matrix: Soil	

494008-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	69%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 494008

Sample ID: SS-COMP-Q6	Lab ID: 494008-006	Collected: 10/13/23 08:24
	Matrix: Soil	

494008-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	74%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	72%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 494008

Sample ID: SS-COMP-Q7	Lab ID: 494008-007	Collected: 10/13/23 09:02
	Matrix: Soil	

494008-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.0	0.99	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	9.9	0.99	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	99	0.99	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	50	0.99	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	79%		%REC	23-120	0.99	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	72%		%REC	24-120	0.99	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 494008

Sample ID: SS-COMP-Q8	Lab ID: 494008-008	Collected: 10/13/23 09:16
	Matrix: Soil	

494008-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.0	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	50	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	71%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	70%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 494008

Sample ID: SS-COMP-Q9	Lab ID: 494008-009	Collected: 10/13/23 09:28
	Matrix: Soil	

494008-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	75%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	74%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 494008

Sample ID: SS-COMP-Q10	Lab ID: 494008-010	Collected: 10/13/23 10:23
	Matrix: Soil	

494008-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	78%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	76%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 494008

Sample ID: SS-COMP-Q11	Lab ID: 494008-011	Collected: 10/13/23 10:16
	Matrix: Soil	

494008-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
beta-BHC	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
gamma-BHC	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
delta-BHC	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Heptachlor	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Aldrin	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Heptachlor epoxide	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Endosulfan I	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Dieldrin	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
4,4'-DDE	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Endrin	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Endosulfan II	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Endosulfan sulfate	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
4,4'-DDD	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Endrin aldehyde	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Endrin ketone	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
4,4'-DDT	ND		ug/Kg	4.9	0.98	324712	10/18/23	10/19/23	TRN
Methoxychlor	ND		ug/Kg	9.8	0.98	324712	10/18/23	10/19/23	TRN
Toxaphene	ND		ug/Kg	98	0.98	324712	10/18/23	10/19/23	TRN
Chlordane (Technical)	ND		ug/Kg	49	0.98	324712	10/18/23	10/19/23	TRN
Surrogates				**Limits**					
TCMX	78%		%REC	23-120	0.98	324712	10/18/23	10/19/23	TRN
Decachlorobiphenyl	75%		%REC	24-120	0.98	324712	10/18/23	10/19/23	TRN

Results for any subcontracted analyses are not included in this section.

Analysis Results for 494008

Sample ID: SS-COMP-Q12	Lab ID: 494008-012	Collected: 10/13/23 10:10
	Matrix: Soil	

494008-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	77%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	75%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Sample ID: SS-Q1	Lab ID: 494008-013	Collected: 10/13/23 07:24
	Matrix: Soil	

494008-013 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.9**		mg/Kg	0.95	0.95	324582	10/16/23	10/17/23	SBW
Lead	**9.8**		mg/Kg	0.95	0.95	324582	10/16/23	10/17/23	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 494008

Sample ID: SS-Q2 **Lab ID: 494008-014** **Collected: 10/13/23 07:32**
Matrix: Soil

494008-014 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.7**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW
Lead	**5.7**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q3 **Lab ID: 494008-015** **Collected: 10/13/23 07:40**
Matrix: Soil

494008-015 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.7**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW
Lead	**4.5**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q4 **Lab ID: 494008-016** **Collected: 10/13/23 08:03**
Matrix: Soil

494008-016 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.8**		mg/Kg	0.96	0.96	324582	10/16/23	10/17/23	SBW
Lead	**4.8**		mg/Kg	0.96	0.96	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q5 **Lab ID: 494008-017** **Collected: 10/13/23 08:12**
Matrix: Soil

494008-017 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.8**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW
Lead	**6.7**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q6 **Lab ID: 494008-018** **Collected: 10/13/23 08:22**
Matrix: Soil

494008-018 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.8**		mg/Kg	1.0	1	324582	10/16/23	10/17/23	SBW
Lead	**3.8**		mg/Kg	1.0	1	324582	10/16/23	10/17/23	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 494008

Sample ID: SS-Q7 **Lab ID: 494008-019** **Collected: 10/13/23 08:56**
Matrix: Soil

494008-019 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.5**		mg/Kg	0.99	0.99	324582	10/16/23	10/17/23	SBW
Lead	**4.8**		mg/Kg	0.99	0.99	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q8 **Lab ID: 494008-020** **Collected: 10/13/23 09:16**
Matrix: Soil

494008-020 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.9**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW
Lead	**6.4**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q9 **Lab ID: 494008-021** **Collected: 10/13/23 09:30**
Matrix: Soil

494008-021 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	ND		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW
Lead	**4.2**		mg/Kg	0.97	0.97	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q10 **Lab ID: 494008-022** **Collected: 10/13/23 10:22**
Matrix: Soil

494008-022 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.8**		mg/Kg	0.98	0.98	324582	10/16/23	10/17/23	SBW
Lead	**4.8**		mg/Kg	0.98	0.98	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q11 **Lab ID: 494008-023** **Collected: 10/13/23 10:14**
Matrix: Soil

494008-023 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.8**		mg/Kg	0.95	0.95	324582	10/16/23	10/17/23	SBW
Lead	**5.6**		mg/Kg	0.95	0.95	324582	10/16/23	10/17/23	SBW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 494008

Sample ID: SS-Q12	Lab ID: 494008-024	Collected: 10/13/23 10:11
	Matrix: Soil	

494008-024 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.0**		mg/Kg	0.98	0.98	324582	10/16/23	10/17/23	SBW
Lead	**4.9**		mg/Kg	0.98	0.98	324582	10/16/23	10/17/23	SBW

Sample ID: SS-Q1-DUP	Lab ID: 494008-025	Collected: 10/13/23 07:24
	Matrix: Soil	

494008-025 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.1**		mg/Kg	0.99	0.99	324582	10/16/23	10/17/23	SBW
Lead	**9.9**		mg/Kg	0.99	0.99	324582	10/16/23	10/17/23	SBW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 494008

Sample ID: SS-COMP-Q4-DUP	Lab ID: 494008-026	Collected: 10/13/23 08:06
	Matrix: Soil	

494008-026 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	78%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	73%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

Sample ID: SS-Q9-DUP	Lab ID: 494008-027	Collected: 10/13/23 09:30
	Matrix: Soil	

494008-027 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**2.0**		mg/Kg	1.0	1	324582	10/16/23	10/17/23	SBW
Lead	**4.4**		mg/Kg	1.0	1	324582	10/16/23	10/17/23	SBW

Results for any subcontracted analyses are not included in this section.

Analysis Results for 494008

Sample ID: SS-COMP-Q12-DUP	Lab ID: 494008-028	Collected: 10/13/23 10:10
	Matrix: Soil	

494008-028 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
beta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
gamma-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
delta-BHC	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Aldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan I	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Dieldrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDE	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan II	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDD	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Endrin ketone	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
4,4'-DDT	ND		ug/Kg	5.1	1	324712	10/18/23	10/19/23	MES
Methoxychlor	ND		ug/Kg	10	1	324712	10/18/23	10/19/23	MES
Toxaphene	ND		ug/Kg	100	1	324712	10/18/23	10/19/23	MES
Chlordane (Technical)	ND		ug/Kg	51	1	324712	10/18/23	10/19/23	MES
Surrogates				**Limits**					
TCMX	74%		%REC	23-120	1	324712	10/18/23	10/19/23	MES
Decachlorobiphenyl	76%		%REC	24-120	1	324712	10/18/23	10/19/23	MES

ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID:** QC1100696	**Batch:** 324582
Matrix: Soil	**Method:** EPA 6010B	**Prep Method:** EPA 3050B

QC1100696 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Arsenic	ND		mg/Kg	1.0	10/16/23	10/17/23
Lead	ND		mg/Kg	1.0	10/16/23	10/17/23

Type: Lab Control Sample	**Lab ID:** QC1100697	**Batch:** 324582
Matrix: Soil	**Method:** EPA 6010B	**Prep Method:** EPA 3050B

QC1100697 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Arsenic	95.05	100.0	mg/Kg	95%		80-120
Lead	106.5	100.0	mg/Kg	107%		80-120

Type: Matrix Spike	**Lab ID:** QC1100698	**Batch:** 324582
Matrix (Source ID): Soil (494008-013)	**Method:** EPA 6010B	**Prep Method:** EPA 3050B

QC1100698 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Arsenic	95.49	1.943	98.04	mg/Kg	95%		75-125	0.98
Lead	106.5	9.821	98.04	mg/Kg	99%		75-125	0.98

Type: Matrix Spike Duplicate	**Lab ID:** QC1100699	**Batch:** 324582
Matrix (Source ID): Soil (494008-013)	**Method:** EPA 6010B	**Prep Method:** EPA 3050B

QC1100699 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Arsenic	96.72	1.943	98.04	mg/Kg	97%		75-125	1	35	0.98
Lead	105.8	9.821	98.04	mg/Kg	98%		75-125	1	20	0.98

Type: Post Digest Spike	**Lab ID:** QC1100700	**Batch:** 324582
Matrix (Source ID): Soil (494008-013)	**Method:** EPA 6010B	**Prep Method:** EPA 3050B

QC1100700 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Arsenic	95.77	1.943	95.24	mg/Kg	99%		75-125	0.95
Lead	107.6	9.821	95.24	mg/Kg	103%		75-125	0.95

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC1101125**	**Batch: 324712**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC1101125 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
alpha-BHC	ND		ug/Kg	5.0	10/18/23	10/19/23
beta-BHC	ND		ug/Kg	5.0	10/18/23	10/19/23
gamma-BHC	ND		ug/Kg	5.0	10/18/23	10/19/23
delta-BHC	ND		ug/Kg	5.0	10/18/23	10/19/23
Heptachlor	ND		ug/Kg	5.0	10/18/23	10/19/23
Aldrin	ND		ug/Kg	5.0	10/18/23	10/19/23
Heptachlor epoxide	ND		ug/Kg	5.0	10/18/23	10/19/23
Endosulfan I	ND		ug/Kg	5.0	10/18/23	10/19/23
Dieldrin	ND		ug/Kg	5.0	10/18/23	10/19/23
4,4'-DDE	ND		ug/Kg	5.0	10/18/23	10/19/23
Endrin	ND		ug/Kg	5.0	10/18/23	10/19/23
Endosulfan II	ND		ug/Kg	5.0	10/18/23	10/19/23
Endosulfan sulfate	ND		ug/Kg	5.0	10/18/23	10/19/23
4,4'-DDD	ND		ug/Kg	5.0	10/18/23	10/19/23
Endrin aldehyde	ND		ug/Kg	5.0	10/18/23	10/19/23
Endrin ketone	ND		ug/Kg	5.0	10/18/23	10/19/23
4,4'-DDT	ND		ug/Kg	5.0	10/18/23	10/19/23
Methoxychlor	ND		ug/Kg	10	10/18/23	10/19/23
Toxaphene	ND		ug/Kg	100	10/18/23	10/19/23
Chlordane (Technical)	ND		ug/Kg	50	10/18/23	10/19/23
Surrogates				**Limits**		
TCMX	78%		%REC	23-120	10/18/23	10/19/23
Decachlorobiphenyl	68%		%REC	24-120	10/18/23	10/19/23

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC1101126**	**Batch: 324712**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC1101126 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	51.73	50.51	ug/Kg	102%		22-129
beta-BHC	48.12	50.51	ug/Kg	95%		28-125
gamma-BHC	52.40	50.51	ug/Kg	104%		22-128
delta-BHC	54.07	50.51	ug/Kg	107%		24-131
Heptachlor	51.01	50.51	ug/Kg	101%		18-124
Aldrin	46.52	50.51	ug/Kg	92%		23-120
Heptachlor epoxide	49.64	50.51	ug/Kg	98%		26-120
Endosulfan I	50.97	50.51	ug/Kg	101%		25-126
Dieldrin	48.91	50.51	ug/Kg	97%		23-124
4,4'-DDE	52.03	50.51	ug/Kg	103%		28-121
Endrin	51.91	50.51	ug/Kg	103%		25-127
Endosulfan II	50.43	50.51	ug/Kg	100%		29-121
Endosulfan sulfate	45.44	50.51	ug/Kg	90%		30-121
4,4'-DDD	51.94	50.51	ug/Kg	103%		26-120
Endrin aldehyde	32.33	50.51	ug/Kg	64%		10-120
Endrin ketone	45.29	50.51	ug/Kg	90%		28-125
4,4'-DDT	51.06	50.51	ug/Kg	101%		22-125
Methoxychlor	50.10	50.51	ug/Kg	99%		28-130
Surrogates						
TCMX	41.61	50.51	ug/Kg	82%		23-120
Decachlorobiphenyl	40.90	50.51	ug/Kg	81%		24-120

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC1101127**	**Batch:**	**324712**
Matrix (Source ID):	**Soil (494008-011)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC1101127 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	44.71	ND	50.00	ug/Kg	89%		46-120	1
beta-BHC	41.58	ND	50.00	ug/Kg	83%		41-120	1
gamma-BHC	45.00	ND	50.00	ug/Kg	90%		41-120	1
delta-BHC	48.29	ND	50.00	ug/Kg	97%		38-123	1
Heptachlor	44.70	ND	50.00	ug/Kg	89%		39-120	1
Aldrin	43.32	ND	50.00	ug/Kg	87%		34-120	1
Heptachlor epoxide	44.27	ND	50.00	ug/Kg	89%		43-120	1
Endosulfan I	43.02	ND	50.00	ug/Kg	86%		45-120	1
Dieldrin	42.32	ND	50.00	ug/Kg	85%		45-120	1
4,4'-DDE	46.62	2.926	50.00	ug/Kg	87%		34-120	1
Endrin	44.09	ND	50.00	ug/Kg	88%		40-120	1
Endosulfan II	42.67	ND	50.00	ug/Kg	85%		41-120	1
Endosulfan sulfate	37.81	ND	50.00	ug/Kg	76%		42-120	1
4,4'-DDD	42.56	ND	50.00	ug/Kg	85%		41-120	1
Endrin aldehyde	29.21	ND	50.00	ug/Kg	58%		30-120	1
Endrin ketone	35.97	ND	50.00	ug/Kg	72%		45-120	1
4,4'-DDT	43.58	ND	50.00	ug/Kg	87%		35-127	1
Methoxychlor	41.06	ND	50.00	ug/Kg	82%		42-136	1
Surrogates								
TCMX	34.74		50.00	ug/Kg	69%		23-120	1
Decachlorobiphenyl	32.97		50.00	ug/Kg	66%		24-120	1

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC1101128**	**Batch:**	**324712**
Matrix (Source ID):	**Soil (494008-011)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC1101128 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	45.05	ND	49.50	ug/Kg	91%		46-120	2	30	0.99
beta-BHC	41.60	ND	49.50	ug/Kg	84%		41-120	1	30	0.99
gamma-BHC	47.14	ND	49.50	ug/Kg	95%		41-120	6	30	0.99
delta-BHC	52.23	ND	49.50	ug/Kg	106%		38-123	9	30	0.99
Heptachlor	44.87	ND	49.50	ug/Kg	91%		39-120	1	30	0.99
Aldrin	44.77	ND	49.50	ug/Kg	90%		34-120	4	30	0.99
Heptachlor epoxide	44.79	ND	49.50	ug/Kg	90%		43-120	2	30	0.99
Endosulfan I	42.93	ND	49.50	ug/Kg	87%		45-120	1	30	0.99
Dieldrin	41.42	ND	49.50	ug/Kg	84%		45-120	1	30	0.99
4,4'-DDE	48.20	2.926	49.50	ug/Kg	91%		34-120	4	30	0.99
Endrin	44.80	ND	49.50	ug/Kg	91%		40-120	3	30	0.99
Endosulfan II	41.83	ND	49.50	ug/Kg	84%		41-120	1	30	0.99
Endosulfan sulfate	39.73	ND	49.50	ug/Kg	80%		42-120	6	30	0.99
4,4'-DDD	46.71	ND	49.50	ug/Kg	94%		41-120	10	30	0.99
Endrin aldehyde	28.43	ND	49.50	ug/Kg	57%		30-120	2	30	0.99
Endrin ketone	37.74	ND	49.50	ug/Kg	76%		45-120	6	30	0.99
4,4'-DDT	39.47	ND	49.50	ug/Kg	80%		35-127	9	30	0.99
Methoxychlor	35.89	ND	49.50	ug/Kg	73%		42-136	12	30	0.99
Surrogates										
TCMX	35.63		49.50	ug/Kg	72%		23-120			0.99
Decachlorobiphenyl	34.81		49.50	ug/Kg	70%		24-120			0.99

ND Not Detected

File
UST

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

December 26, 2001

Mr. Cal Westra
Westra Family Trust
870 North Sanderson Avenue
San Jacinto, California 92582

SUBJECT: **NO FURTHER ACTION**
WESTRA DAIRY FARM TANKS
870 NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA 92582
UST CASE NO. 083303601T

Dear Mr. Westra:

This letter confirms the completion of the site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Enclosed is the Case Summary for the referenced site for your records.

Based upon the available information, including current land use, and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action that is related to the underground storage tank removal is required.

This notice is issued pursuant to a regulation contained in Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e).

Please provide documentation of well abandonment to this office to complete our file. Please contact Rose Scott of our office at (909) 320-6375, if you have any questions regarding this matter.

Sincerely,

for Gerard J. Thibeault
Executive Officer

Enclosure: Case Closure Summary

cc: Sharon Boltinghouse, County of Riverside
Ronald Bailey, Stratus Environmental, Inc.
Ed McGlothlin, Consolidated Waste Industries

CASE SUMMARY

I. AGENCY INFORMATION

Agency Name: California Regional Water Quality Control Board, Santa Ana Region	Address: 3737 Main Street, Suite 500
city/state/zip: Riverside, CA 92501-3348	Phone: (909) 320-6375 or (909)-782-4130
Staff: Rose T. Scott	Title: Associate Engineering Geologist

II. CASE INFORMATION

Site Name:	Westra Dairy Farm
Location:	870 N. Sanderson Ave., San Jacinto, California 92582
RB Case #	083303601T

Responsible Parties	Address	Phone Number
Cal Westra Westra Family Trust	870 N. Sanderson Ave. San Jacinto, California 92582	(909) 239-0247

Tank No.	Size In Gallons	Contents	Closed in-place Removed?	Date
1	1,000 gallons	Gasoline	Removed	December 14, 1999
2	1,000 gallons	Gasoline	Removed	December 14, 1999
3	10,000 gallons	Gasoline	Removed	December 14, 1999

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause & type of release: underground tanks	
Site characterization complete: YES [x] NO	Closure report dated: February 21, 2000
Monitoring Wells installed: YES [ ] NO [x]	Proper screened interval: YES [ ] NO [ ] NA [x]
Highest groundwater depth below surface: 120 feet estimated	Lowest depth: 120 feet estimated
Flow Direction: esimated to the east	Most sensitive current groundwater use:
Groundwater Sub-Basin: San Jacinto –Intake and Upper Pressure	Reports(s) filed: California Regional Water Quality Control Board
Report(s) on file? Yes	3737 Main Street, Suit 500, Riverside, CA 92501-3348

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

MATERIAL	AMOUNT	ACTION TREATMENT OR DISPOSAL W/DESTINATION	Date
Soil	120 tons	Excavation and Offsite Disposal	December 1999

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS – BEFORE & AFTER CLEANUP				
CONTAMINANT	SOIL (mg/kg) Before	After	WATER (µg/l) Before	After
Total Petroleum Hydrocarbons – Gasoline (8015)	NA	5,290	NA	NA
Benzene	NA	36.8	NA	NA
MTBE	NA	377	NA	NA
Toluene	NA	638	NA	NA
Ethylbenzene	NA	200	NA	NA
Xylenes	NA	352	NA	NA

NA - Not applicable

IV. CLOSURE

Does completed corrective action protect beneficial uses per the regional board basin plan?
YES [x] NO [ ]

Does the corrective action protect public health for current land use? YES [x] NO [ ]

SITE MANAGEMENT REQUIREMENTS
Should corrective action be reviewed if land use changes?
YES [x] NO [ ]

Monitoring or vapor wells decommissioned: YES [ ] NO [x] N/A [ ]
Number decommissioned: none

List of enforcement actions taken: none
List enforcement action rescinded: none

VII. ADDITIONAL COMMENTS, DATA, ETC.

On December 14, 1999, three gaolsine underground storage tanks (USTs) were removed from the site under the direction of Riverside County. The tank area was over-excavated by Consolidated Waste Industries, and the contaminated soil (approximately 120 tons) was transported to TPS recycling in Adelanto, California. The highest concentrations of petroleum hydrocarbons detected beneath the gasoline tanks are shown on the preceding table. These are the concentrations left in place at the bottom of the excavation. On March 15, 2000, the County of Riverside Health Services Agency Department of Environmental Health transferred this case to our office for Regional Board oversight for jurisdictional reasons.

In October 2000, three borings were drilled at the site to depths of 60 to 70 feet below ground surface (bgs). Groundwater was not detected to a depth of 70 feet below ground surface. The expected depth to groundwater is reported to be 120 feet or greater. The site is underlain by sandy silt, silty sand and gravelly sand. The highest concentrations of petroleum hydrocarbons were detected in the 15-foot sample from Boring S-1. In addition to the contaminants identified in the table above, the following compounds were

detected: Naphthalene at 32.3 mg/kg, N-propylbenzene at 34.6 mg/kg, 1,2,4-trimethylbenzene at 248.0 mg/kg, 1,3,5-trimethylbenzene at 82.8 mg/kg, and 2-Methylnaphthalene at 33.6 mg/kg. The concentrations significantly decreased with depth indicating that the extent of petroleum hydrocarbons was limited to between 15 and 20 feet bgs. In the soil samples collected at 25, 35 and 60 feet bgs, TPH, MTBE, toluene, ethylbenzene and xylenes were detected at low concentrations (less than 0.5 mg/kg). Petroleum hydrocarbons were not detected in boring S-2 and were only detected at low concentrations (0.147 mg/kg TPH, 0.009 mg/kg benzene, 0.031 mg/kg toluene, 0.012 mg/kg xylenes and 0.186 mg/kg MTBE) in the 15 and 20-foot samples from boring S-3, indicating that the lateral extent of petroleum hydrocarbons in soil was also limited.

In December 2000, Regional Board staff recommended an extended vapor extraction test in order to evaluate the mass of petroleum hydrocarbons in the soil available for vapor recovery. On May 7, 2001, one vapor extraction well was installed in the area of the highest concentrations of petroleum hydrocarbons in soil and a 7-hour vapor extraction test was conducted. Vapor samples were collected at the beginning, middle and end of the test. The highest concentrations were detected at the mid-point of the test. The influent concentrations of TPH and MTBE decreased from the beginning to the end of the test from 3,000 and 400 ppmv to 2,300 and 270 ppmv, respectively. Concentrations of benzene increased from 0.14 ppmv at the beginning of the test to 27 ppmv at the middle and 0.17 ppmv at the end. MTBE also increased slightly during the mid-test sampling. At a flow rate of 30 scfm, only 9.55 pounds of hydrocarbons were removed during the test. The results of the test indicated that there is not a significant source of petroleum hydrocarbons remaining in the soil that would pose a threat to groundwater resources.

No further action is recommended for the following reasons:

- The areas primarily affected by the release were remediated by excavation and off-site disposal of approximately 120 tons of soil containing petroleum hydrocarbons.
- Assessment results indicated the residual petroleum hydrocarbons in soil are limited to an area estimated to have a 15-foot radius between 15 and 20 feet bgs, southeast of the maintenance building.
- Concentrations in extracted vapors during the vapor extraction test did not indicate a significantly rich source of petroleum hydrocarbons in soil.
- Groundwater is expected to be at a depth of 120 feet, at least 60 feet below the deepest detected compound (MTBE at a concentration of 0.089 mg/kg of MtBE, using EPA Method 8021) and 100 feet beneath the deepest detected benzene (0.006 mg/kg).

VIII. RWQCB AGENCY RESPONSE

Regional Board Staff:

Name: Rose T. Scott	Title: Associate Engineering Geologist
Signature: Rose T. Scott	Date: 12/26/01

Name: Kenneth R. Williams - Senior Engineering Geologist	Response: Concurs with Closure
Signature: Kenneth R. Williams	Date: 12/26/01

Westra Family Trust

PO Box 1038
Mira Loma, CA 91752-1038

SANTA ANA REGION
RECD DATE
APR 17 2002
Sam
EGK

April 15, 2002

California Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501-3348

Subject: Well Abandonment

Westra Dairy Farms Tanks
870 N. Sanderson Avenue
San Jacinto, CA 92582
UST Case No. 083303601T

Dear Mr. Gerard J Thibeault:

In response to your letter dated December 26,2001 the study well at the above location has been properly sealed and abandoned. Please use this letter as our confirmation of the completion of the site investigation and remedial action.

No further action is necessary.

We thank you as a family for all your work in the above mentioned case.

Sincerely,

Cal Westra
Partner

A: RTS/KRW

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

December 26, 2001

Mr. Cal Westra
Westra Family Trust
870 North Sanderson Avenue
San Jacinto, California 92582

SUBJECT: NO FURTHER ACTION
WESTRA DAIRY FARM TANKS
870 NORTH SANDERSON AVENUE
SAN JACINTO, CALIFORNIA 92582
UST CASE NO. 083303601T

Dear Mr. Westra:

This letter confirms the completion of the site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Enclosed is the Case Summary for the referenced site for your records.

Based upon the available information, including current land use, and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action that is related to the underground storage tank removal is required.

This notice is issued pursuant to a regulation contained in Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e).

Please provide documentation of well abandonment to this office to complete our file. Please contact Rose Scott of our office at (909) 320-6375, if you have any questions regarding this matter.

Sincerely,

K t V. Bttl

for Gerard J. Thibeault
Executive Officer

Enclosure: Case Closure Summary

cc: Sharon Boltinghouse, County of Riverside
Ronald Bailey, Stratus Environmental, Inc.
Ed McGlothlin, Consolidated Waste Industries

CASE SUMMARY

I. AGENCY INFORMATION

Agency Name: California Regional Water Quality Control Board, Santa Ana Region	Address: 3737 Main Street, Suite 500
city/state/zip: Riverside, CA 92501-3348	Phone: (909) 320-6375 or (909)-782-4130
Staff: Rose T. Scott	Title: Associate Engineering Geologist

II. CASE INFORMATION

Site Name:	Westra Dairy Farm
Location:	870 N. Sanderson Ave., San Jacinto, California 92582
RB Case #	083303601T

Responsible Parties	Address	Phone Number
Cal Westra Westra Family Trust	870 N. Sanderson Ave. San Jacinto, California 92582	(909) 239-0247

Tank No.	Size In Gallons	Contents	Closed in-place Removed?	Date
1	1,000 gallons	Gasoline	Removed	December 14, 1999
2	1,000 gallons	Gasoline	Removed	December 14, 1999
3	10,000 gallons	Gasoline	Removed	December 14, 1999

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause & type of release: underground tanks	
Site characterization complete: YES [x] NO	Closure report dated: February 21, 2000
Monitoring Wells installed: YES [ ] NO [x]	Proper screened interval: YES [ ] NO [ ] NA [x]
Highest groundwater depth below surface: 120 feet estimated	Lowest depth: 120 feet estimated
Flow Direction: esimated to the east	Most sensitive current groundwater use:
Groundwater Sub-Basin: San Jacinto –Intake and Upper Pressure	Reports(s) filed: California Regional Water Quality Control Board
Report(s) on file? Yes	3737 Main Street, Suit 500, Riverside, CA 92501-3348

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

MATERIAL	AMOUNT	ACTION TREATMENT OR DISPOSAL W/DESTINATION	Date
Soil	120 tons	Excavation and Offsite Disposal	December 1999

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS – BEFORE & AFTER CLEANUP				
CONTAMINANT	SOIL (mg/kg) Before	After	WATER (µg/l) Before	After
Total Petroleum Hydrocarbons – Gasoline (8015)	NA	5,290	NA	NA
Benzene	NA	36.8	NA	NA
MTBE	NA	377	NA	NA
Toluene	NA	638	NA	NA
Ethylbenzene	NA	200	NA	NA
Xylenes	NA	352	NA	NA

NA - Not applicable

IV. CLOSURE

Does completed corrective action protect beneficial uses per the regional board basin plan?
YES [x] NO [ ]

Does the corrective action protect public health for current land use? YES [x] NO [ ]

SITE MANAGEMENT REQUIREMENTS
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YES [x] NO [ ]

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No further action is recommended for the following reasons:

- The areas primarily affected by the release were remediated by excavation and off-site disposal of approximately 120 tons of soil containing petroleum hydrocarbons.
- Assessment results indicated the residual petroleum hydrocarbons in soil are limited to an area estimated to have a 15-foot radius between 15 and 20 feet bgs, southeast of the maintenance building.
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VIII. RWQCB AGENCY RESPONSE

Regional Board Staff:

Name: Rose T. Scott	Title: Associate Engineering Geologist
Signature: *Original Signed by R. Scott*	Date:

Name: Kenneth R. Williams - Senior Engineering Geologist	Response: Concurs with Closure
Signature: Original Signed by K. Williams	Date:

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

WESTRA DAIRY FARM (T0606599136) - (MAP)

SIGN UP FOR EMAI

870 SANDERSON
SAN JACINTO, CA 92582
RIVERSIDE COUNTY
LUST CLEANUP SITE (INFO)
COMPLETED - CASE CLOSED AS OF 12/26/2001 - DEFINITION
PRINTABLE CASE SUMMARY / CSM REPORT

CLEANUP OVERSIGHT AGENCIES
SANTA ANA RWQCB (REGION 8) *(LEAD)* - CASE #: 0
CASEWORKER: ROSE SCOTT
RIVERSIDE COUNTY LOP
CASEWORKER: Riverside County LOP

Summary | Cleanup Action Report | Regulatory Activities | *Environmental Data (ESI)* | Site Maps / Documents | Community Involvement | *Related Cases*

Regulatory Profile

PRINTABLE CASE SUMM

CLEANUP STATUS - DEFINITIONS
COMPLETED - CASE CLOSED AS OF 12/26/2001 - CLEANUP STATUS HISTORY

POTENTIAL CONTAMINANTS OF CONCERN
GASOLINE

POTENTIAL MEDIA OF CONCERN
SOIL

FILE LOCATION

DESIGNATED GROUNDWATER BENEFICIAL USE(S) - DEFINITIONS
MUN, AGR, IND, PROC - Note: Also incl parts of 802.15.

DWR GROUNDWATER SUB-BASIN NAME
San Jacinto (8-005)

CALWATER WATERSHED NAME
San Jacinto Valley - San Jacinto - Gilman Hot Springs (802.21)

Site History

No site history available

Copyright © 2021 State of California

ArcGIS Web Map



12/19/2023, 1:45:26 PM

RivCo_Well_Permits

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Maxar

ArcGIS Web Map



12/19/2023, 1:46:36 PM

RivCo_Well_Permits

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Maxar

Web AppBuilder for ArcGIS

Maxar |

APPENDIX I

Professional Profiles

PROFESSIONAL PROFILE



CONTACT INFORMATION

Main: (310) 879-4900
Direct: (310) 879-4920
Email: mescobar@rouxinc.com
Website: www.rouxinc.com

5150 East Pacific Coast Highway
Suite 450
Long Beach, CA 90804

EDUCATION

Bachelor of Arts, Earth Science, 1995, University of California, Berkeley

OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Certified

Research Assistant to UC Berkeley Ph.D. Candidate Dawnika L. Blatter and Professor Ian S. E. Carmichael in Study of Continental Crustal Deformation from Subduction of the Cocos Plate in Western Mexico and Study of Upper Mantle Petrology in Central Mexico, January to April 1996

PROFESSIONAL LICENSES

Professional Geologist, State of California, No. 07506

Mauricio H. Escobar, PG

Vice President | Principal Geologist

EXPERIENCE SUMMARY

21 years of consulting experience: Principal Geologist with Roux Associates (2011 to Present); Senior Manager, Manager, and Senior Associate with ENVIRON International Corporation (2004 to 2011); Project Geologist with URS Corporation (2001 to 2004); Geologist with Hart Crowser (1998 to 2001).

TECHNICAL SPECIALTIES

Professional Geologist with over twenty years of experience designing, managing, and implementing environmental soil and groundwater investigations and remediation strategies for public and private clients. Experience as in-house consultant assisting with management of a $25MM yearly remediation portfolio for a Fortune 100 Company. Practice developing and implementing high-level strategies that consider legal and regulatory issues, communications and government relations, as well as technical challenges and costs. Significant assignments representing clients during Working Group meetings for Superfund sites and participation in technical committee meetings. Expertise in design and field implementation of in-situ chemical oxidation (ISCO) in hard rock and porous media-flow aquifers.

Substantial experience evaluating and remediating industrial, commercial and residential sites impacted with numerous contaminants in multiple media, including crude oil, fuels, volatile organic compounds, chromium VI, 1,4-dioxane, and PCBs. Extensive experience managing implementation of remediation programs that utilize and consider multiple technologies including soil vapor extraction, dual phase extraction, traditional pump and treat, in-well stripping, air sparging, chemical oxidation and reduction, thermal treatment, and natural attenuation. Experience managing large-scale remedial excavations involving the use of heavy earth moving equipment. Significant field experience using numerous drilling, soil sampling, groundwater sampling, and soil vapor sampling techniques.

CONTINUING EDUCATION

- Compounds of Emerging Concern in Groundwater, California Groundwater Resources Association, Concord, California, February 2012
- The Remediation Course, Princeton Groundwater, Las Vegas, Nevada, April 2010
- Vapor Intrusion Pathway: A Practical Guideline, Interstate Technology and Regulatory Council (ITRC) in conjunction with the California Department of Toxic Substances (DTSC) and California Water Boards, Long Beach, California, June 2009
- The Groundwater Pollution and Hydrology Course, Princeton Groundwater, Orlando, Florida, February 2007
- Hydrogeologic Analysis of Fractured Bedrock Systems, Midwest GeoSciences Group, University of Nevada Las Vegas and Nevada Test Site at Yucca Mountain, March 2006

REPRESENTATIVE PROJECTS

- **PRP Representation of Fortune 100 Company, Omega Chemical Superfund Site, Whittier, California.** Provide ongoing technical consulting to a Fortune 100 Company and major PRP at the Omega Chemical Superfund Site in Whittier, California. Active participant of the Omega PRP Group (OPOG) Technical Committee. Attend all pertinent technical meetings and provide Client with technical and strategic input that protects their best interests. Maintain constant interaction with the legal and finance teams as necessary to ensure the technical and legal strategies are in agreement and that adequate funding is reserved well in advance of regulatory commitments and OPOG cash calls. Pertinent technical issues include soil gas and vapor intrusion, and a regional groundwater plume. Regulatory oversight is provided by USEPA Region IX.

- **PRP Representation of Fortune 100 Company, BKK Corporation Class I Landfill Organized Group, West Covina, California.** Provide ongoing technical consulting to a Fortune 100 Company at the former BKK Corporation Class I Landfill site in West Covina, California. Participant in the BKK Technical Committee and attendant of pertinent technical meetings. Maintain constant communication with the Client's legal and finance teams and responsible for informing Client on the direction the Organized Group is headed. Responsible for identifying financial commitments made as part of technical decisions. Trusted with voicing opinions, concerns, and/or offering direction to the Group (if and when necessary), to ensure the Organized Group's direction is consistent with the Client's strategy. Pertinent technical issues include upgrades to the landfill infrastructure and groundwater remedial investigations in and around the landfill prism. Regulatory oversight is provided by the Department of Toxic Substances Control.
- **Portfolio Project Control - Fortune 100 Company, Torrance, California.** Three years of experience working as a full-time in-house consultant for a Fortune 100 Company assisting with management of all aspects of a complex multi-site portfolio. General role included communication with alliance partners, vendors, corporate finance, attorneys, public relations/communications, and procurement to track and facilitate progress of 9 major projects ($400,000 to $1 MM/year) and 3 mega projects ($3MM to $10MM+/year) that were unique in nature and complexity. Portfolio included former chemical sites, landfills, aerospace facilities, and other heavy use industrial facilities that were undergoing State and RCRA closure, as well as sites under CERCLA Superfund actions with PRP commitments. Charged with helping to develop, evaluate, and refine remedial strategies and lifecycle costs for sites that utilized various cleanup technologies such as application of oxidants and reducing agents, thermal oxidation, groundwater pump and treat, dual-phase and 2-PHASE™ extraction, soil vapor extraction, air sparging, and in-well air stripping. Major role included verifying adequate funding and maintaining documentation consistent with Sarbanes Oxley.
- **Strategy Expert Consulting - Fortune 100 Company, Los Angeles, California.** Ongoing third-party technical and strategic support to a Fortune 100 company for a major project involving former bulk storage and distribution facilities converted to open public space and residential uses. Site is undergoing remedial investigations and remedial alternatives evaluations under heavy regulatory and public scrutiny. Charged with providing opinions and recommendations as to the direction the current consultant and the regulatory agencies want to take the project and evaluating the conceptual site model and long term technical strategy. Active participant on technical team calls and ongoing direct communications with internal legal team.
- **Shipyard Decommissioning - Subsurface Assessment, Remedial Investigation, Demolition and Closure, Campbell Shipyard - Marco, Port of San Diego, California.** Lead geologist in the preparation of a comprehensive subsurface study of the former Campbell Shipyard property at the Port of San Diego, California. Over 200 borings were necessary to delineate the extent of impacted soils. Relevant environmental issues included a former coal works gasification plant immediately adjacent to the Site, a 2 to 4-foot thick lens of polynuclear aromatic hydrocarbon (PAH) laden sediment present throughout the Site below the water table, a former on-site diesel and kerosene tank farm, and numerous leaking fuel USTs. Responsibilities also included management of shipyard abandonment activities, such as abatement of asbestos and lead-based paint containing materials, demolition of on-site structures, crushing of asphalt and concrete into Class II base, and a comprehensive geophysical survey to locate all on-site utilities and buried structures. The work was performed under the regulatory oversight of the San Diego Regional Water Quality Control Board and the San Diego Unified Port District. Total cost of the work was approximately $1.3MM, implemented over a 15-month period.
- **Neutral Third-Party Oversight of Remediation Work, ITT Corporation and Home Depot, Glendale, California.** Provided third party oversight for a site undergoing major remediation of VOCs and chromium VI in soils and groundwater. The site was a former electronics manufacturing facility redeveloped as a major box retailer in Glendale, California. Services were provided on behalf of the former facility owners/operators and the current property owners, both of whom had differing interests and views on the remedial work being performed. Viewed all fieldwork and construction of remediation systems and attended quarterly meetings with consultants, attorneys, and clients to gauge progress, discuss ongoing work, and evaluate projected schedules for completion of remediation. Technical challenges to remediation included dewatering of 20-foot thick perched zone impacted with VOC contamination, despite a leaking slurry wall originally designed to prevent onsite migration from upgradient sources.
- **ISCO Demonstration Plan Using Permanganate, Wyle Laboratories, Riverside County, California.** Designed, managed, and implemented an ISCO Demonstration Plan using sodium permanganate injection at a former industrial manufacturing facility in Southern California. Main goals of the application were to demonstrate effective oxidation of trichloroethene (TCE) in alluvium and fractured granitic bedrock, evaluate potential mobilization of naturally occurring reduced metals, and evaluate the potential application of ISCO

at other areas of the Site, including off-site beneath residential homes. Twelve thousand gallons of 10% permanganate solution were delivered to the subsurface through 47 multi-depth permanent injection probes over a 22-day field event. TCE concentrations were reduced from a maximum of 30,000 microgram per liter (µg/L) to non-detect at the source area. Significantly, elevated hexavalent chromium [Cr(VI)] concentrations were observed in the area of injection and immediately downgradient. Following field observations, a Bench Scale Assessment (BSA) was conducted to evaluate potential significant sources of Cr(VI), evaluate the capacity of the aquifer to naturally attenuate Cr(VI), and provide data sufficient to estimate distance and time Cr(VI) would revert to its trivalent form. BSA and field data showed that principal source of Cr(VI) was from the raw product, with secondary contribution from chromium in the native rock, and deterioration of stainless steel well screens. Natural attenuation of Cr(VI) to background concentrations was estimated at 2 to 3 years post injection. Monitoring of the Demonstration Plan area for the 2+ years has proved those predictions accurate and a Remedial Action Plan (RAP) recommending full-scale on- and off-site treatment of TCE with permanganate was submitted to the California Department of Toxic Substances Control (DTSC). Total cost of the work was more than $1.0 million.

- **Remedial Excavation and ISCO Used to Facilitate Property Transfer, Sanmina, Inc., Irvine, California.** Managed and implemented an aggressive remedial strategy for a former electronics manufacturing facility in Southern California. The site had TCE concentrations in groundwater suggestive of dense non-aqueous phase liquid (DNAPL) and required expedited soil and groundwater remediation, in lieu of ongoing 2-PHASE™ and dual-phase extraction (DPE) efforts, to accommodate its divesture and redevelopment. Groundwater was generally encountered at 15 feet below ground surface (bgs) and contained TCE concentrations in the source area as high as 77,000 µg/L. The project was successfully completed by installing a 90-well dewatering system, excavating 13,000 cubic yards (cy) of soils, and removing 3,200 cy of TCE impacted soil along the axis of a residual TCE DNAPL mass; total depth of the excavation was 32 feet bgs. ISCO using sodium and potassium permanganate was used to remediate residual TCE-impacted soil and groundwater outside the area of excavation. Following implementation of the aggressive remedial strategy, TCE concentrations in groundwater were reduced by one to three orders of magnitude, suggesting the DNAPL had been removed and/or destroyed. The Orange County Health Care Agency (OCHCA) provided soils closure and the Santa Ana Regional Water Quality Control Board provided groundwater closure for the site 16 months after completion of remediation. The site was sold and redeveloped. Total cost of excavation and ISCO application was approximately $1.4 million.

- **Assessment, Remediation and Closure of Former Industrial Facility for Residential Re-development, Former Boeing Plant, Los Angeles, California.** Managed the assessment, remediation, and closure of a former asphalt batch plant and defense contractor facility on behalf of a residential developer. The work was performed simultaneously with planning and entitlement of the property, under the oversight of the County of Los Angeles Fire Department, Hazardous Materials Division. Unique challenges included the discovery of 15+ feet of buried asphalt debris and soils with elevated arsenic and chromium concentrations requiring off-site disposal. Developed site-specific cleanup thresholds for VOCs and heavy metals by preparing a limited human health risk assessment and incorporating Risk Based Screening Levels (RBSLs) developed by the San Francisco Regional Water Quality Control Board. The entire project was implemented in 15 months from initial assessment to site closure at a cost of $250,000.

- **Hydrocarbon Release Characterization and Remedial Investigation, Kinder Morgan Energy Partners, La Habra, California.** Designed, managed, and implemented a subsurface investigation with the primary focus of characterizing lateral and vertical distribution of hydrocarbon impacts to the groundwater and unsaturated zone. The release was related to a pipeline booster station flange rupture dating to the early 1980s. Fractured siltstone bedrock presented unique subsurface conditions and as a result, special consideration was given to drilling techniques and boring/well installations. The project involved 12 months of fieldwork for the installation of soil vapor probes, backhoe trenches, soil borings, and monitoring wells. Discovery of up to 15-feet of light non-aqueous phase liquids (LNAPL) resulted in amendments to the original work scope to provide for LNAPL removal and assessment of pneumatic and hydraulic properties of the soil/rock. A high vacuum DPE test was performed at selected wells to evaluate the feasibility of this technology for the removal of hydrocarbons. All work was conducted under the oversight of the Los Angeles Regional Water Quality Control Board in consideration of future residential development. Work was performed over a 2-year period at an approximate cost of $1.0 million.

- **Resource Conservation and Recovery Act (RCRA) Facility Investigation Work Plan for Bunker C Tank Farm Redevelopment, Long Beach, California.** Managed the preparation of a RCRA Facility Investigation Work Plan for a former power plant tank farm facility in Long Beach, California. The site was being planned for redevelopment with a retail box store and restaurant uses. The RFI Work Plan was prepared as part of a Corrective Action Consent Agreement between the

Client and the DTSC. The purpose of the RFI was to determine the nature and extent of releases at the site and to gather all the necessary data to support completion and implementation of a Corrective Measures Study (CMS).

- **Remedial Investigation of Former Transformer Washing Facility, General Electric and City of Los Angeles Redevelopment Agency, Los Angeles, California.** Prepared, managed, and implemented a Remedial Investigation Work Plan for a former transformer washing facility under the oversight of the DTSC. The field investigation was intended to evaluate and delineate the nature and extent of residual VOC, PCB, and dioxin impacts at the Site, to support decisions regarding the need for, and extent of, future removal or remedial actions. The field program showed that shallow soils at the site were significantly impacted with PCBs and deep soils and groundwater were significantly impacted with TCE and tetrachloroethene (PCE). ISCO Demonstration Plan Using Permanganate, Riverside County, California.
- **Remedial Investigation and Remedial Action Plan for Former Small Arms Firing Range, City of Huntington Beach Community Development Office, Huntington Beach, California.** Managed the preparation of a Remedial Investigation and RAP for the City of Huntington Beach in their effort to assess the extent of contamination and remedial options for a former public and police firing range. The project was performed under the oversight of the OCHCA. Relevant issues included soil berms and coal-tar treated wood posts impregnated with lead-shot, shallow landfill conditions (<5-feet), lack of a landfill cap, heavy hydrocarbon contamination, and landfill gas issues. The RAP included remedial options, costing, and an outline for implementation. Special consideration was given to the fact that the City intended to use the property for future Central Park recreational uses. The project was awarded on technical merit following a public bidding process that required the submittal of a formal proposal and interviews with City officials. Total cost of the project was $150,000, implemented over a 2-year period.

PRESENTATIONS*

Prevalence and Persistence of Hexavalent Chromium During In Situ Chemical Oxidation of Trichloroethylene with Permanganate, Antony D. G. Jones and Carol L. Serlin, ENVIRON, Irvine, CA; Mauricio H. Escobar, ENVIRON, Los Angeles, CA; George D. Havalias and Maria C. Echarte, American Analytics, Inc., Chatsworth, CA. The 19th Annual AEHS Meeting and West Coast Conference on Soils, Sediments, & Water, San Diego, California, March 2009

Assessment of Microbial Community Composition Throughout In Situ Chemical Oxidation of Trichloroethylene with Permanganate, Bram Sercu and Patricia Holden, UCSB, Santa Barbara, CA; Antony D. G. Jones and Carol L. Serlin, ENVIRON, Irvine, CA; Mauricio H. Escobar, ENVIRON, Los Angeles, CA. The 19th Annual AEHS Meeting and West Coast Conference on Soils, Sediments, & Water, San Diego, California, March 2009

Evaluation of the Effects of ISCO on TCE Impacted Ground Water in Weathered Granitic Mass, Mauricio H. Escobar, ENVIRON, Los Angeles, CA; Antony D. G. Jones and Carol L. Serlin, ENVIRON, Irvine, CA. The 6th International Conference on Oxidation and Reduction Technologies for In-Situ Treatment of Soil and Groundwater, San Diego, California, September 2008

Assessing Sources of Hexavalent Chromium during In-Situ Chemical Oxidation of Trichloroethylene with Permanganate, Antony D. G. Jones and Carol L. Serlin, ENVIRON, Irvine, CA; Mauricio H. Escobar, ENVIRON, Los Angeles, CA. The 6th International Conference on Oxidation and Reduction Technologies for In-Situ Treatment of Soil and Groundwater, San Diego, California, September 2008

Aggressive DNAPL Remedial Program Replaces Conventional Methods and Facilitates Property Transaction, Mauricio H. Escobar, Bita Tabatabai, and Douglas Jones, ENVIRON, Irvine, CA. The 4th International Conference on Oxidation and Reduction Technologies for In-Situ Treatment of Soil and Groundwater, Chicago, Illinois, October 2005

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PROFESSIONAL PROFILE



CONTACT INFORMATION

Main: (310) 897-4900
Direct: (562) 446-8638
Email: rquinones@rouxinc.com
Website: www.rouxinc.com

5150 East Pacific Coast Highway
Suite 450
Long Beach, CA 90804

EDUCATION

BA, Environmental Earth Science, University of California, Berkeley

PROFESSIONAL LICENSES

NRPP Certified Residential Measurement Provider, NRPP ID 111695 RT (2021)
SCAQMD Rule 403 Fugitive Dust Control Cert. # SC2103-010405-10425 (2021)

PROFESSIONAL TRAININGS

Adult First Aid/CPR/AED
American Red Cross
OSHA 40-Hour HAZWOPER (2021)

Rocio Quiñones

Project Scientist

EXPERIENCE SUMMARY

More than eight years of cumulative environmental consulting experience. Began as a Due Diligence Project Manager with AEI Consultants in June 2013. Joined Roux' Long Beach office as a Project Scientist in December 2020.

TECHNICAL SPECIALTIES

Provide comprehensive phase I/II environmental site assessments and investigations examining potential impacts on soil, soil vapor, and groundwater. Other areas of focus include litigation support including historical research, agency file reviews, and report writing.

REPRESENTATIVE PROJECTS

ASTM E1527-13 Phase I ESAs

- Primary author of numerous Phase I ESAs conducting historical document review including agency files, aerial photographs, Sanborn fire insurance maps and site inspections for multiple sites in the greater Los Angeles basin. Compiled assessment observations in a Phase I report according to ASTM E1527-13 standard.
- Sites with Phase I ESA experience include current and historical industrial facilities, current oil production facility, school sites, agricultural sites, and multi-tenant commercial properties.
- Project Scientist for an inactive steel mill in San Bernardino County, California. Performed site walk, interviews with key personnel, reviewed regulatory agency records including remediation reports, and identified data gaps in previous investigations.
- Project Scientist for former chemical manufacturing facility in Northern California. Site under oversight of the Department of Toxic Substances Control (DTSC) for releases of volatile organic compounds to soil, soil vapor, and groundwater. Reviewed previous investigation and remediation reports and assisted in writing a workplan for proposed remediation.
- Project Scientist for current manufacturing facility / former plating facility located within a regional groundwater plume in Orange County, California. Reviewed regional groundwater reports and prepared a site investigation workplan to investigate potential on-site impacts to soil, soil vapor, and groundwater.

Site Investigation and Remediation

- Planned, oversaw, and managed several Phase II Environmental Site Assessments. Conducted field investigations, completed data analyses, preparation of reports for submittal to regulatory agencies, and the provision of recommendations for remediation.
- Experience includes Phase II subsurface investigations, soil sampling, and soil vapor sampling. Site types include automotive repair and former manufacturing facilities.
- Coordinate agency permitting and regulations, multiple subcontractors (geophysical, driller, laboratories, etc..), site personnel, and internal and client communication to ensure projects progress smoothly and any obstacles or delays are minimized and conveyed to clients as early as possible.
- Project Scientist for a soil investigation at an active large-scale printing facility in Orange County, California. Field work included coring, hand augering, and collection of soil samples to quantify potential impacts due to historical operations as part of property transaction due diligence.

March 14, 2024

Steven Perales
Director, Industrial Acquisitions & Development
Shea Properties
130 Vantis Drive, Suite 200
Aliso Viejo, California 92656

Re: Phase II Subsurface Investigation Letter Report, Line E (Proposed Irrigation Channel), North Sanderson Avenue and Record Road, San Jacinto, Riverside County, California

Dear Mr. Perales:

Roux Associates, Inc. (Roux) has prepared this Phase II Subsurface Investigation Letter Report (Phase II Report) for Shea Properties (Client), to summarize the findings of shallow soil sampling conducted along portions of Line E (Proposed Irrigation Channel), North Sanderson Avenue, and Record Road in the City of San Jacinto, Riverside County, California (Site; Figure 1). Roux completed a Phase I Environmental Site Assessment (ESA), dated January 30, 2024, which identified a recognized environmental concern (REC) associated with potential impacts from agricultural chemicals to on-Site soils within Parcels 3, 4, 5, and 9 from agricultural operations (row crops). To address the identified environmental concern, Roux collected composite and discrete soil samples from eleven locations (quadrants) across the Site to establish baseline conditions and identify potential impacts in the shallow soil associated with historical agricultural use. Soil sampling was conducted in general accordance with the California Department of Toxic Substances Control (DTSC) *Interim Guidance for Sampling Agricultural Properties*, dated August 7, 2008.

BACKGROUND

The Site consists of a proposed irrigation channel alignment and traverses nine individual parcels (collectively identified as the Parent Property) identified by Riverside County Assessor's Parcel Numbers (APNs) 436-170-008, 436-170-016, 436-170-001, 436-030-004, 436-010-003, 432-030-012, 432-030-010, 432-030-006, and 430-100-018 (Parcels 1 through 9). According to Site representatives, agricultural production at the Site has included watermelon, corn, and grain for animal feed. At the time of Roux's Phase II fieldwork, the Site was fallow agricultural land.

According to historical aerial photographs, agricultural operations (row crops) have been conducted on Subject Property areas within Parcels 3, 4, 5, 6, 7, and 8 since at least 1949. Previous site investigations conducted within Parcels 6, 7, and 8 did not identify significant evidence of soil contamination associated with historical crop growth. Parcel 9 appeared developed for agricultural use circa 1975 and again in 2023. The potential for impacts from agricultural chemicals to on-site soils within Parcels 3, 4, 5, and 9 was identified in Roux's Phase I ESA as a REC. Typical pesticide uses during this time period included the use of arsenic-based and lead-based pesticides (up until the 1960s) and organochlorine pesticides (OCPs, 1940s to 1970s).

METHODS OF INVESTIGATION

The following sections summarize the investigation methods used during soil sampling events, including pre-field activities, sampling locations and procedures, and field observations.

5150 East Pacific Coast Highway, Suite 450 ■ Long Beach, California 90804 ■ +1.310.879.4900 ■ www.rouxinc.com
California ■ Illinois ■ Massachusetts ■ New Jersey ■ New York ■ Texas ■ Virginia

Pre-Field Activities

Prior to the start of field activities, Roux prepared a Site-specific Health and Safety Plan (HASP) to ensure worker safety. In addition to containing information regarding Roux's standard safety practices, the HASP contained information about potential hazards related to Site activities and provided the locations and contact information of nearby emergency services. Field workers acknowledged their familiarity with all safety procedures and indicated their intent to follow the HASP by signing the HASP after the tailgate safety meeting, which took place at the beginning of each field day. All personnel working in the exclusion zone were Occupational Safety and Health Administration (OSHA) trained, consistent with federal regulation 29 CFR 1910.120. At least 48 hours prior to fieldwork, the Site boundary was marked in white paint and Underground Service Alert (USA) of Southern California was notified of the intended work (USA Ticket Numbers A240431099-00A and A240431109-00A). USA notified companies and agencies that may have underground utilities in the vicinity to mark their respective utilities on the ground with spray paint so that they were avoided during drilling.

Shallow Soil Sampling

Between February 15 and February 16, 2024, a total of 54 soil samples were collected from eleven quadrants (Figures 2 and 3). Four samples were collected with a trowel from each quadrant and composited in the field into a laboratory-provided glass jar, for a total of thirteen (13) composite samples (P9-Q1 through P3-Q11), including two duplicate composite samples (P9-Q2-DUP and P4-Q6-DUP). In addition, one randomly selected discrete soil sample was collected from each quadrant in parcels 3, 4, and 5 (eight total) (P5-P5-1 through P3-Q11-1), including one duplicate sample (P4-Q7-1-DUP).

All soil samples were collected across the Site at a depth of 0.5 feet below ground surface (bgs), as shown in Figures 2 and 3. Sampling equipment was cleaned in a solution of laboratory-grade detergent and rinsed with distilled water prior to sample collection at each quadrant location.

Composite and discrete soil samples were labeled with unique sample identifiers, placed on ice, and transported under proper chain-of-custody procedures to Enthalpy Analytical (Enthalpy) of Orange, California, a California-certified laboratory, for analysis. A total of 13 composite soil samples (11 primary and 2 duplicate) were analyzed for organochlorine pesticides (OCPs) by USEPA Method 8081A. A total of 8 discrete soil samples (7 primary and 1 duplicate) were analyzed for lead and arsenic by USEPA Method 6010B.

RESULTS

Analytical results were compared to the United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) and/or Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note Number 3 DTSC-modified Screening Levels (DTSC SLs) for commercial/industrial soil. In addition, total lead and arsenic concentrations were compared with regional background levels, as presented in *Background Concentrations of Trace and Major Elements in California Soils*[1] and *Determination of a Southern California Regional Background Arsenic Concentration in Soil*[2]. Summaries of analytical results are provided in Tables 1 and 2. The analytical laboratory report is provided in Appendix A.

[1] Bradford, G. R., Change, A. C., Page, A. L., Bakhtar, D., Frampton, J. A., and Wright, H. Background Concentrations of Trace and Major Elements in California Soils. March 1996.
[2] Chernoff, G., Bosan, W., and Oudiz, D. and DTSC, Determination of a Southern California Regional Background Arsenic Concentration in Soil. March 2008.

Organochlorine Pesticides in Soil

No OCP constituents were reported at concentrations above their respective laboratory method reporting limits (MRLs), as presented in Table 1. All MRLs were below applicable USEPA RSLs and DTSC SLs.

Arsenic in Soil

Arsenic was detected above the laboratory reporting limit in all eight samples at concentrations ranging from 1.0 to 1.4 milligrams per kilogram (mg/kg). Arsenic was detected above the DTSC SL of 0.36 mg/kg for commercial/industrial soil; however, detections of arsenic did not exceed the regional background concentration of 12 mg/kg in any sample (Table 2). Detections of arsenic did not exceed the USEPA RSL of 3.0 mg/kg for commercial/industrial soil.

Lead in Soil

Lead was detected above the laboratory reporting limit in all eight samples at concentrations ranging from 1.8 to 2.4 mg/kg, well below the DTSC SL for commercial/industrial soil of 500 mg/kg and USEPA RSL for commercial/industrial soil of 800 mg/kg (Table 2).

CONCLUSIONS

The results of the Phase II Subsurface Investigation indicate that shallow soil OCP and select metals concentrations are below conservative regulatory thresholds for commercial/industrial land use and/or regional background concentrations. The REC identified in the Phase I ESA has been addressed and no further investigation is recommended at this time.

CLOSING

Should you have any questions or require any further information regarding the contents of this Report, please do not hesitate to contact Mauricio Escobar by telephone at 310-480-2561 or by email at mescobar@rouxinc.com.

Sincerely,

ROUX ASSOCIATES, INC.

Mauricio H. Escobar, P.G. - CA
Principal Geologist

Enclosures:

Table 1	Organochlorine Pesticides in Soil
Table 2	Arsenic and Lead in Soil
Figure 1	Site Location Map
Figure 2	Soil Sampling Locations – Parcel 9
Figure 3	Soil Sampling Locations – Parcels 3, 4, and 5
Attachment A	Laboratory Analytical Reports

TABLES

1. Organochlorine Pesticides in Soil
2. Arsenic and Lead in Soil

Table 1
Organochlorine Pesticides in Soil
Line E (Proposed Irrigation Channel), North Sanderson Avenue and Record Road,
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Date Sampled	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	Endosulfan I	Dieldrin	4,4'-DDE	Endrin	Endosulfan II	Endosulfan sulfate	4,4'-DDD	Endrin aldehyde	Endrin ketone	4,4'-DDT	Methoxychlor	Toxaphene	Chlordane (Technical)
Analytical Method			USEPA 8081																			
Units			ug/Kg																			
USEPA Industrial Soil RSLs			360	1300	2500	NS	630	180	330	NS	140	9300	250000	NS	4900000	9600	NS	NS	8500	4100000	2100	7700
DTSC Commercial/Industrial Soil SL			240	820	2000	NS	630	180	330	NS	93	9300	160000	NS	3200000	6200	NS	NS	7100	2600000	1200	6100
P9-Q1	0.5	2/16/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<9.9	<99	<50
P9-Q2	0.5	2/16/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<9.9	<99	<50
P9-Q2-DUP	*0.5*	*2/16/2024*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<10*	*<100*	*<51*
P9-Q3	0.5	2/16/2024	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
P9-Q4	0.5	2/16/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<9.9	<99	<50
P5-Q5	0.5	2/15/2024	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
P4-Q6	0.5	2/15/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<100	<50
P4-Q6-DUP	*0.5*	*2/15/2024*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<5.1*	*<10*	*<100*	*<51*
P4-Q7	0.5	2/15/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<100	<50
P4-Q8	0.5	2/15/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<100	<50
P4-Q9	0.5	2/15/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<9.9	<99	<50
P4-Q10	0.5	2/15/2024	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<100	<51
P3-Q11	0.5	2/15/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<100	<50

Notes:
OCPs = organochlorine pesticides
USEPA = United States Environmental Protection Agency
USEPA RSL = USEPA Regional Screening Levels for Soil, Hazard Quotient (HQ) = 1.0, November 2023.
DTSC SL = Human Health Risk Assessment (HHRA) Note 3, Department of Toxic Substances Control Screening Levels (DTSC-SLs) for Soil, revised May 2022.
µg/Kg = microgram per kilogram
bgs = below ground surface
NS = No standard established
Italics indicates duplicate sample
<X = analyte not detected above laboratory RDL

Table 2
Arsenic and Lead in Soil
Line E (Proposed Irrigation Channel), North Sanderson Avenue and Record Road,
San Jacinto, California

Sample ID	Approximate Sample Depth (feet bgs)	Date Sampled	Arsenic	Lead
		Analytical Method	USEPA 6010B	
		Units	mg/Kg	
		Typical range for California Soil[1]	12[a]	12.4-97.1
		USEPA RSL - Industrial Soil	3.0	800
		DTSC Commercial/Industrial Soil SL	0.36	500*
P5-Q5-1	0.5	2/15/2024	**1.4**	**2.2**
P4-Q6-1	0.5	2/15/2024	**1.2**	**2.2**
P4-Q7-1	0.5	2/15/2024	**1.4**	**2.1**
P4-Q7-1-DUP	*0.5*	*2/15/2024*	***1.0***	***1.8***
P4-Q8-1	0.5	2/15/2024	**1.3**	**2.1**
P4-Q9-1	0.5	2/15/2024	**1.4**	**2.1**
P4-Q10-1	0.5	2/15/2024	**1.2**	**2.4**
P3-Q11-1	0.5	2/15/2024	**1.4**	**2.2**

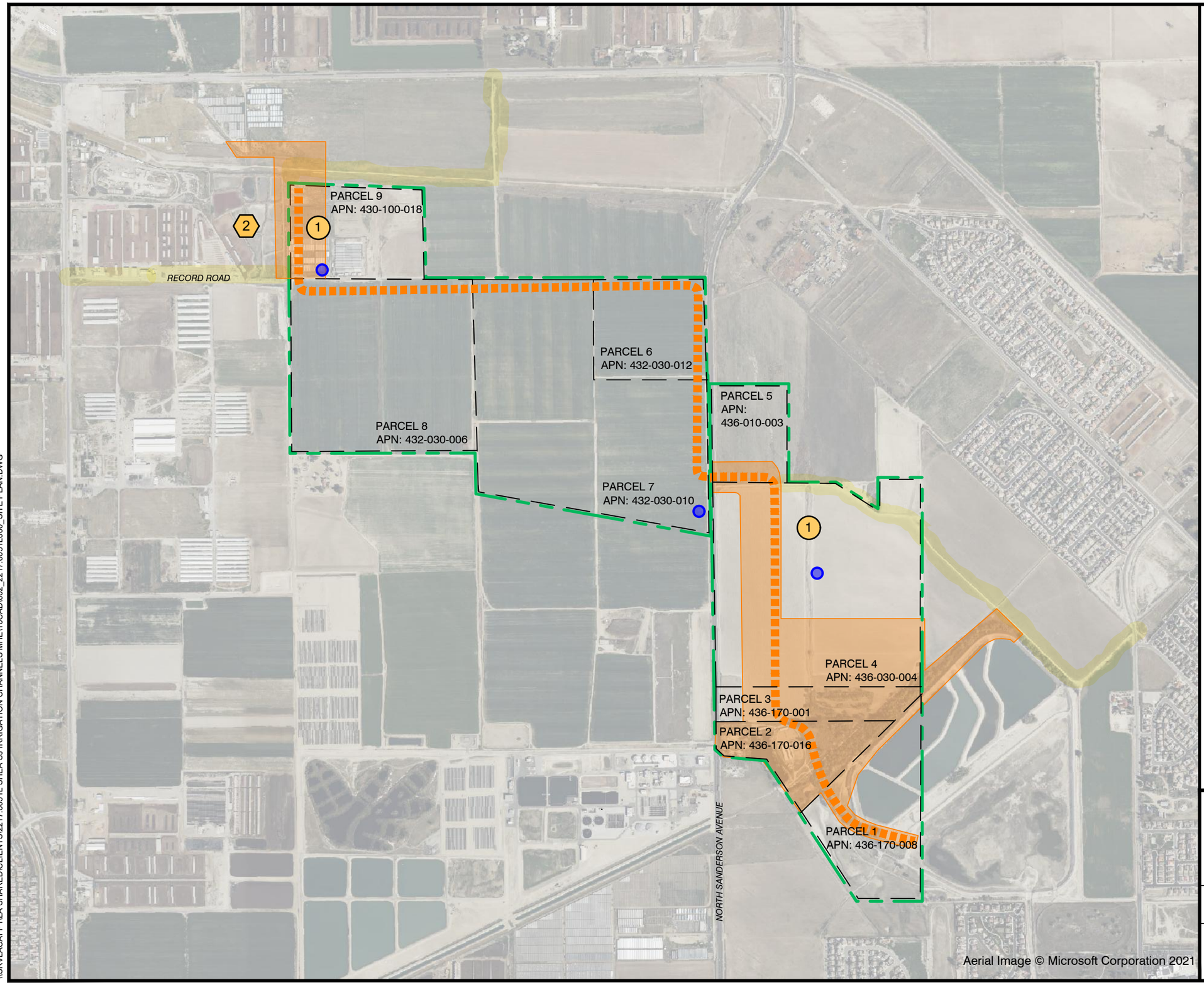
Notes:
[1]Bradford, G.R., Chang, A.C., Page, A.L., Bakhtar, D., Frampton, J.A., and Wright, H., 1996, Background of Trace and Major Elements in California Soils, Kearney Foundation of Soil Sciences Special Report, Division of Agriculture and Natural Resources, University of California
[a]Upper-bound background concentrations from Chernoff, G., Bosan, W., and Outiz, D., DTSC. Determination of a Southern California Regional Background Arsenic Concentration in Soil.
USEPA = United States Environmental Protection Agency
USEPA RSL = USEPA Regional Screening Level for industrial soil, dated November 2023

DTSC SL = Department of Toxic Substances Control Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3 Screening Level for industrial/commercial soil, revised May 2022

* SL is for "Lead and Compounds"
mg/Kg = milligram per kilogram
bgs = below ground surface
NS = No standard established
Italics indicates duplicate sample
Bold indicates that sample exceeds laboratory reporting detection limit (RDL)
Highlight indicates detection exceeds at least one SL

FIGURES

1. Site Location Map
2. Soil Sampling Locations – Parcel 9
3. Soil Sampling Locations – Parcels 3, 4, and 5



LEGEND

- ORANGE PROPOSED IRRIGATION CHANNEL (SUBJECT PROPERTY)
- APPROXIMATE PARENT PROPERTY BOUNDARY
- BUFFER AND SUPPORT AREAS
- APPROXIMATE WATER WELL LOCATION
- 1 — RECOGNIZED ENVIRONMENTAL CONDITION (REC)
- 2 — OTHER ENVIRONMENTAL FEATURE (OEF)

NOTES

- 1 — HISTORICAL AGRICULTURAL USE (PARCELS 3, 4, 5 AND 9)
- 2 — ADJOINING DAIRY PONDS

N

0' 1,200' 2,400'

Title:

SITE PLAN
PROPOSED IRRIGATION CHANNEL

NORTH SANDERSON AVENUE AND RECORD AVENUE
SAN JACINTO, CALIFORNIA

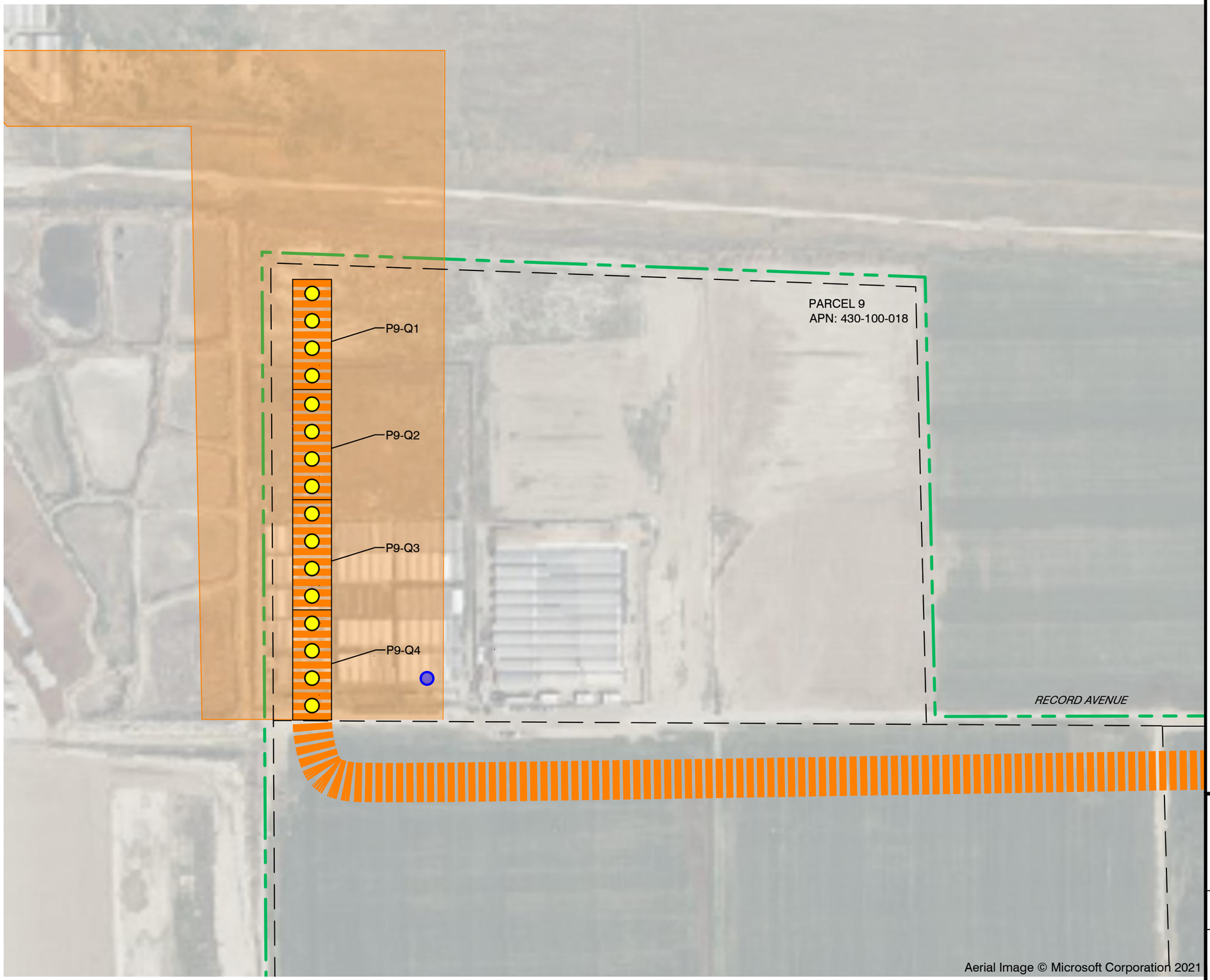
Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: J.V.	Date: 01/23/2024	FIGURE
Prepared by: A.W.	Scale: AS SHOWN	1
Project Mgr: R.Q.	Project: 2217.0025L	
File: 002_2217.0031L000_SITE PLAN.DWG		

\\SRVLACAFP1\LA SHARED\CLIENTS\2217.0031L SHEA SJ IRRIGATION CHANNEL\S MHE\10CAD\002_2217.0031L000_SITE PLAN.DWG



LEGEND

- APPROXIMATE SITE BOUNDARY
- ORANGE PROPOSED IRRIGATION CHANNEL
- BUFFER AND SUPPORT AREAS
- APPROXIMATE WATER WELL LOCATION
- INDIVIDUAL BORING LOCATION
- P9-Q1 QUADRANT DESIGNATION
- APN ASSESSORS PARCEL NUMBER

N

0' 250' 500'

Title:

SOIL SAMPLING LOCATIONS PARCEL 9

NORTH SANDERSON AVENUE AND RECORD AVENUE
SAN JACINTO, CALIFORNIA

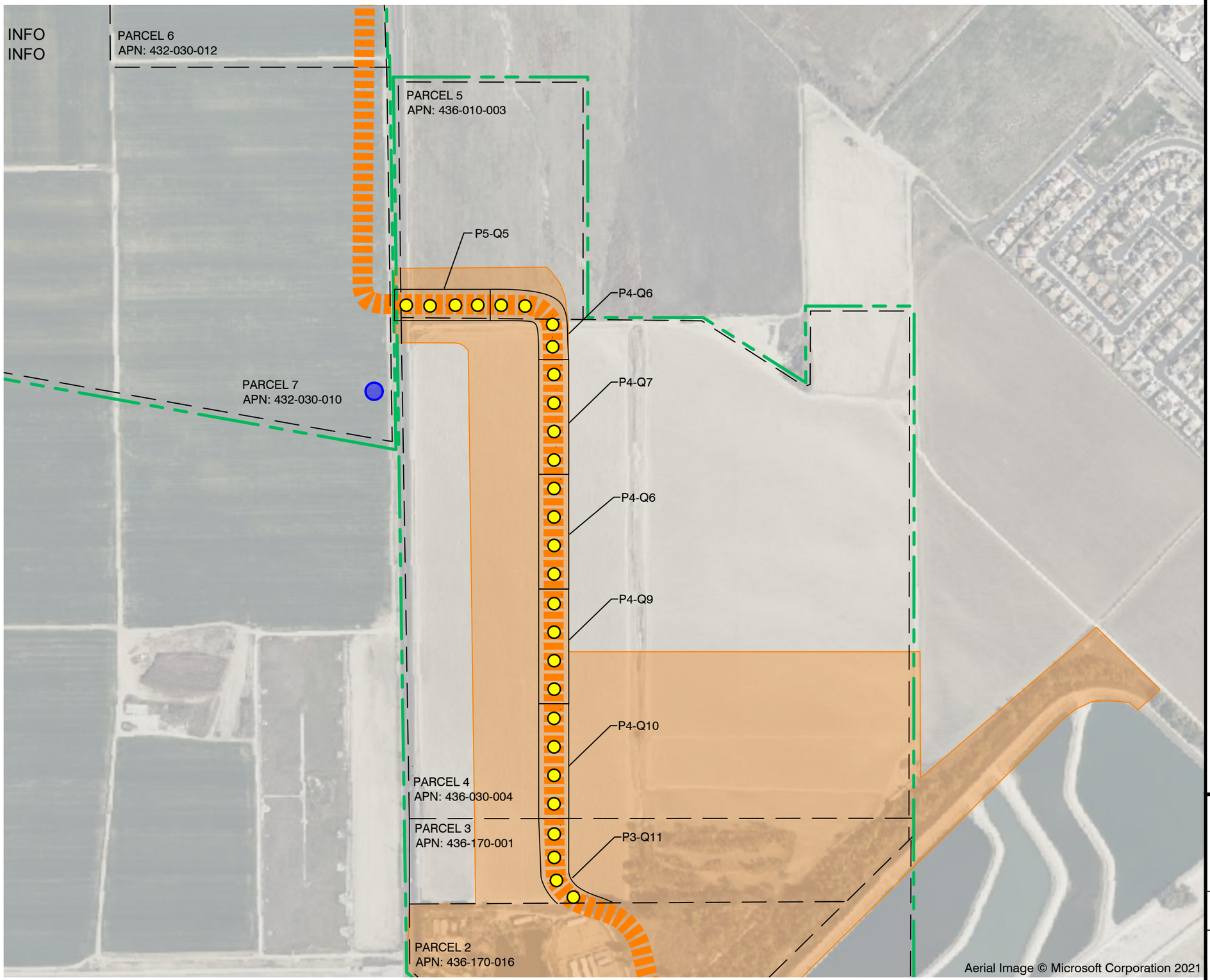
Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: J.V.	Date: 03/06/2024	FIGURE
Prepared by: A.W.	Scale: AS SHOWN	2
Project Mgr: R.Q.	Project: 2217.0031L	
File: 006_2217.0031L000_SOIL SAMPLING LOCATIONS.DWG		

S:\CLIENTS\2217.0031L SHEA SJ IRRIGATION CHANNELS MHE\10CAD\006_2217.0031L000_SOIL SAMPLING LOCATIONS.DWG



LEGEND

- APPROXIMATE SITE BOUNDARY
- ORANGE PROPOSED IRRIGATION CHANNEL
- BUFFER AND SUPPORT AREAS
- APPROXIMATE WATER WELL LOCATION
- INDIVIDUAL BORING LOCATION
- P4-Q6 QUADRANT DESIGNATION
- APN ASSESSORS PARCEL NUMBER

N

0' 500' 1000'

Title:

SOIL SAMPLING LOCATIONS PARCELS 3, 4, AND 5

NORTH SANDERSON AVENUE AND RECORD AVENUE
SAN JACINTO, CALIFORNIA

Prepared for:

SHEA PROPERTIES

ROUX

Compiled by: J.V.	Date: 03/06/2024	FIGURE
Prepared by: A.W.	Scale: AS SHOWN	3
Project Mgr: R.Q.	Project: 2217.0031L	
File: 006_2217.0031L000_SOIL SAMPLING LOCATIONS.DWG		

S:\CLIENTS\2217.0031L SHEA SJ IRRIGATION CHANNELS MHE\10CAD\006_2217.0031L000_SOIL SAMPLING LOCATIONS.DWG

ATTACHMENT A

Laboratory Analytical Reports

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number:	502621
Report Level:	II
Report Date:	02/28/2024

Analytical Report *prepared for:*

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Location: Shea Irrigation Channel, 2217.0025L

Authorized for release by:

Diane Galvan, Project Manager
714-771-9928
diane.galvan@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 502621
Location: Shea Irrigation Channel, 2217.0025L
Date Received: 02/16/24

Sample ID	Lab ID	Collected	Matrix
P9-Q1	502621-001	02/16/24 11:11	Soil
P9-Q2	502621-002	02/16/24 11:00	Soil
P9-Q2-DUP	502621-003	02/16/24 11:00	Soil
P9-Q3	502621-004	02/16/24 10:45	Soil
P9-Q4	502621-005	02/16/24 10:20	Soil
P5-Q5	502621-006	02/15/24 15:34	Soil
P5-Q5-1	502621-007	02/15/24 15:35	Soil
P4-Q6	502621-008	02/15/24 15:18	Soil
P4-Q6-DUP	502621-009	02/15/24 15:18	Soil
P4-Q6-1	502621-010	02/15/24 15:17	Soil
P4-Q7	502621-011	02/15/24 14:53	Soil
P4-Q7-1	502621-012	02/15/24 14:52	Soil
P4-Q7-1-DUP	502621-013	02/15/24 14:52	Soil
P4-Q8	502621-014	02/15/24 12:36	Soil
P4-Q8-1	502621-015	02/15/24 12:38	Soil
P4-Q9	502621-016	02/15/24 12:20	Soil
P4-Q9-1	502621-017	02/15/24 12:22	Soil
P4-Q10	502621-018	02/15/24 12:04	Soil
P4-Q10-1	502621-019	02/15/24 12:06	Soil
P3-Q11	502621-020	02/15/24 11:43	Soil
P3-Q11-1	502621-021	02/15/24 11:40	Soil

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 502921

Page: 1 of 3

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

<<< Select a Laboratory >>>

#N/A

#N/A

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: 2.5/1.4 (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	Shea Irrigation Channel
Report To:	Rocio Quinones	Number:	2217.00252
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	5150 E PCH #450	Address:	1727 N Sanderson Ave
	Long Beach, CA 90804		San Jacinto, CA
Phone:	562-446-8638	Global ID:	
Fax:		Sampled By:	AC

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCPs (8081A)	lead and arsenic (6010B)	Test Instructions / Comments
1	P9-Q1	2/16/24	1111	S	1/4oz jar		X		
2	P9-Q2		1100				X		
3	P9-Q2-DUP		1100				X		
4	P9-Q3		1045				X		
5	P9-Q4		1020				X		
6	P5-Q5	2/15/24	1534				X		
7	P5-Q5-1		1535					X	
8	P4-Q6		1518				X		
9	P4-Q6-DUP		1518				X		
10	P4-Q6-1		1517					X	

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	AClark	Audrey Clark	Roux/ Staff Scientist II	2/16/24 16:35
Received By:	Geena Sylvestri	Geena Sylvestri	EA.	2/16/24 16:35
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 502621

Page: 2 of 3

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

<<< Select a Laboratory >>>

#N/A

#N/A

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	Shea Imagahon Channel
Report To:	Rocio Quinones	Number:	2217.0025L
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	5150 E pch #450	Address:	1727 N Sanderson Ave
	Long Beach, CA 90804		San Jacinto, CA
Phone:	562-446-8638	Global ID:	
Fax:		Sampled By:	AC

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCPs (8081A)	lead and arsenic (6010B)	Test Instructions / Comments
1	P4-Q7	2/15/24	1453	S	1/4oz jar		X		
2	P4-Q7-1		1452					X	
3	P4-Q7-1-DUP		1452					X	
4	P4-Q8		1236				X		
5	P4-Q8-1		1238					X	
6	P4-Q9		1220				X		
7	P4-Q9-1		1222					X	
8	P4-Q10		1204				X		
9	P4-Q10-1		1206					X	
10	P3-Q11		1143				X		

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	ACLam	Audrey Clark	Roux / Staff Scientist II	2/16/24 1635
1 Received By:	[signature]	[illegible]	E.A.	2/16/24 16:38
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 502621

Page: 3 of 3

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

<<< Select a Laboratory >>>

#N/A

#N/A

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Roux	Name:	Shea Imgahan Channel
Report To:	Rocio Quinones	Number:	2217.0025L
Email:	rquinones@rouxinc.com	P.O. #:	
Address:	5150 E PCH #450	Address:	1727 N Sanderson Ave
	Long Beach, CA 90804		San Jacinto, CA
Phone:	562-446-8638	Global ID:	
Fax:		Sampled By:	AC

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	OCPs (8081A)	lead and arsenic (6010B)	Test Instructions / Comments
1	P3-Q11-1	2/15/24	1140	S	1/4oz jar			X	
2									
3									
4									
5									
6									
7									
8									
9									
10									

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:	AClaun	Audrey Clark	Roux / Staff Scientist II	2/16/24 1635
1 Received By:	Celina Sylvestre	Celina Sylvestre	E.A.	2/16/24 16:35
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

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SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Rouy

Project: Shea Irrigation

Date Received: 2/16/24

Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2)

Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 2.5 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 1.6 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✓		
Are sample IDs present?	✓		
Are sampling dates & times present?	✓		
Is a relinquished signature present?	✓		
Are the tests required clearly indicated on the COC?	✓		
Are custody seals present?		✓	
If custody seals are present, were they intact?			✓
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✓
Did all samples arrive intact? If no, indicate in Section 4 below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were the samples collected in the correct containers for the required tests?	✓		
Are the containers labeled with the correct preservatives?			✓
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✓
Was a sufficient amount of sample submitted for the requested tests?	✓		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 2/16/24

ENTHALPY ANALYTICAL

Analysis Results for 502621

Rocio Quinones
Roux Associates, Inc.
5150 E. Pacific Coast Hwy.
Suite 450
Long Beach, CA 90804

Lab Job #: 502621
Location: Shea Irrigation Channel, 2217.0025L
Date Received: 02/16/24

Sample ID: P9-Q1 **Lab ID: 502621-001** **Collected: 02/16/24 11:11**
Matrix: Soil

502621-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	9.9	0.99	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	99	0.99	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	0.99	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	44%		%REC	23-120	0.99	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	42%		%REC	24-120	0.99	334002	02/26/24	02/27/24	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 502621

Sample ID: P9-Q2	Lab ID: 502621-002	Collected: 02/16/24 11:00
	Matrix: Soil	

502621-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	9.9	0.99	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	99	0.99	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	0.99	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	45%		%REC	23-120	0.99	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	40%		%REC	24-120	0.99	334002	02/26/24	02/27/24	MES

Results for any subcontracted analyses are not included in this section.

Analysis Results for 502621

Sample ID: P9-Q2-DUP	Lab ID: 502621-003	Collected: 02/16/24 11:00
	Matrix: Soil	

502621-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	51	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	44%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	40%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 502621

Sample ID: P9-Q3	Lab ID: 502621-004	Collected: 02/16/24 10:45
	Matrix: Soil	

502621-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	51	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	47%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	43%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 502621

Sample ID: P9-Q4	Lab ID: 502621-005	Collected: 02/16/24 10:20
	Matrix: Soil	

502621-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	9.9	0.99	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	99	0.99	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	0.99	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	38%		%REC	23-120	0.99	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	36%		%REC	24-120	0.99	334002	02/26/24	02/27/24	MES

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 502621

Sample ID: P5-Q5	Lab ID: 502621-006	Collected: 02/15/24 15:34
	Matrix: Soil	

502621-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	51	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	48%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	47%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Sample ID: P5-Q5-1	Lab ID: 502621-007	Collected: 02/15/24 15:35
	Matrix: Soil	

502621-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW
Lead	**2.2**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P4-Q6	Lab ID: 502621-008	Collected: 02/15/24 15:18
	Matrix: Soil	

502621-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	44%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	40%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P4-Q6-DUP	Lab ID: 502621-009	Collected: 02/15/24 15:18
	Matrix: Soil	

502621-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	51	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	47%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	45%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Sample ID: P4-Q6-1	Lab ID: 502621-010	Collected: 02/15/24 15:17
	Matrix: Soil	

502621-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW
Lead	**2.2**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P4-Q7 **Lab ID: 502621-011** **Collected: 02/15/24 14:53**
Matrix: Soil

502621-011 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	47%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	45%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Sample ID: P4-Q7-1 **Lab ID: 502621-012** **Collected: 02/15/24 14:52**
Matrix: Soil

502621-012 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.95	0.95	333454	02/20/24	02/20/24	SBW
Lead	**2.1**		mg/Kg	0.95	0.95	333454	02/20/24	02/20/24	SBW

Sample ID: P4-Q7-1-DUP **Lab ID: 502621-013** **Collected: 02/15/24 14:52**
Matrix: Soil

502621-013 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.0**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW
Lead	**1.8**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P4-Q8	Lab ID: 502621-014	Collected: 02/15/24 12:36
	Matrix: Soil	

502621-014 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	44%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	41%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Sample ID: P4-Q8-1	Lab ID: 502621-015	Collected: 02/15/24 12:38
	Matrix: Soil	

502621-015 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.3**		mg/Kg	0.95	0.95	333454	02/20/24	02/20/24	SBW
Lead	**2.1**		mg/Kg	0.95	0.95	333454	02/20/24	02/20/24	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P4-Q9	Lab ID: 502621-016	Collected: 02/15/24 12:20
	Matrix: Soil	

502621-016 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	0.99	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	9.9	0.99	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	99	0.99	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	0.99	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	39%		%REC	23-120	0.99	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	38%		%REC	24-120	0.99	334002	02/26/24	02/27/24	MES

Sample ID: P4-Q9-1	Lab ID: 502621-017	Collected: 02/15/24 12:22
	Matrix: Soil	

502621-017 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW
Lead	**2.1**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P4-Q10	Lab ID: 502621-018	Collected: 02/15/24 12:04
	Matrix: Soil	

502621-018 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.1	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	51	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	45%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	46%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Sample ID: P4-Q10-1	Lab ID: 502621-019	Collected: 02/15/24 12:06
	Matrix: Soil	

502621-019 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.2**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW
Lead	**2.4**		mg/Kg	0.98	0.98	333454	02/20/24	02/20/24	SBW

Results for any subcontracted analyses are not included in this section.

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Analysis Results for 502621

Sample ID: P3-Q11	Lab ID: 502621-020	Collected: 02/15/24 11:43
	Matrix: Soil	

502621-020 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8081A Prep Method: EPA 3546									
alpha-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
beta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
gamma-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
delta-BHC	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Aldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Heptachlor epoxide	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan I	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Dieldrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDE	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan II	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endosulfan sulfate	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDD	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin aldehyde	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Endrin ketone	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
4,4'-DDT	ND		ug/Kg	5.0	1	334002	02/26/24	02/27/24	MES
Methoxychlor	ND		ug/Kg	10	1	334002	02/26/24	02/27/24	MES
Toxaphene	ND		ug/Kg	100	1	334002	02/26/24	02/27/24	MES
Chlordane (Technical)	ND		ug/Kg	50	1	334002	02/26/24	02/27/24	MES
Surrogates				**Limits**					
TCMX	45%		%REC	23-120	1	334002	02/26/24	02/27/24	MES
Decachlorobiphenyl	43%		%REC	24-120	1	334002	02/26/24	02/27/24	MES

Sample ID: P3-Q11-1	Lab ID: 502621-021	Collected: 02/15/24 11:40
	Matrix: Soil	

502621-021 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Arsenic	**1.4**		mg/Kg	0.96	0.96	333454	02/20/24	02/20/24	SBW
Lead	**2.2**		mg/Kg	0.96	0.96	333454	02/20/24	02/20/24	SBW

ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	Lab ID: QC1129586	Batch: 333454
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC1129586 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Arsenic	ND		mg/Kg	1.0	02/20/24	02/20/24
Lead	ND		mg/Kg	1.0	02/20/24	02/20/24

Type: Lab Control Sample	Lab ID: QC1129587	Batch: 333454
Matrix: Soil	Method: EPA 6010B	Prep Method: EPA 3050B

QC1129587 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Arsenic	96.17	100.0	mg/Kg	96%		80-120
Lead	104.6	100.0	mg/Kg	105%		80-120

Type: Matrix Spike	Lab ID: QC1129590	Batch: 333454
Matrix (Source ID): Soil (502621-021)	Method: EPA 6010B	Prep Method: EPA 3050B

QC1129590 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Arsenic	101.7	1.352	98.04	mg/Kg	102%		75-125	0.98
Lead	106.0	2.221	98.04	mg/Kg	106%		75-125	0.98

Type: Matrix Spike Duplicate	Lab ID: QC1129591	Batch: 333454
Matrix (Source ID): Soil (502621-021)	Method: EPA 6010B	Prep Method: EPA 3050B

QC1129591 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Arsenic	97.23	1.352	99.01	mg/Kg	97%		75-125	6	35	0.99
Lead	102.1	2.221	99.01	mg/Kg	101%		75-125	5	20	0.99

Type: Post Digest Spike	Lab ID: QC1129592	Batch: 333454
Matrix (Source ID): Soil (502621-021)	Method: EPA 6010B	Prep Method: EPA 3050B

QC1129592 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Arsenic	99.22	1.352	96.15	mg/Kg	102%		75-125	0.96
Lead	103.1	2.221	96.15	mg/Kg	105%		75-125	0.96

ENTHALPY ANALYTICAL

Batch QC

Type:	**Blank**	**Lab ID:**	**QC1131820**	**Batch:**	**334002**
Matrix:	**Soil**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC1131820 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
alpha-BHC	ND		ug/Kg	5.1	02/26/24	02/27/24
beta-BHC	ND		ug/Kg	5.1	02/26/24	02/27/24
gamma-BHC	ND		ug/Kg	5.1	02/26/24	02/27/24
delta-BHC	ND		ug/Kg	5.1	02/26/24	02/27/24
Heptachlor	ND		ug/Kg	5.1	02/26/24	02/27/24
Aldrin	ND		ug/Kg	5.1	02/26/24	02/27/24
Heptachlor epoxide	ND		ug/Kg	5.1	02/26/24	02/27/24
Endosulfan I	ND		ug/Kg	5.1	02/26/24	02/27/24
Dieldrin	ND		ug/Kg	5.1	02/26/24	02/27/24
4,4'-DDE	ND		ug/Kg	5.1	02/26/24	02/27/24
Endrin	ND		ug/Kg	5.1	02/26/24	02/27/24
Endosulfan II	ND		ug/Kg	5.1	02/26/24	02/27/24
Endosulfan sulfate	ND		ug/Kg	5.1	02/26/24	02/27/24
4,4'-DDD	ND		ug/Kg	5.1	02/26/24	02/27/24
Endrin aldehyde	ND		ug/Kg	5.1	02/26/24	02/27/24
Endrin ketone	ND		ug/Kg	5.1	02/26/24	02/27/24
4,4'-DDT	ND		ug/Kg	5.1	02/26/24	02/27/24
Methoxychlor	ND		ug/Kg	10	02/26/24	02/27/24
Toxaphene	ND		ug/Kg	100	02/26/24	02/27/24
Chlordane (Technical)	ND		ug/Kg	51	02/26/24	02/27/24
Surrogates				**Limits**		
TCMX	56%		%REC	23-120	02/26/24	02/27/24
Decachlorobiphenyl	78%		%REC	24-120	02/26/24	02/27/24

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC1131821**	**Batch: 334002**
Matrix: Soil	**Method: EPA 8081A**	**Prep Method: EPA 3546**

QC1131821 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
alpha-BHC	29.52	49.50	ug/Kg	60%		22-129
beta-BHC	32.56	49.50	ug/Kg	66%		28-125
gamma-BHC	30.65	49.50	ug/Kg	62%		22-128
delta-BHC	31.63	49.50	ug/Kg	64%		24-131
Heptachlor	34.38	49.50	ug/Kg	69%		18-124
Aldrin	29.43	49.50	ug/Kg	59%		23-120
Heptachlor epoxide	31.53	49.50	ug/Kg	64%		26-120
Endosulfan I	32.48	49.50	ug/Kg	66%		25-126
Dieldrin	32.04	49.50	ug/Kg	65%		23-124
4,4'-DDE	33.62	49.50	ug/Kg	68%		28-121
Endrin	37.26	49.50	ug/Kg	75%		25-127
Endosulfan II	33.67	49.50	ug/Kg	68%		29-121
Endosulfan sulfate	33.84	49.50	ug/Kg	68%		30-121
4,4'-DDD	32.84	49.50	ug/Kg	66%		26-120
Endrin aldehyde	21.40	49.50	ug/Kg	43%		10-120
Endrin ketone	33.54	49.50	ug/Kg	68%		28-125
4,4'-DDT	43.06	49.50	ug/Kg	87%	#	22-125
Methoxychlor	46.15	49.50	ug/Kg	93%	#	28-130
Surrogates						
TCMX	29.02	49.50	ug/Kg	59%		23-120
Decachlorobiphenyl	38.59	49.50	ug/Kg	78%		24-120

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike**	**Lab ID:**	**QC1131866**	**Batch:**	**334002**
Matrix (Source ID):	**Soil (502602-002)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC1131866 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
alpha-BHC	31.74	ND	50.00	ug/Kg	63%		46-120	2
beta-BHC	35.11	ND	50.00	ug/Kg	70%		41-120	2
gamma-BHC	33.48	ND	50.00	ug/Kg	67%		41-120	2
delta-BHC	32.98	ND	50.00	ug/Kg	66%		38-123	2
Heptachlor	37.28	ND	50.00	ug/Kg	75%		39-120	2
Aldrin	33.84	ND	50.00	ug/Kg	68%		34-120	2
Heptachlor epoxide	35.33	ND	50.00	ug/Kg	71%		43-120	2
Endosulfan I	36.20	ND	50.00	ug/Kg	72%		45-120	2
Dieldrin	34.89	ND	50.00	ug/Kg	70%		45-120	2
4,4'-DDE	37.49	ND	50.00	ug/Kg	75%		34-120	2
Endrin	40.45	ND	50.00	ug/Kg	81%		40-120	2
Endosulfan II	34.85	ND	50.00	ug/Kg	70%		41-120	2
Endosulfan sulfate	33.79	ND	50.00	ug/Kg	68%		42-120	2
4,4'-DDD	35.08	ND	50.00	ug/Kg	70%		41-120	2
Endrin aldehyde	28.76	ND	50.00	ug/Kg	58%		30-120	2
Endrin ketone	34.79	ND	50.00	ug/Kg	70%		45-120	2
4,4'-DDT	45.25	ND	50.00	ug/Kg	90%	#	35-127	2
Methoxychlor	48.08	ND	50.00	ug/Kg	96%	#	42-136	2
Surrogates								
TCMX	31.46		50.00	ug/Kg	63%		23-120	2
Decachlorobiphenyl	39.38		50.00	ug/Kg	79%		24-120	2

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC1131867**	**Batch:**	**334002**
Matrix (Source ID):	**Soil (502602-002)**	**Method:**	**EPA 8081A**	**Prep Method:**	**EPA 3546**

QC1131867 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
alpha-BHC	32.56	ND	50.00	ug/Kg	65%		46-120	3	30	2
beta-BHC	38.98	ND	50.00	ug/Kg	78%		41-120	10	30	2
gamma-BHC	34.59	ND	50.00	ug/Kg	69%		41-120	3	30	2
delta-BHC	37.22	ND	50.00	ug/Kg	74%		38-123	12	30	2
Heptachlor	38.52	ND	50.00	ug/Kg	77%		39-120	3	30	2
Aldrin	36.51	ND	50.00	ug/Kg	73%		34-120	8	30	2
Heptachlor epoxide	38.92	ND	50.00	ug/Kg	78%		43-120	10	30	2
Endosulfan I	40.39	ND	50.00	ug/Kg	81%		45-120	11	30	2
Dieldrin	39.31	ND	50.00	ug/Kg	79%		45-120	12	30	2
4,4'-DDE	43.09	ND	50.00	ug/Kg	86%		34-120	14	30	2
Endrin	46.71	ND	50.00	ug/Kg	93%		40-120	14	30	2
Endosulfan II	42.09	ND	50.00	ug/Kg	84%		41-120	19	30	2
Endosulfan sulfate	42.45	ND	50.00	ug/Kg	85%		42-120	23	30	2
4,4'-DDD	42.10	ND	50.00	ug/Kg	84%		41-120	18	30	2
Endrin aldehyde	35.61	ND	50.00	ug/Kg	71%		30-120	21	30	2
Endrin ketone	41.69	ND	50.00	ug/Kg	83%		45-120	18	30	2
4,4'-DDT	54.29	ND	50.00	ug/Kg	109%	#	35-127	18	30	2
Methoxychlor	55.63	ND	50.00	ug/Kg	111%	#	42-136	15	30	2
Surrogates										
TCMX	31.89		50.00	ug/Kg	64%		23-120			2
Decachlorobiphenyl	48.50		50.00	ug/Kg	97%		24-120			2

CCV drift outside limits; average CCV drift within limits per method requirements

ND Not Detected

ALBERT A. WEBB ASSOCIATES



Preliminary Design Report for Line E

San Jacinto Valley Master Drainage Plan

Riverside County Flood Control & Water Conservation District

May 15, 2025

Preliminary Design Report for Line E of the San Jacinto Valley Master Drainage Plan

Prepared For

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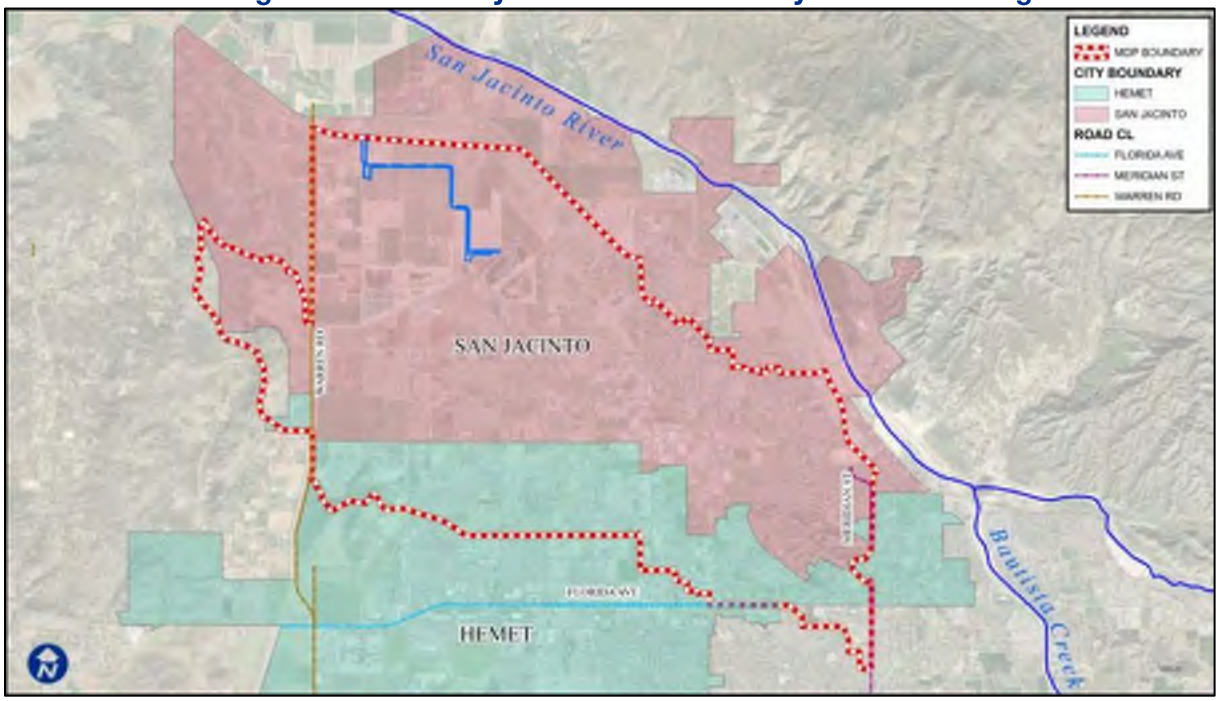
Section 1 Background

The Master Drainage Plan (MDP) for the San Jacinto Valley was adopted in October 2015 by the Board of Supervisors for the Riverside County Flood Control & Water Conservation District (RCFC&WCD). The MDP encompasses portions of the cities of San Jacinto and Hemet as well as parts of unincorporated Riverside County. The MDP is bounded by the San Jacinto River to the north, Florida Avenue to the south, Meridian Street to the east, and Warren Road to the west as shown in ***Figure 1***.

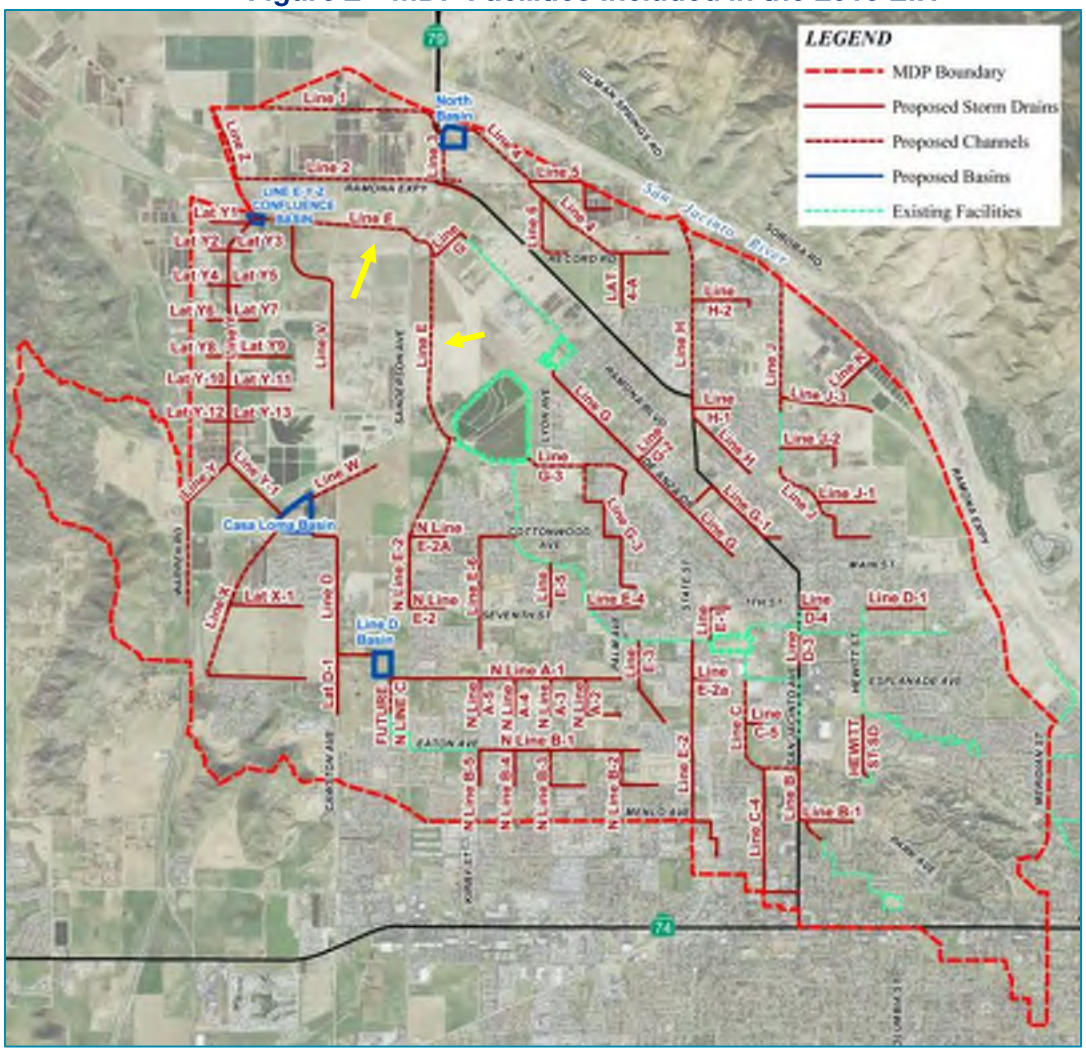
Figure 1 – Boundary of San Jacinto Valley Master Drainage Plan



Master Drainage Plans, by their very nature, are living documents. They provide a baseline strategy that can be modified as areas build out. Such is the case with the San Jacinto Valley MDP.

An Environmental Impact Report (EIR) for the San Jacinto Valley MDP and the San Jacinto Regional Area Drainage Plan (ADP) Amendment was certified by the San Jacinto City Council on January 14, 2013 (WEBB(a)). The certified EIR analyzed the MDP facilities shown in ***Figure 2*** (State Clearinghouse No. 2009041077). Note the yellow arrows in ***Figure 2*** pointing out Line E.

Figure 2 – MDP Facilities Included in the 2013 EIR



San Jacinto Master Developer, LLC (SJMD, LLC) submitted a development application to the City of San Jacinto for the proposed "San Jacinto Commerce Center Specific Plan" (SJCCSP or Specific Plan), which is located within the San Jacinto Valley MDP and a portion of the tributary area of Line E (***Figure 3***). Line E is a planned regional drainage facility that would provide a service to an approximately 1,870-acre tributary area that includes the 510-acre SJCCSP parcels in addition to many other property owners. As a major stakeholder relying on proper drainage of the area, SJMD, LLC will lead the planning, design, and construction of Line E on behalf of the City of San Jacinto.

SJMD, LLC retained the services of Albert A. Webb Associates (WEBB) to prepare the long-axis plan and this Preliminary Design Report (PDR) for the construction of Line E. The long-axis plan is located in **Appendix A.** RCFC&WCD will review this PDR and long-axis plan in order for SJMD, LLC to construct said facilities. This PDR is based on a 30% long-axis plan. Upon completion of CEQA and approval of this PDR for Line E, final engineering will commence.

Figure 3– Tributary Area of Proposed Line E Project



1.1 Scope of Work

To design the backbone MDP components to flood-protect the proposed SJCCSP, WEBB undertook the following scope of work:

1. Review existing MDP Line E flows and alignment;
2. Determine project design constraints with additional potholing, and topographic data;
3. Develop the proposed alignment considering design constraints and stakeholder input;
4. Obtain geotechnical and structural engineering design support;
5. Update MDP hydrology based on proposed layout;
6. Build hydraulic model of proposed alignment and updated flow rates;
7. Develop long-axis plan and kickoff environmental studies; and
8. Document results in PDR report.

1.2 Stakeholder Involvement

As part of the design of the proposed Project, WEBB held multiple meetings with the City of San Jacinto, RCFC&WCD, MWD, EMWD, SJMD LLC, and Riverside County Transportation Commission (RCTC) to solicit input on the proposed design. In addition, the alignment, hydraulics, and hydrology for the Project underwent two rounds of review with RCFC&WCD prior to submittal of this PDR; the first comment letter dated October 20, 2023, *MS 212 San Jacinto MDP Line E Plan Check No. 1* (LAN, Inc.), and the second comment letter dated December 18, 2023, *MS 212 MDP Line E Plan Check No. 2* (LAN, Inc.).

RCFC&WCD reviewed the full PDR via a comment letter dated February 9, 2024, MS 212 MDP Line E Plan Check No. 3 (LAN, Inc.). An additional review was completed in April 16. 2024. A maintenance, revised alignment, and hydraulics review was completed by RCFC&WCCD via Check No. 4 dated October 3, 2024.

There have been 2 reviews conducted by MWD. The first submittal to MWD was on November 8, 2024, where MWD reviewed the PDR, Geotechnical Report, and Structural Report. MWD gave technical comments on the Geotechnical and Structural Report. The second submittal to MWD was on February 14, 2025, with MWD approval on March 3, 2025. See **Appendix B** for approval email from MWD substructures group.

Section 2 Proposed Project

Line E is an implementing project of the MDP and has been analyzed at a programmatic level in a 2013 EIR and will be analyzed at a project level in a forthcoming EIR addendum. Construction of Line E does not remove properties from the 100-Year floodplain of the San Jacinto River. This will be accomplished by elevating them from the San Jacinto River Floodplain.

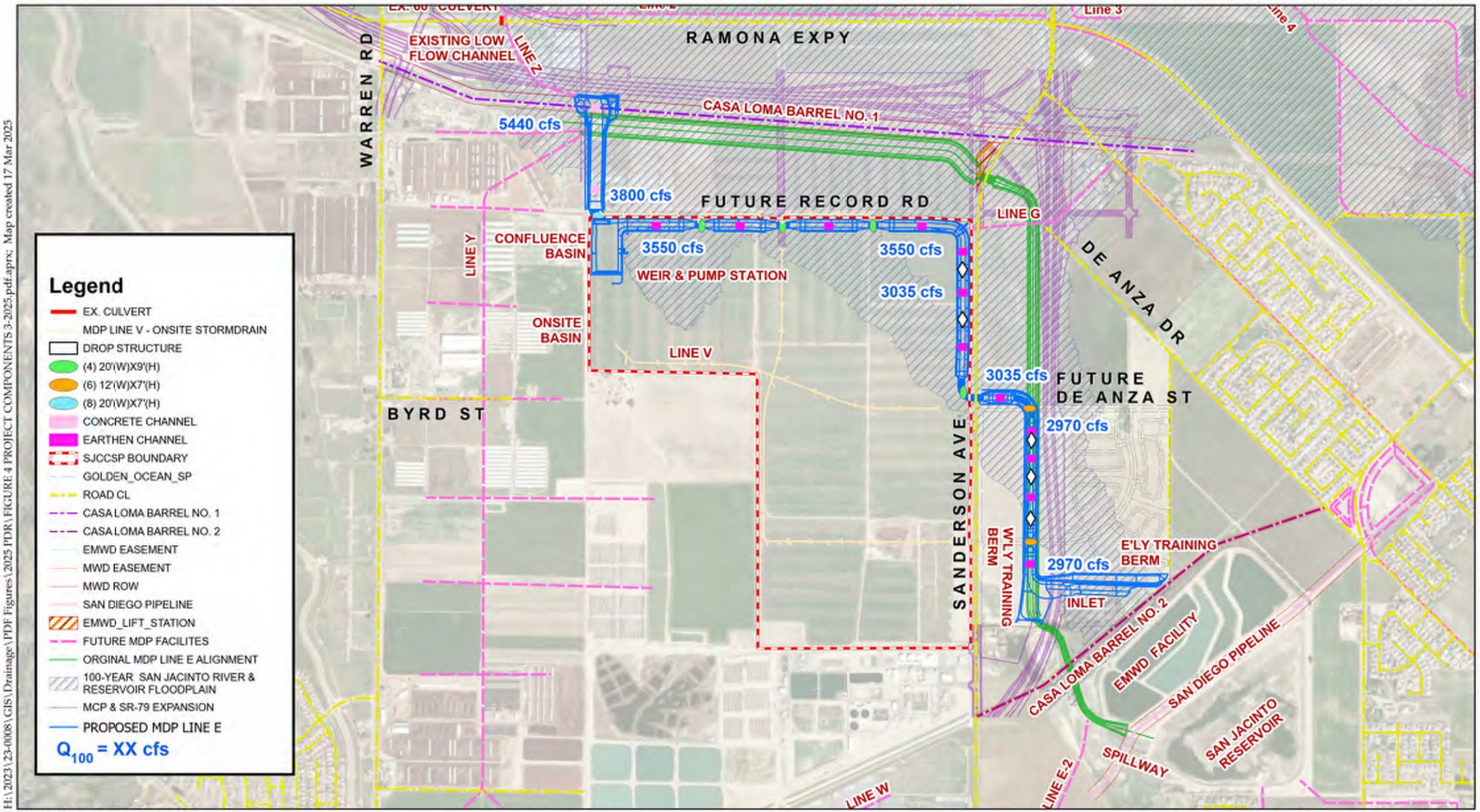
2.1 Location

The study components of this PDR are shown in ***Figure 4*** ("Project"). Line E begins downstream of the San Jacinto Reservoir Spillway and north of the Casa Loma Barrel No. 2 easement,[1] continuing north as an earthen trapezoidal channel parallel to, and east of, Sanderson Avenue through an agricultural property owned by Golden Ocean Realty (APN 436-030-001), turning west underneath Sanderson Avenue and turning north, then west before Record Road on the SJCCSP property to the proposed Confluence Basin (a proposed MDP facility). The outflows from the proposed Confluence Basin are conveyed northerly across Casa Loma Barrel No. 1 and outflow to an existing low-flow drainage channel that will, at some point in the future, be constructed as an ultimate MDP facility (Line Z) but is currently in interim condition.

The Project components are summarized as follows and shown on ***Figure 4***:

- 200 linear feet of concrete trapezoidal channel outside of the SJCCSP property crossing the MWD Casa Loma Barrel No. 1 right-of-way with 20-foot-wide access roads on both sides of the channel, a channel base width of 155 feet, channel height of up to 5.5-feet, and channel side slopes that vary from 10:1 to 23:1 ratio, and 560-feet MWD easement width. This segment of the channel will provide access to easterly and westerly MWD access roads from Record Road;
- 1,122 linear feet of concrete trapezoidal channel outside of the SJCCSP property with 20-foot-wide access roads on both sides of the channel, a channel base width of 155-feet, channel height of up to 5.5-feet, and channel side slopes with 1.5:1 ratio, and total right-of-way width of 270-feet for segment Record Road to MWD RW;
    - Includes a set of eight-cell 20-feet wide by 7-feet high RCB crossing Record Rd.;
- One (1) MDP Confluence Basin with 57.5 acre-feet capacity over an area of 6.25 acres, with 72-hour drawdown;
    - Includes a City maintained pump station located on the Confluence Basin parcel to drain the Confluence Basin as well as the SJCCSP Onsite Basin;

[1] Casa Loma Barrel (or "Siphon") Nos. 1 and 2 are buried water pipelines owned and operated by The Metropolitan Water District of Southern California (MWD).



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 4 PROJECT COMPONENTS 3-2025.pdf.aprx; Map created 17 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 4 - PROJECT COMPONENTS
MDP LINE E

ALBERT A. WEBB ASSOCIATES

- 4,468 linear feet of earthen trapezoidal channel within the SJCCSP property with 15-foot-wide access roads on both sides of channel, a channel base width of 65-feet, channel height of up to 10-feet, and channel side slopes with 4:1 ratio, and total right-of-way width of 200-feet wide;
    - Includes three sets of four-cell 20-feet wide by 9-feet high RCB and concrete transition structures;
    - Dead storage within the channel is 7.1 acre-ft for approximately 5,180-ft of channel length;
- 1,398 linear feet of earthen trapezoidal channel outside of the SJCCSP property with 20-foot-wide access roads on both sides of channel, a channel base width of 65-feet, channel height of up to 10-feet, and channel side slopes with 4:1 ratio, and total right-of-way width of 200-feet wide east of Sanderson Avenue;
    - Includes three sets of six-cell 12-feet wide by 7-feet high RCB and concrete transition structures, each for future road crossings;
- Two (2) earthen training berms with 20-foot-wide access roads on top of each and each with 2:1 slope on the wet side of the training berms and 20:1 slope on the dry side of the berms: approximately 900 linear feet of Westerly Training Berm and approximately 1,514 linear feet of Easterly Training Berm;
- Five (5) sloped rip-rap drop structures;
- One (1) 14-feet wide by 7-feet high stub-out RCB connection for future MDP Line G and includes channel paving and scour protection; and
- The geotechnical and structural engineering details for the Line E crossing over Casa Loma Barrel No. 1 will be provided in **Appendix B**. WEBB is currently processing an easement application with MWD on behalf of RCFC&WCD for review and approval of the crossing of MWD's right-of-way. More details will be provided in the final design (Kleinfelder).

The proposed on-site drainage system for SJCCSP is identified as the "Line V onsite system" and includes an "Onsite Basin" for onsite runoff (see ***Figure 4***). Outflows from the SJCCSP Onsite Basin will outlet to the proposed Confluence Basin and downstream Line E, as described herein.

2.2 Design Rationale

The proposed Project presents a slightly different alignment than what was originally included in the MDP. This is the result of a process to engineer around constraints that were identified during stakeholder meetings (see *Section 1.1*) in order to improve the design from what was originally proposed. Specifically, the proposed alignment intentionally avoids the EMWD and MWD easements for pipelines located near the Project inlet, and, at the same time avoids the riparian habitat around the north side of the San Jacinto Reservoir. This has resulted in no hard connection between Line E and the San Jacinto Reservoir Spillway, as well as no hard connection between Line E and Line E-2. Maintenance access within private property has been considered and provided for in the Project, as discussed herein. There is preliminary evidence of biological resources on the Chen Fei property (APN 436-010-003) located north of the proposed Golden Ocean Realty properties (APNs 436-030-001 and 436-170-001), as well as

potentially environmentally sensitive areas along the south side of the Casa Loma Barrel No. 1 MWD right-of-way west of Sanderson Avenue, both of which the Project will avoid with the proposed design. Evaluations of sensitive biological resources have been conducted as part of the Project CEQA analysis and are not included herein. Because WEBB is preparing the CEQA documentation on behalf of the City, this information is provided quickly to WEBB engineers working on this design. The proposed Project also took into consideration several future projects planned by public agencies in the same area, such as RCTC and EMWD and was realigned to avoid conflicts with major sewer infrastructure located at where the MDP planned a crossing of Sanderson Avenue near the De Anza Lift Station. Furthermore, through the willingness of SJMD, LLC to allow part of the Project on its SJCCSP property, right-of-way acquisition is simplified and better controlled. The City will maintain Line E Channel within the SJCCSP property, the proposed Confluence Basin and pump station. The proposed Project has different flow rates than the MDP, which are presented and justified herein. The result of the proposed Project meets the objective to remove flooding risk to the area from the upstream tributary area and Line E conveys up to and including the modeled 100-Year flow rates within the design parameters required by RCFC&WCD.

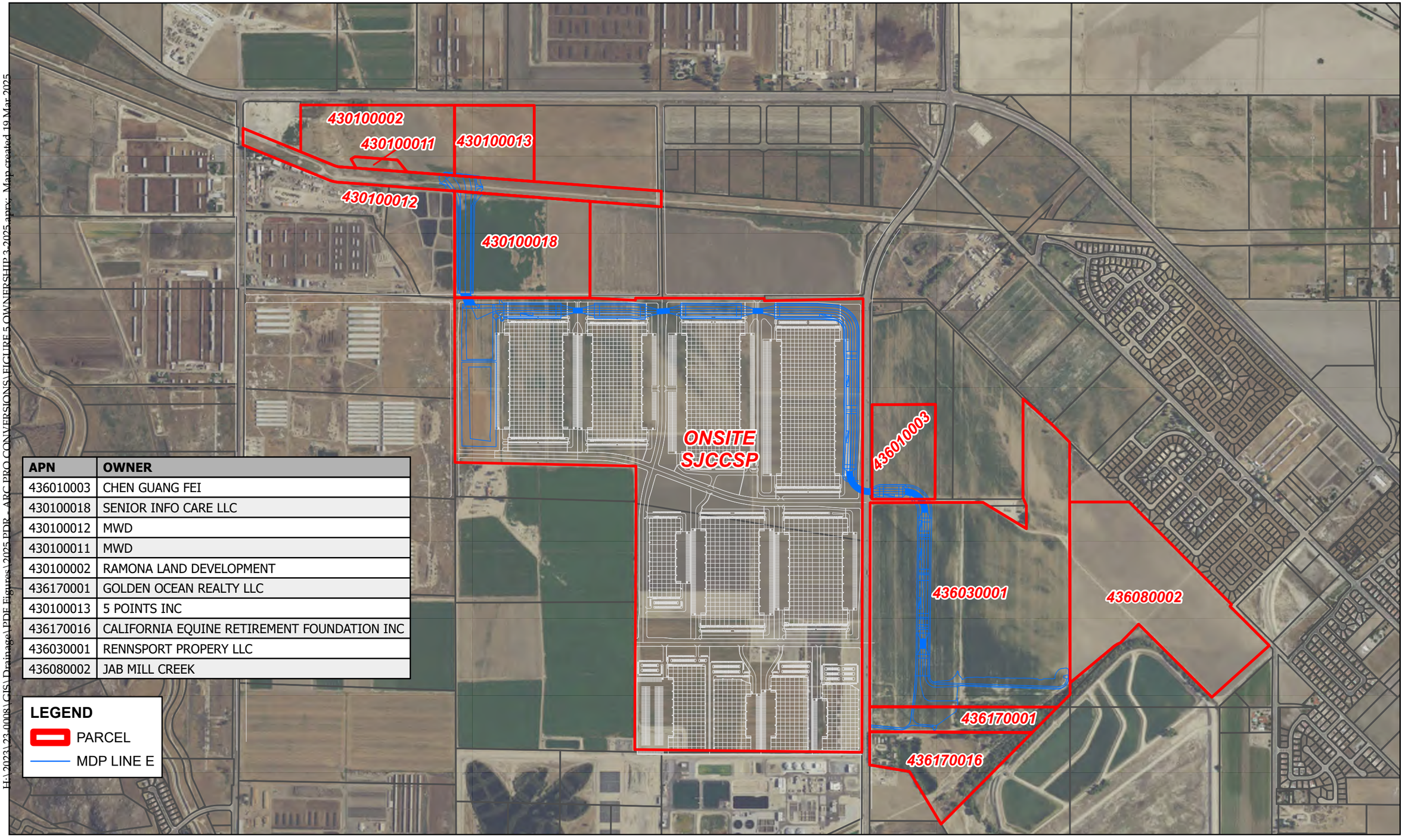
WEBB researched the location of existing utilities in the Project area and they are shown on the Long-Axis Plan in **Appendix A**. The existing utilities in conflict with the proposed RCB's crossing Sanderson Avenue will be relocated and relocation plans will be prepared during the final design phase. Proposed utility crossings will be coordinated with adjacent developers and projects during final design, to the extent that information is available when the design is being prepared.

2.3 Access and Easements

The Project includes 20-foot-wide access roads for vehicle access to these MDP components located outside of the SJCCSP: the training berms, channel and RCBs. Additionally (2) 20-foot-wide access roads will be provided to access the easterly and westerly maintenance roads within MWD's fee right-of-way. Proposed MDP facilities within the SJCCSP will have 15-foot-wide access roads. RCFC&WCD does not own the land where the MDP facilities are proposed, as shown on ***Figure 5***. Therefore, dedication of rights-of-way by each property will be required and will be completed in final design.

SJMD, LLC and Golden Ocean Realty have indicated their intentions to dedicate a fee parcel on their respective properties to RCFC&WCD. Other private parcels are being evaluated. The selected alignment substantially reduces the number of private parcels and potential for eminent domain. The proposed Line G stub out will require an easement if located outside of RCFC&WCD right-of-way.

An easement will also be required across the MWD property at Casa Loma Barrel No. 1, estimated at 200 feet long by 600 feet wide. Procuring the easement from MWD will be completed in the final design phase.



APN	OWNER
436010003	CHEN GUANG FEI
430100018	SENIOR INFO CARE LLC
430100012	MWD
430100011	MWD
430100002	RAMONA LAND DEVELOPMENT
436170001	GOLDEN OCEAN REALTY LLC
430100013	5 POINTS INC
436170016	CALIFORNIA EQUINE RETIREMENT FOUNDATION INC
436030001	RENNSPORT PROPERY LLC
436080002	JAB MILL CREEK

LEGEND

PARCEL

MDP LINE E

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 5 OWNERSHIP 3-2025.aprx: Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 5 - PARCEL OWNERSHIP MAP

MDP LINE E

ALBERT A. WEBB ASSOCIATES

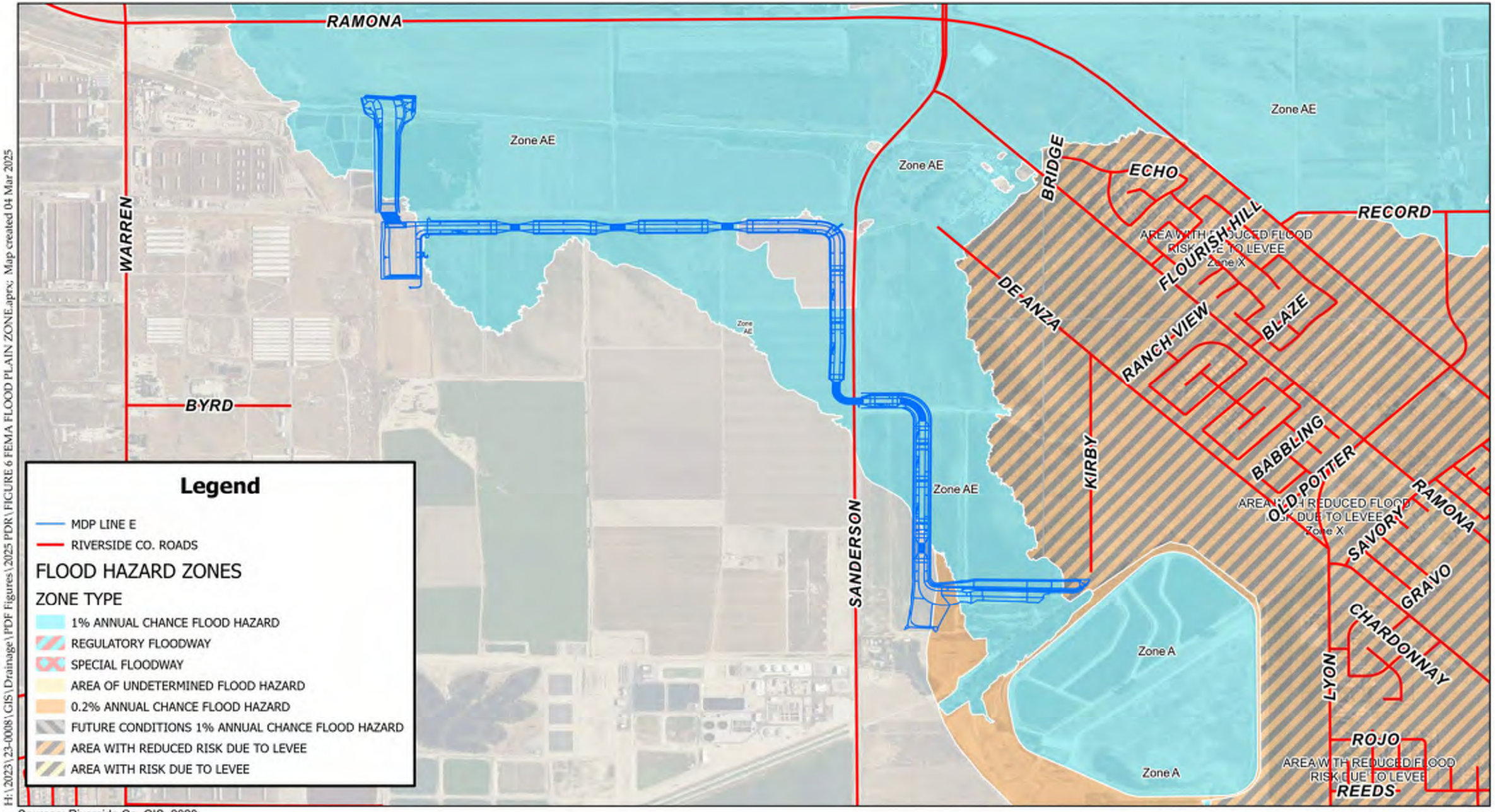
2.4 FEMA Flood Plain Zone

A portion of the study area is located within FEMA flood plain zone AE corresponding to the San Jacinto River flood zone, as shown in ***Figure 6***. Zone AE represents areas in the 100-Year event flood plain with a Base Flood Elevation (BFE) or depth. This flood plain zone is designated consistent with the Letter of Map Revision (LOMR) no. 21-09-1682P, effective November 9, 2022.

The San Jacinto Reservoir is identified as FEMA flood plain zone A, which represents a 100-Year flood plain without BFE.

As part of the development of the SJCCSP and after approval of this PDR, a Conditional Letter of Map Revision (CLOMR) will be submitted to the Federal Emergency Management Agency (FEMA) requesting a Letter of Map Revision (LOMR) to revise the current National Flood Insurance Plan (NFIP) map to change the flood plain boundaries such that the SJCCSP site is no longer within a flood hazard zone. A portion of the SJCCSP will have to be elevated in order to remove it from the San Jacinto River 100-Year floodplain; however, that is not a part of this PDR.

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR\FIGURE 6 FEMA FLOOD PLAIN ZONE.aprx; Map created 04 Mar 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

Figure 6 - FEMA FLOOD PLAIN ZONE
MDP LINE E

ALBERT A. WEBB ASSOCIATES

2.5 Methodology

Pursuant to the RCFC&WCD Design Manual (March 2024) and L.A. County Hydraulic Design Manual (March 1982), the Project design is based on the required design manuals and design standards for a steady, stable, and open earthen, non-leveed channel that conveys 100-Year flow rate considering capacity and scour potential (i.e., with and without vegetation scenarios). The San Jacinto River 100-Year floodplain was used as the starting water surface elevation (WSE). The proposed SJCCSP drainage system and design methodology are analyzed under separate cover as part of entitlement with the City of San Jacinto.

2.5.1 Hydrology

Hydrologic calculations were performed consistent with the RCFC&WCD Hydrology Manual, dated April 1978. The rational method and synthetic unit hydrograph methods were used to determine peak flow rates. Rational method and synthetic unit hydrograph calculations were performed using CivilDesign® software, which incorporates the hydrological parameters outlined in the RCFC&WCD Hydrology Manual. Hydrological parameters (i.e., rainfall values and soil types) were determined from the RCFC&WCD Hydrology Manual.

2.5.2 Hydraulics

Water Surface Pressure Gradient (WSPG) is a hydraulic model from CivilDesign® used to preliminarily size the proposed channel. The various Project constraints were then evaluated against the results of the WSPG model. Stakeholder input on the proposed design led to the development of additional hydraulic modeling to verify the results. Hydrologic Engineering Centers River Analysis System (HEC-RAS) Version 6.3 developed by the U.S. Army Corps of Engineers was used to model the hydraulics of water flow through the channels. Two different HEC-RAS models were used in this study: one-dimensional (1D) HEC-RAS for the proposed channel and two-dimensional (2D) for the proposed channel inlet and proposed low flow channel located at the channel outlet.

The RCFC&WCD Hydraulic Design Manual, the L.A. County Hydraulic Design Manual dated March 1982, and the U.S. Department of Transportation HEC 14-Hydraulic Design of Energy Dissipators for Culverts and Channels dated July 2006 were used for this study.

2.5.3 Geotechnical Considerations

A Geotechnical Investigation Report for the San Jacinto Line E Storm Drain project was prepared by Kleinfelder, Inc. (a copy of the report is included in **Appendix B**). The purpose of the investigation was to evaluate surface and subsurface conditions in the area of planned improvements and to provide geotechnical recommendations for earthwork, design, and construction considerations (Kleinfelder, p. 1). The study found depth to groundwater varies in the project area but was found to be below the invert of the proposed Line E channel for the majority of its length. The exception is at the southern end where the groundwater is 8-9 feet deep below existing ground at Boring B-16, which is located several hundred feet to the east of the proposed channel alignment. However, Boring B-19 at the Line E inlet shows a

depth of 17 feet. Additional investigation will be conducted during final design to confirm the depth of groundwater at the channel, and what mitigation methods, if any, are needed. Also, the depth of groundwater at the easterly training berm (Borings B-17 and B-18) is shallow, which will need to be accounted for during the construction of any cutoff walls and resolved in final design. The groundwater based on these borings is plotted on the Long Plot in **Appendix A**.

Excerpt showing locations of borings from "Figure 2 - Exploration Location Map" (Kleinfelder, Dec. 5, 2023).



The Geotechnical Study also provided data on soil classifications, which is used to determine the appropriate Manning's "n" values with the RCFC Design Manual. The borings drilled adjacent to the northerly MWD right-of-way (Casa Loma Barrel No. 1) will inform preliminary designs of a crossing structure, the MWD-approved geotechnical report (and structural) can be found in **Appendix B**.

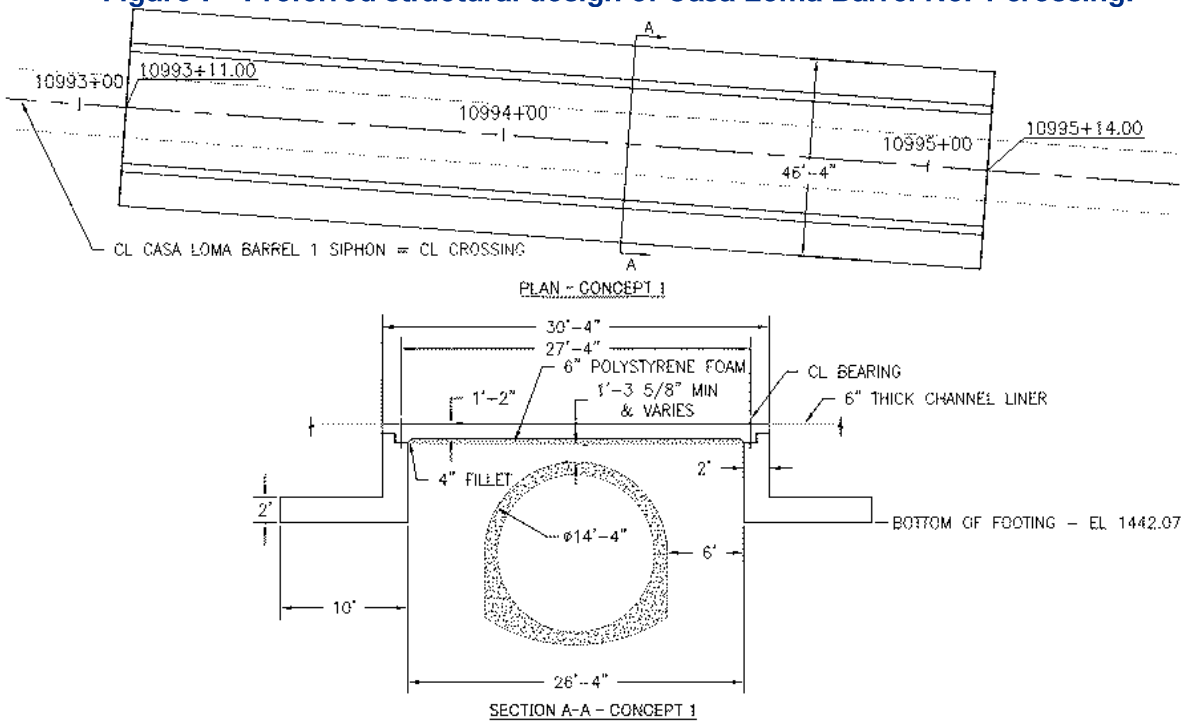
Based on the results of the field explorations, laboratory testing, and engineering analyses conducted during the geotechnical study, it is the professional opinion of Kleinfelder, Inc. that the proposed project is geotechnically feasible provided the recommendations presented in the report are incorporated into the project design and construction (Kleinfelder, p. 14).

2.5.4 MWD Casa Loma Barrel No. 1 Crossing

At the outlet of this project, we cross MWD fee property and MWD facility Casa Loma Barrel No. 1 which was constructed in the 1920s and provides half of the potable water from the Colorado River. Casa Loma Barrel No. 1 is a critical facility that MWD requires near zero settlement and rebound. Kleinfelder completed a preliminary geotechnical investigation and a preliminary structural design report. The result of the geotechnical and structural design report was that the crossing is feasible and constructible. The preferred structural crossing of Casa Loma Barrel No. 1 is shown in ***Figure 7*** below. The concept is a spread footing with a slab

(similar to a bridge deck) spanning Casa Loma Barrel 1. This design will allow future work on Casa Loma Barrel No. 1 without reconstructing the entire crossing. MWD approved the geotechnical and structural reports in March 2025, the approval email and reports are included in **Appendix B**. It should be noted that there is scour protection in the form of the sloped cutoff wall at the downstream edge of the MWD right of way. Paralleling the MWD right of way there is a concrete channel that will convey all low flows northerly.

Figure 7 - Preferred structural design of Casa Loma Barrel No. 1 crossing.



Section 3 Hydrology

3.1 Existing MDP Hydrology

The existing MDP hydrology is based on the *Master Drainage Plan Update for San Jacinto Valley West Area* prepared by WEBB and dated May 2007 (updated October 2008). The hydrology analysis for Line E segment related to the SJCCSP began with the existing MDP model flow rates and facilities to represent the "existing condition." Contributing flows to Line E include overflows from the San Jacinto Reservoir, tributary flows from MDP N Line E-2 located south of Line E, future MDP Line G, future MDP Line V, and future MDP Line Y. The existing conditions for Line E flow rates have accounted for the following contributing flows (refer to ***Figure 8*** and **Appendix C**):

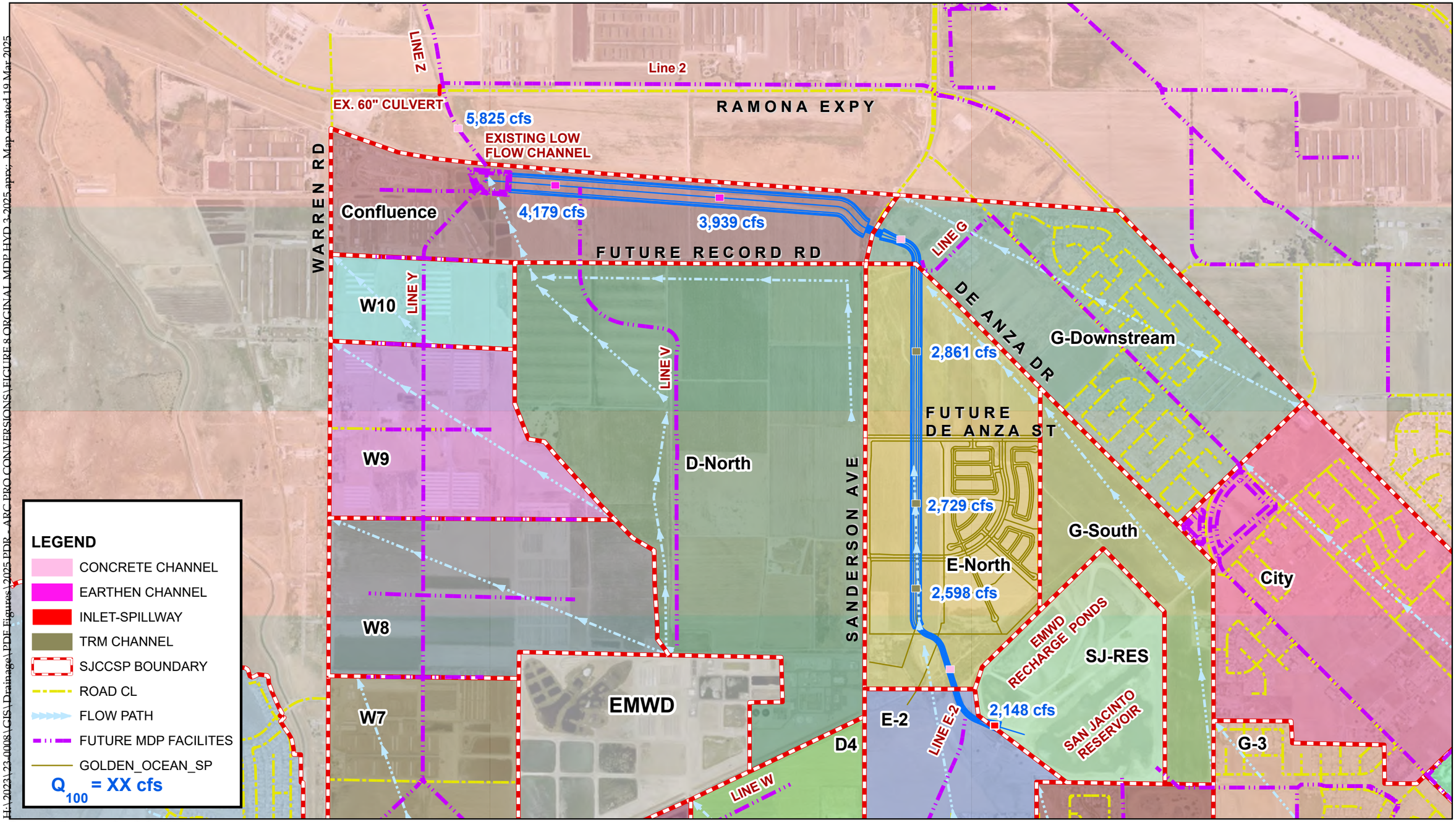
Table 1 – Existing MDP Hydrology

MDP Components	Existing MDP Flow Rates
Overflow from San Jacinto Reservoir	Q_{100} = 2,148 cfs
MDP N Line E-2	Q_{100} = 686 cfs; Trap B=6', D=6', Z=1.5
Golden Ocean Property contribution	Q_{100} = 521 cfs, RCP 14' (W) x 7' (H), assuming slope = 0.1%
MDP Line G	Q_{100} = 518 cfs; RCB 8' (W) x 4' (H)
MDP Line V On-Site System	Q_{100} = 962 cfs; Trap B=60', D=5', Z=4
MDP Line Y	Q_{100} = 1,646 cfs
Channel Segments	
Spillway to Line E-2	Q_{100} = 2,148 cfs
Line E-2 to Golden Ocean Property	Q_{100} = 2,598 cfs
Golden Ocean Property to Future De Anza St	Q_{100} = 2,729 cfs
Future De Anza St to Line G	Q_{100} = 2,861 cfs
Line G to Line V	Q_{100} = 3,939 cfs
Line V to Confluence Basin	Q_{100} = 4,179 cfs
Flow over Northerly MWD ROW	Q_{100} = 5,825 cfs

Note: cfs = cubic feet per second; MDP = Master Drainage Plan; RCP = reinforced concrete pipe; RCB = reinforced concrete box; W = width; H = height; Trap = trapezoidal.

(a) "Q_{100}" means the flow rate in a 100-Year storm event.

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 8 ORGINAL MDP HYD 3-2025.aprx; Map created 19 Mar 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,0001,500 Feet

FIGURE 8 - EXISTING MDP HYDROLOGY

MDP LINE E

ALBERT A. WEBB ASSOCIATES

3.2 Proposed MDP Hydrology

The unit hydrograph analyses in this report were prepared in accordance with the methodology outlined in the RCFC&WCD Hydrology Manual dated April 1978. Because the Hydrology Manual includes precipitation data that has been superseded, the rainfall values used in the 2007 MDP Update as well as this study come from the NOAA Atlas 14 Version 4.0. All hydrology is based on a 100-Year 24-hour flood event.

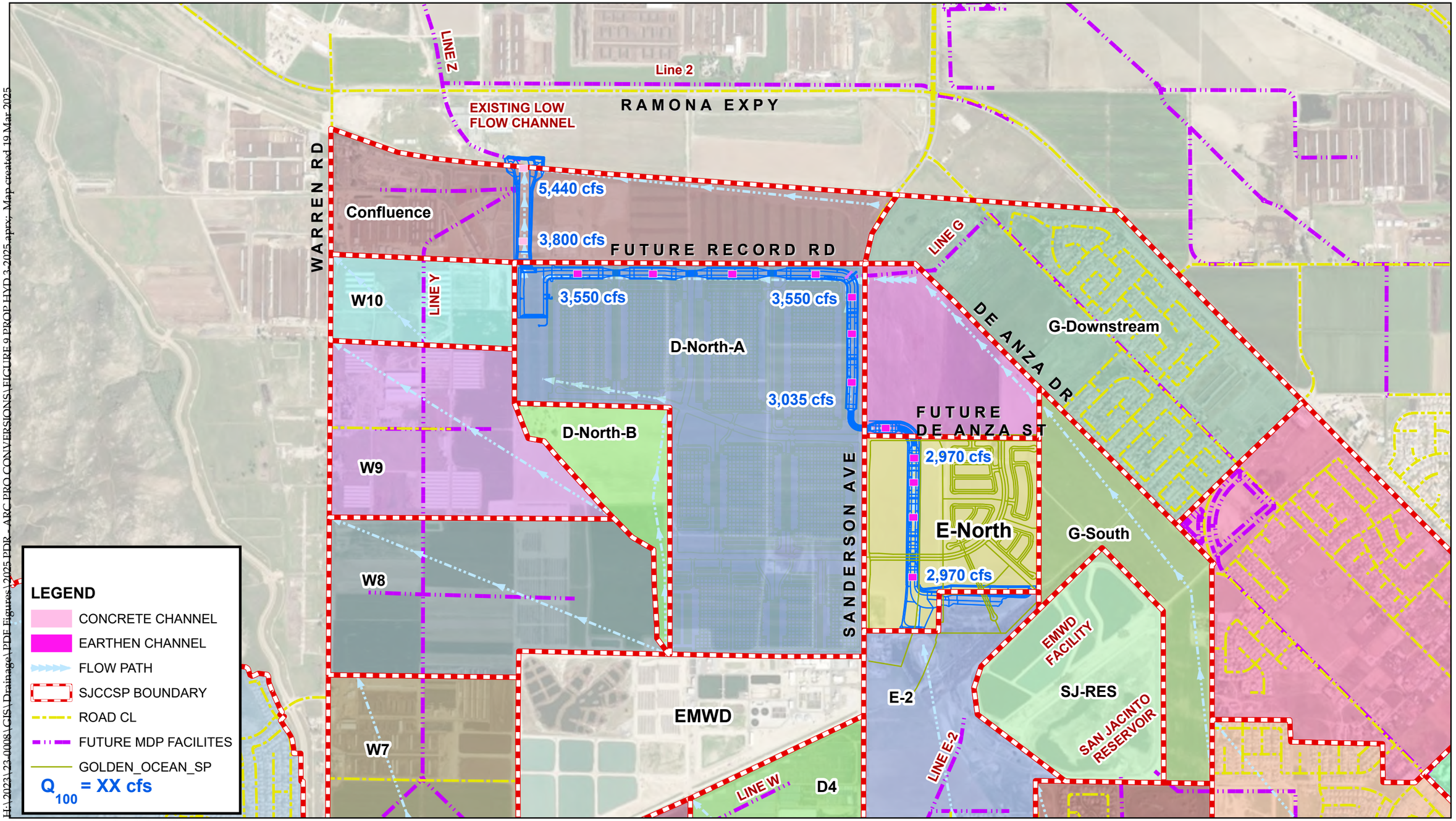
The same watershed subareas that were delineated in the 2007 MDP Update are also used for this study, as shown on ***Figure 9*** and Appendix C; however, with some updates, as follows:

- Subarea E-2 land use updated to reflect actual site conditions of horse property;
- The land use was updated from residential to commercial for the SJCCSP property; and
- Subarea D-North of the wastewater treatment plant property was removed because runoff from this area will be collected and treated by the wastewater facility.

The result of these updates is a decreased flow rate reaching Line E compared to the 2007 MDP Update. The proposed Line E design rearranged how tributary flows will be collected, as follows:

- With the proposed design, tributary flows from the south are directed to Subarea D-North-A and then into a proposed Onsite Basin or Confluence Basin to be pumped out to Line E north of Record Road (***Figure 9***);
- Proposed MDP Line Y will no longer join the Confluence Basin and will instead join Line E upstream of Casa Loma Barrel No. 1;
- Flows from the Confluence Subarea are being added to Line E in the area of Casa Loma Barrel No. 1, which was previously coming into Line E at Sanderson Avenue under the prior MDP;
- Line G is proposed on the opposite side of Sanderson Avenue as compared to the MDP;

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 9 PROP HYD 3-2025.aprx; Map created 19 Mar 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,0001,500 Feet

FIGURE 9 - PROPOSED HYDROLOGY
MDP LINE E

ALBERT A. WEBB ASSOCIATES

3.2.1 Design Flow Rates

The Project design flow rates for MDP components and Line E channel segments are shown in ***Table 2***. Refer to ***Figure 9*** and **Appendix C** for backup.

Table 2 – Proposed MDP Flow Rates

MDP Components	Revised Flow Rates
Overflow from San Jacinto Reservoir	Q_{100} = 2,148 cfs
MDP N Line E-2	Q_{100} = 527 cfs; Trap B=6', D=6', Z=1.5
Golden Ocean property contribution	Q_{100} = 295 cfs, RCP 14' (W) x 7' (H), assuming slope = 0.1%
MDP Line G	Q_{100} = 580 cfs; RCB 14' (W) x 6' (H)
MDP Line V On-Site System	Q_{100} = 1440 cfs; Onsite drainage system & detention basin
MDP Line Y	Q_{100} = 1,646 cfs
Proposed Channel Segments	
Inlet to Future De Anza St	Q_{100} = 2,970 cfs
Future De Anza St to Future Record Rd	Q_{100} = 3,035 cfs
Future Record Rd to Confluence Basin	Q_{100} = 3,550 cfs
Line Y Confluence	Q_{100} = 3,800 cfs
Confluence Basin to Northerly MWD ROW	Q_{100} = 5,440 cfs

Note: cfs = cubic feet per second; MDP = Master Drainage Plan

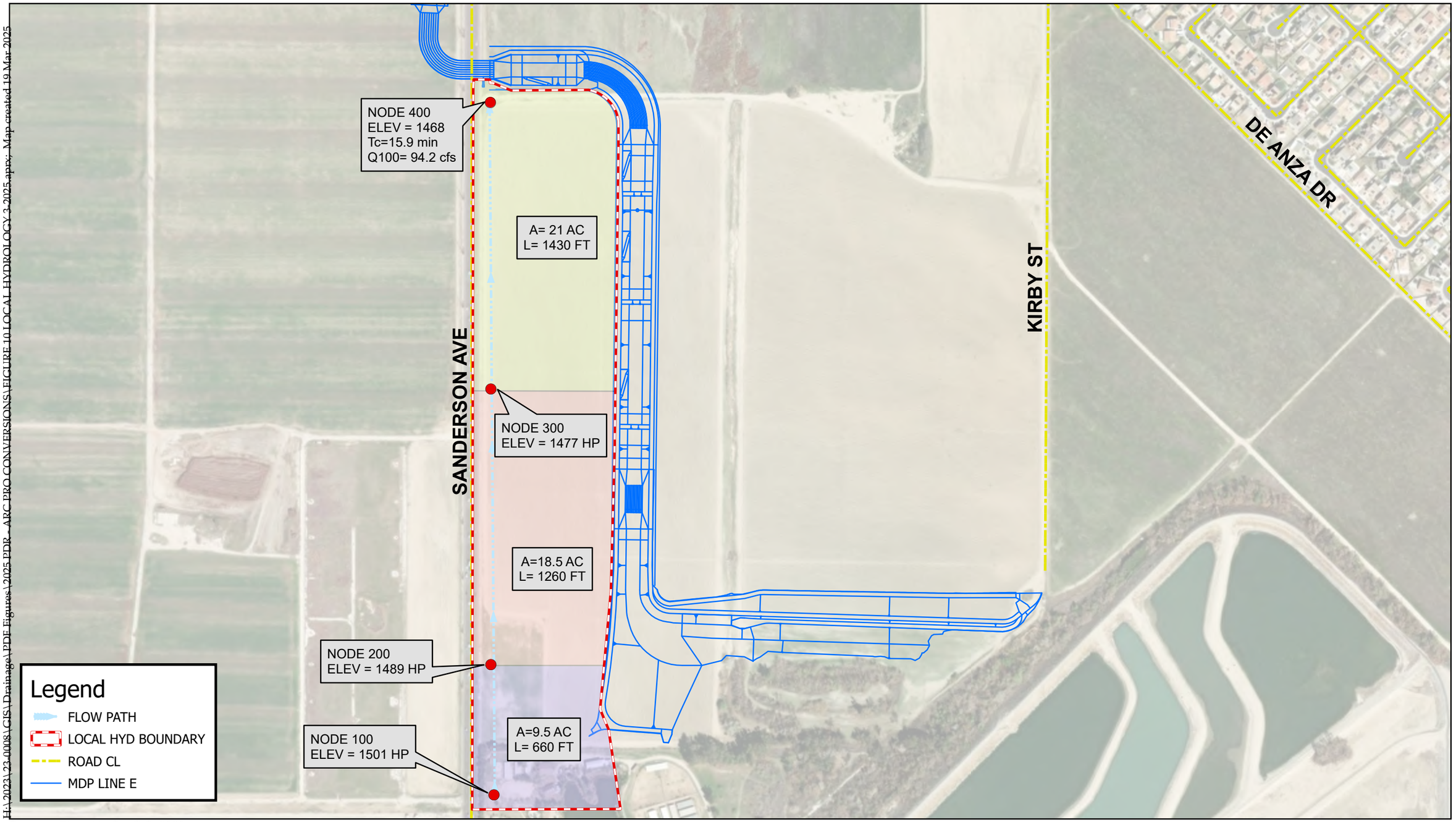
(a) "Q_{100}" means the flow rate in a 100-year storm event.

3.2.2 Local Hydrology Analysis at Sanderson Avenue

A roadside ditch conveys stormwater along the east side of Sanderson Avenue as shown in the image below. Because the proposed Line E channel would cross Sanderson Avenue and intersect with the existing ditch, the contribution of flow from this roadside ditch to proposed Line E channel was analyzed as part of this study. Results suggest that 49 acres drain to the roadside ditch, as shown in ***Figure 10***. The hydrology subareas are already accounted for in the overall MDP hydrology. A rate of 95 cfs of runoff was generated and was used to size an inlet and 54" RCP lateral to Line E channel. See **Appendix C** for the rational method model results.



(Source: Google Earth, Sanderson Avenue facing southeast)



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 10 LOCAL HYDROLOGY 3-2025.aprx; Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

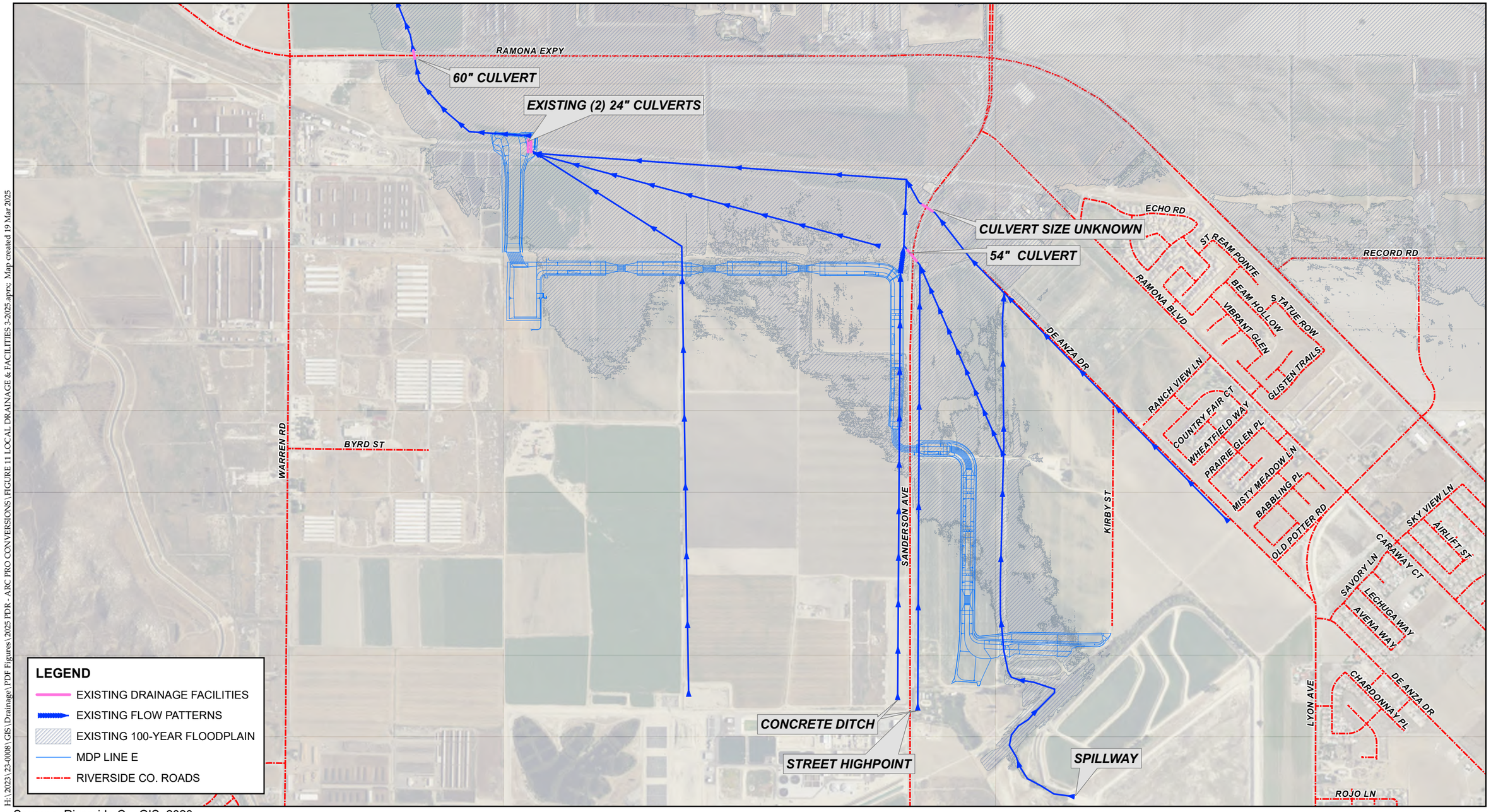
FIGURE 10 - LOCAL FLOW ANALYSIS

MDP LINE E - SANDERSON DITCH INLET

ALBERT A. WEBB ASSOCIATES

3.2.3 Local Flow Pattern at Casa Loma Barrel No. 1

The local drainage pattern is similar to the flow paths illustrated in ***Figure 11***. During small rain events, a significant amount of runoff sheet flows to either side of Sanderson Avenue and is conveyed northerly. As shown in ***Figure 11***, the local existing drainage pattern flows northeasterly eventually to two existing culverts that cross the MWD Casa Loma Barrel No. 1 right of way. Both culverts are 24-inch corrugated metal pipes that sit atop the MWD Casa Loma Barrel No. 1. During any rain event that generates flooding, these culverts are responsible for draining the area south of MWD Casa Loma Barrel No. 1 and bounded by Sanderson Avenue and the EMWD ponds. In the post-project condition, the existing drainage patterns north of Record Road and east of Sanderson Avenue (i.e., east of Line E) will remain. The Project will replace the existing low-flow (2) 24-inch diameter corrugated metal pipes, with (2) 24-inch diameter reinforced concrete pipes that directly outlet into the downstream concrete channel.



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 11 LOCAL DRAINAGE & FACILITIES 3-2025.aprx; Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 500 1,000 1,500 Feet

FIGURE 11 - EXISTING LOCAL DRAINAGE PATTERNS

MDP LINE E

ALBERT A. WEBB ASSOCIATES

Section 4 Hydraulics

Based upon the design flow rates established in *Section 3* of this report, hydraulic analyses were then conducted to size the proposed updated facilities. One-dimensional (1D) HEC-RAS and WSPG were both used to model the hydraulics of the proposed channel and drop structures. Two-dimensional (2D) HEC-RAS was used to model the hydraulics of the proposed training berms at the upstream end of the project and the low flow channel at the downstream end of the project. Transition length sizing is included in **Appendix D** of this report.

In the existing condition, the San Jacinto Valley MDP is mostly unbuilt, and the Line E piece proposed in this study is upstream and downstream of other planned MDP elements to be constructed by others in the future. Refer to the long-axis plot located in **Appendix A** for the preliminary plan and profile of Line E.

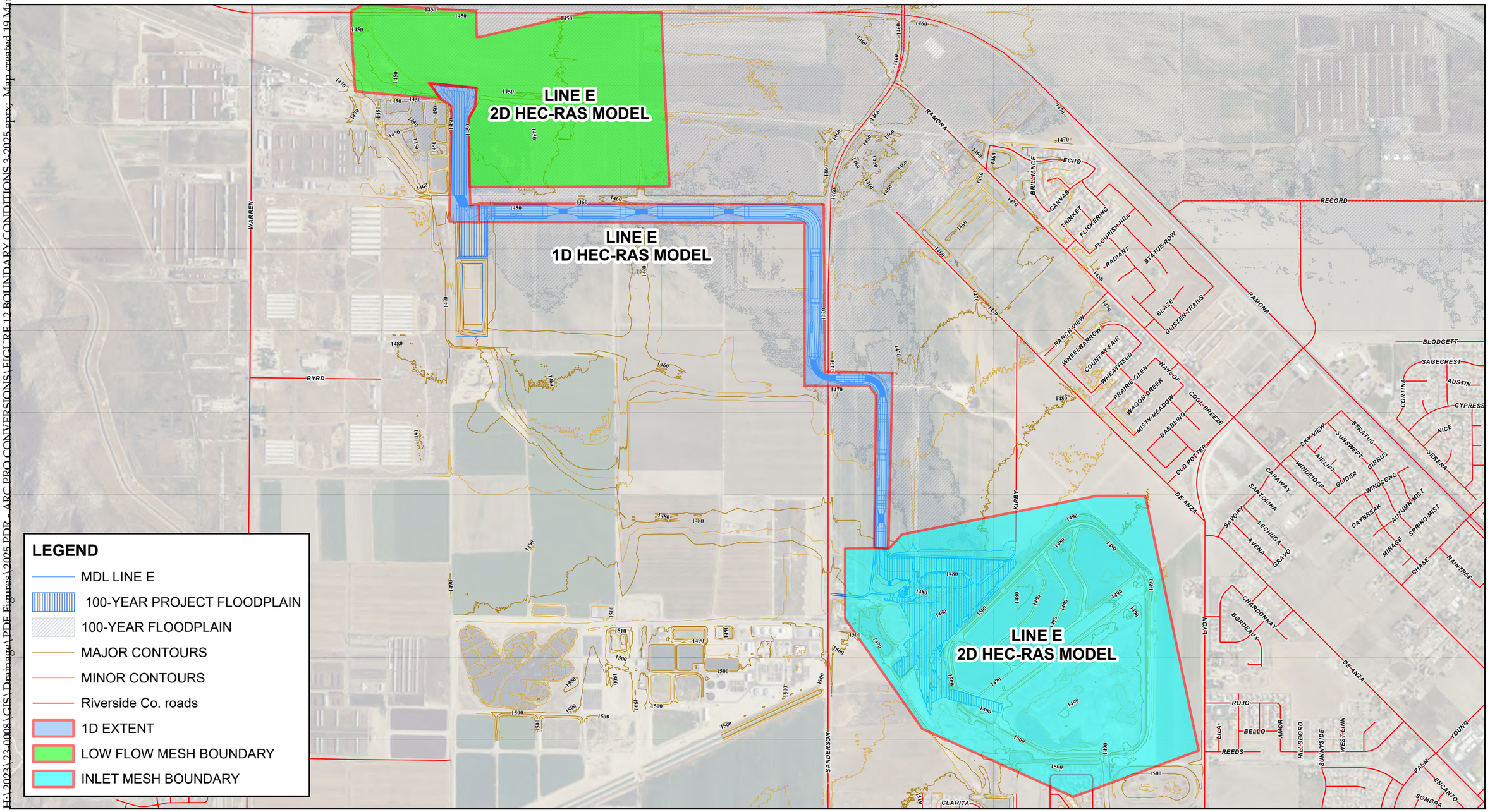
4.1 Model Parameters

4.1.1 Boundary Conditions

This study includes three different HEC-RAS models and a WSPG model, with each model having different boundary conditions. See ***Figure 12*** for a visual of each model's spatial extent. The downstream boundary condition for this study is the 100-Year San Jacinto River floodplain elevation (i.e., 1,452.93 feet amsl) and the starting water surface elevation (WSE) for the Line E earthen channel is dictated by the Confluence Basin (i.e., 1456± feet amsl). Below is the breakdown for each model's boundary conditions. See ***Appendix D*** for HEC-RAS exhibits, modeling parameters, and results.

- WSPG Model
  - Starting water surface elevation is 1452.93 ft for northerly MWD ROW crossing (Casa Loma Barrel No. 1)
  - Starting water surface elevation is 1456.15 ft for Line E earthen channel
- 1D HEC-RAS Line E Channel
  - Starting water surface elevation is 1452.93 ft for MWD ROW crossing (Casa Loma Barrel No. 1)
  - Starting water surface elevation is 1456.10 ft for Line E earthen channel
  - Rating curve at Section 13089.04 used for 2D HEC-RAS boundary condition
    - Flows range from 0 to 2,740 cfs, and resulting WSE is used in Rating Curve
- 2D HEC-RAS Line E Inlet
  - Inflow hydrograph from Node 130
  - Inflow location is located at the spillway, Q_{100} = 2,675 cfs to simplify modeling
  - Rating Curve at Section 13089.04

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 12 BOUNDARY CONDITIONS 3-2025.aprx; Map created 19 Mar 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

FIGURE 12 - BOUNDARY CONDITIONS

MDP LINE E

FOR MORE DETAILS ON BOUNDARY CONDITIONS PLEASE SEE HEC-RAS EXHIBITS

ALBERT A. WEBB ASSOCIATES

- Low Flow
    - Several flow profiles, flows range from 0 cfs to 36 cfs to simulate typical operations.

This study includes three different HEC-RAS models, with each model having different boundary conditions. Starting upstream, the existing and proposed 2D HEC-RAS inlet model uses an inflow hydrograph for the MDP Line E. The inflow hydrograph is based on the updated hydrology at Node 130. For the existing condition, the downstream boundary is the normal depth of the existing flowline at the end of the mesh. In the proposed 2D HEC-RAS inlet model, the downstream boundary condition is a rating curve based on the MDP Line E 1D HEC-RAS model, run with different flow rates to establish comprehensive flow and WSE profiles. See ***Appendix D*** for HEC-RAS exhibits and results.

The second HEC-RAS model of Line E channel is a 1D HEC-RAS model within the limits shown in ***Figure 12***. The upstream boundary is a normal depth with a slope of 0.001. At the Confluence Basin, the two segments of MDP Line E meet at a WSE of 1456.10 ft. The downstream boundary condition is the San Jacinto River floodplain with an elevation of 1452.93 ft. See ***Appendix D*** for HEC-RAS exhibits and results.

The third HEC-RAS model for Line E is a low-flow analysis looking at the effects of pumping the 100-year dead storage from the Confluence Basin and the SJCCSP onsite basin of a flowrate of 36 cfs for 72 hours. The analysis also looked at a 5 cfs interval to the 100-year max of 36 cfs. The interval flow rates are intended to show how lower storm events will impact the downstream. North of the MWD right of way is an existing open channel that will be concreted (in the proposed condition) when parallel to the MWD right of way. This existing channel alignment is where the future MDP Line Z is slated to be constructed. This existing channel conveys low flows northerly to an existing 60-inch culvert at Ramona Expressway. It should be noted that the limiting facility is the existing 60-inch RCP that crosses Ramona Expressway, due to the culvert being nearly flat (slope). Webb surveyed the city-maintained 60-inch culvert and surrounding area to model the downstream correctly. See ***Appendix D*** for HEC-RAS exhibits and results.

4.1.2 Model Domain and 2D Grid

The model domains for the existing and proposed inlets have the same domain and inflow location, as shown in ***Table 3***. The range of adaptive 2D grid sizes and the total number of cells are also provided. Please refer to the existing and proposed work maps in **Appendix D**.

Table 3– Model Domains

	Adaptive 2D Face Area	Mesh Properties	
	avg-min-max [ft^2]	Dx-Dy	cells
EXISTING INLET	97 - 2 - 186	10 -10	147,655
PROPOSED INLET	97 - 2 - 186	10 - 10	147,554
LOW FLOW	219 – 19 - 396	15 - 15	40,352

4.1.3 Topology

The existing condition topology is based on two different areal topographic maps. See **Appendix D** for signed areal topographic maps used in the HEC-RAS modeling and used in design. The topology has a vertical accuracy of 1-foot. For critical design elements such as the Casa Loma Barrel No. 1, surveyors have completed field surveys to verify the elevations used for design.

4.1.4 Manning's "n" Value

The Manning's roughness coefficient ("n") is used to calculate flow in open channels. Higher "n" values represent rougher conduits with higher friction. The Manning's "n" values used in this study are summarized in ***Table 4***.

Table 4 – Roughness Coefficients Used in this Study

Manning's Roughness Coefficient, "n"	Roughness Description
n = 0.013	Reinforced concrete pipe (RCP)
n = 0.014	Reinforced concrete boxes (RCBs)
n = 0.020	Bare earth channel with no vegetation
n = 0.030	Minimum vegetation density within channel
n = 0.043	One-quarter ton riprap (Class V)
n = 0.044	Three-eighths ton riprap (Class VI)
n = 0.046	One ton riprap (Class VIII)
n = 0.015 to 0.032	Low flow channel assuming no maintenance and moderate to very heavy vegetation at the inlet (2D HEC-RAS models)

Source: RCFC&WCD, May 2023 *Draft Hydraulic Manual.*

4.1.5 Model Time Step

The modeling of the inlet of Line E used an adaptive step with a computational interval of 5 seconds, and in this case, the Courant Methodology was utilized. A computational interval of 1 second was used for the Low Flow outlet scenario so this model does not utilize the Courant Methodology. ***Table 5*** below outlines the time steps each 2D HEC-RAS model utilized. It should be noted that this is not relevant to 1D HEC-RAS and WSPG models.

Table 5 – Model Time Steps

Model	Computational Interval [sec]	Adaptive Time Step [sec]		Time Steps		
		Max	Min	Min Doubling	Max Doubling	Max Halving
EXISTING INLET[(a)]	-	4	1	1	2 (20 sec)	5 (0.16 sec)
PROPOSED INLET[(a)]	-	4	1	1	2 (20 sec)	5 (0.16 sec)
LOW FLOW	1	-	-	-	-	-

Notes:
(a) Courant Methodology

4.1.6 Model Error

The percent error for the 2D HEC-RAS model is shown below in ***Table 6***. The percent error is calculated on the model's stability and ability to converge to an answer. The modeling error is reasonable and due to the topography, some volume will remain within the model domain.

Table 6– 2D HEC-RAS Model Error

Model	Percent Error	Mass Balance [acre-ft]	
		In	Out
EXISTING INLET	.000745	946.6	921.8
PROPOSED INLET	.00239	946.6	929.3
LOW FLOW[(a)]	.0001 to .0012	27.7 to 152.2	25.3 to 148.3

[(a)]The Low Flow model consists of several pumping regimes

4.2 Modeled Project Design Features

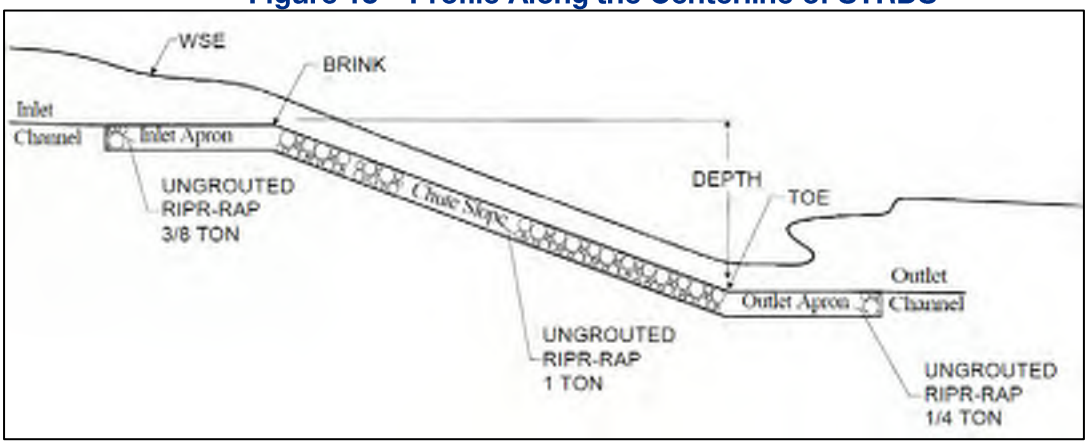
4.2.1 Freeboard

The draft RCFC&WCD Hydraulic Design Manual states that a subcritical channel needs a minimum of 1-foot of freeboard for a subcritical earthen channel. The Froude numbers within the proposed earthen channel sections range from 0.26 to 0.77. At the brink of the drop structures (see ***Figure 13***), the Froude number is 1. At the end of the outlet apron of each drop structure, the Froude number is less than 0.5. In the concrete portion of Line E, the typical Froude number is around 1. The training berms are intended to be conservatively designed with 2-feet of freeboard.

4.2.2 Drop Structures

The original MDP assumed the use of Turf Reinforcement Mat (TRM) for lining the Line E channel as protection against velocity-induced scour. However, RCFC&WCD has since excluded the use of TRM in MDP facilities. Therefore, the design of Line E will instead use Sloped Trapezoidal Rock Drop Structures (STRDS) to reduce channel velocities within the proposed earthen Line E channel.

Figure 13 – Profile Along the Centerline of STRDS

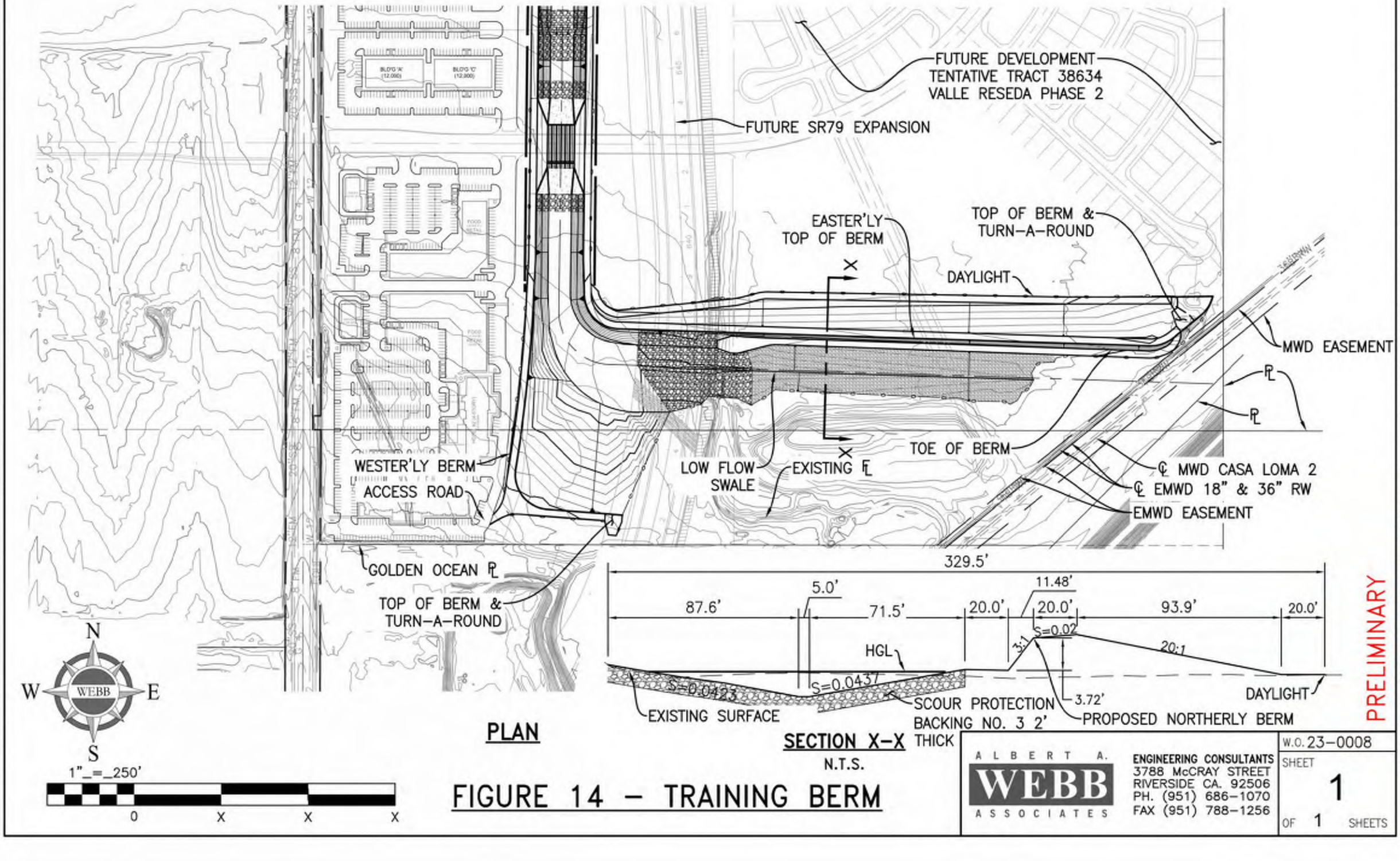


A total of five STRDS are proposed for Line E (**Figure 13**). The upstream and downstream rock-lined channel lengths establish the normal depth (aka steady flow). The downstream length also considers the hydraulic jump length and to be conservative, this study applied a 1.5 safety factor to the apron length.

HEC-RAS was then used to size the STRDS riprap and the sizes of the upstream and downstream ungrouted riprap aprons. The HEC-RAS results are discussed in *Section 4.3*. All riprap in this study is assumed to be ungrouted. Manning's "n" values for the riprap sizes are shown in ***Table 4***. The 3/8-ton riprap will be used in the upstream section of the STRDS, which induces normal depth velocity for the approach. Then, flows drop down inducing critical depth. One-ton riprap is used on the slope where the fastest velocity occurs, and at the end of the grade break, one-quarter ton riprap is used for a slower velocity and returns to normal depth at the end of the downstream apron.

4.2.3 Training Berms

Training berms are proposed to direct flows from the San Jacinto Reservoir Spillway and the sheet flows from the south/southwest into the proposed Line E channel. The Project will have no direct connection to the San Jacinto Reservoir Spillway. The placement of the training berms allows avoidance of MWD Casa Loma Barrel No. 2 easement and EMWD pipeline easement which are located at the end of the easterly training berm (***Figure 14***). Based on the coordination with the City of San Jacinto, the training berm is not considered a levee because the WSE is within 1± foot of the dry side of the Training Berm. In addition, the City of San Jacinto approved a technical memorandum on the hydraulics of MDP Line E Inlet, see **Appendix F**.



PLAN

SECTION X-X
N.T.S.

PRELIMINARY

FIGURE 14 – TRAINING BERM

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W.O. 23-0008
SHEET 1
OF 1 SHEETS

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2D HEC-RAS modeling is used to demonstrate that pre- and post-project velocities will be essentially equal over the EMWD and MWD easements and the existing cover over the EMWD and MWD pipes will not be scoured. The pre-project (existing condition) water surface elevations and velocities are shown in **Appendix D** 2D HEC-RAS Inlet Existing Model and proposed post-project water surface elevations and velocities are shown in **Appendix D** 2D HEC-RAS Inlet Proposed Model. Modeling results indicate slow velocities and shallow depths in the 100-Year event scenario. However, where velocities exceed 6 fps, the slope of the training berm will be armored with riprap or a cutoff wall to protect against scour – the specifics of which will be determined in the final design. Modeling results of the 2D HEC-RAS analysis are in **Appendix D**. The 100-Year floodplain limits within the Line E footprint are shown in ***Figure 15***.

The placement of the training berms was chosen to avoid disturbing the riparian habitat that is in the area below the spillway. Indeed, the training berms are placed an additional 50 to 100 feet from the riparian habitat to account for temporary construction impacts that might occur from building the berms.

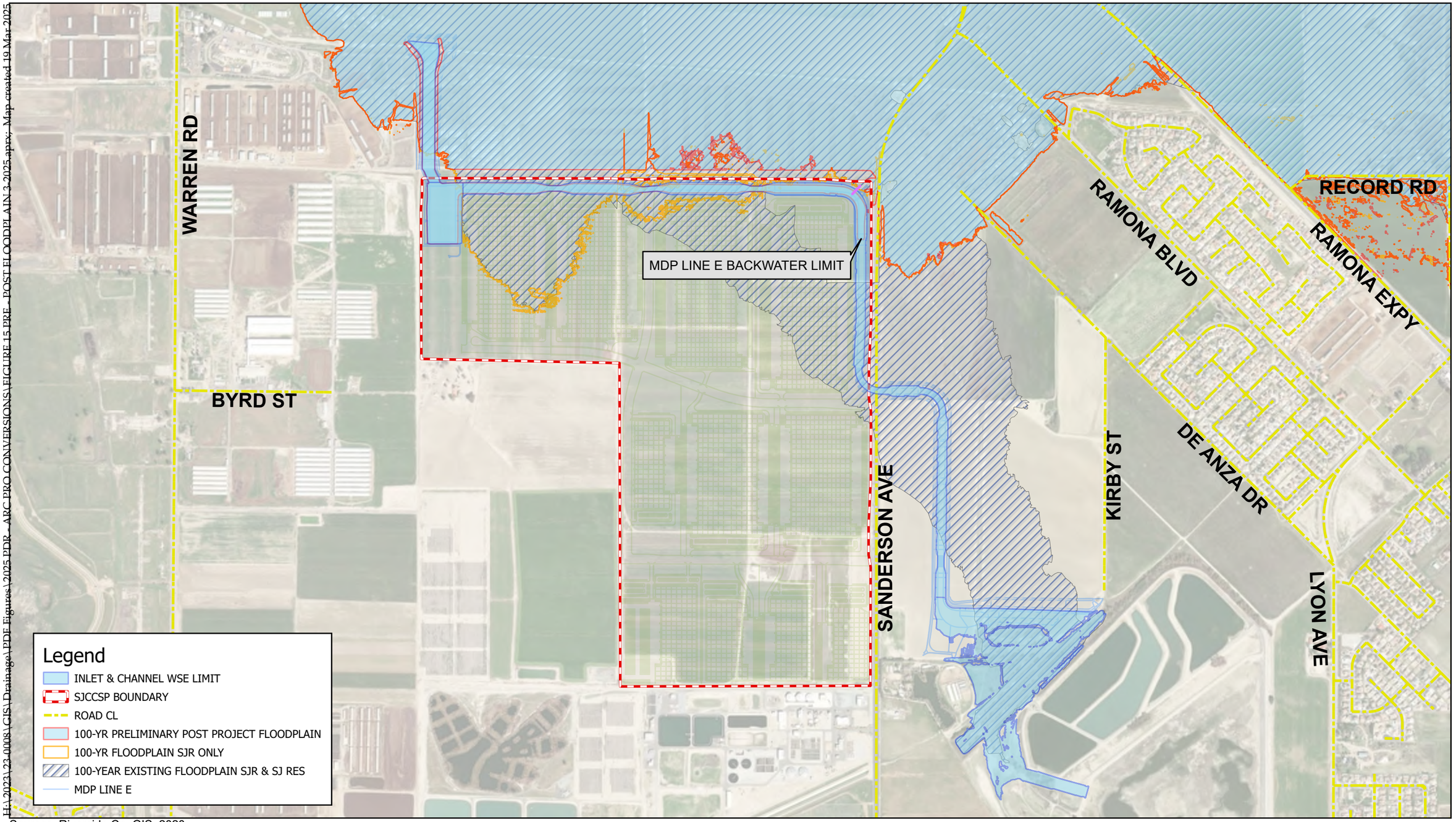
4.2.4 Scour Potential

HEC-RAS was used to model flows in the following three scenarios:

- To assess the highest scour potential conditions, such as in a freshly excavated bare earth unvegetated channel, an “n” value of 0.02 was used. All of the proposed scour mitigation measures will be designed using n = 0.02.
- To assess the post-project condition with a vegetated channel of minimal vegetation density, an “n” value of 0.03 was used, and n = 0.04 was used to represent flows in a vegetated channel with maximum vegetation density. It should be noted that a “n” value of 0.03 was used to plot the HGL on the long plot in **Appendix A**.

4.2.5 Onsite Basin, Confluence Basin, and Pump Station

The SJCCSP proposes an “Onsite Basin” to capture onsite stormwater and nuisance flows, which works with the proposed MDP Confluence Basin and both basins will be pumped out by a proposed pump station to be located on the SJCCSP property, which will discharge flows into a downstream segment of Line E (***Figure 16***).



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 15 PRE - POST FLOODPLAIN 3-2025.aprx; Map created 19 Mar 2025

Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

FIGURE 15 - EXISTING FLOODPLAIN & PRELIMINARY POST PROJECT FLOODPLAIN

MDP LINE E

ALBERT A. WEBB ASSOCIATES

Onsite Basin

The Onsite Basin that is proposed for the SJCCSP property is designed to mitigate the effects of hydromodification that the SJCCSP project poses to areas downstream. Flows will be released from the Onsite Basin via pumps, at a rate no greater than 110% of the pre-development runoff condition's 2-year, 24-hour peak flow rate. Per the city water quality requirements the Onsite Basin dimensions and capacity are not set by this requirement, but rather they were set as a result of the storm drain invert elevations running from the southernmost portion of the SJCCSP site. Under the spillway elevation, the Onsite Basin can hold roughly 145 acre-feet (47.3 million gallons). A 20-foot-wide maintenance access road is provided along the top perimeter of the entire basin. Please refer to the SJCCSP Hydrology and Hydraulics Report prepared by WEBB for details on the onsite storm drain system.

MDP Confluence Basin

The MDP includes a Confluence Basin at the downstream end of the earthen portion of Line E. The basin is earthen with 4:1 side slopes. The RCB outlet of the of Confluence Basin is 4.4± feet higher than the bottom of the basin (1446.50-feet amsl basin bottom). The Confluence Basin has 57± acre-feet capacity over an area of 6.25 acres, with 72-hour drawdown. To pump out the dead storage, the basin parcel includes a pump station. When entitlement is completed for the SJCCSP, the proposed Confluence Basin will be dedicated as its own parcel within the SJCCSP, the parcel will be owned by the City of San Jacinto. The pump station will be located on the Confluence Basin parcel.

Pump Station

A pump station is proposed on the SJCCSP property that will house pumps to drain both the Onsite Basin and the Confluence Basin back into Line E downstream of the basins (***Figure 16***). ***Table 7*** summarizes the pumps that would be required to pump the dead storage volumes from both basins. The primary design criterion for the pumps is to draw down both basins within 72 hours. The total pump station combined flow rate is 36 cfs that will outlet into the RCB's crossing Record Rd. Pump station details will be provided in the final design. The conceptual cost of the pump station is approximately $9.1 million.

Downstream Perched Channel & Levee Concern

The concrete downstream of Line E from the confluence basin to the northerly MWD right of way is a perched channel. During a review of the PDR RCFC&WCD noted that the City will need to make the determination if this portion of Line E is a leveed channel. The City made the determination in an email dated 11-27-24 where the city determined the channel is not leveed. A copy of the email will be included in **Appendix F**.

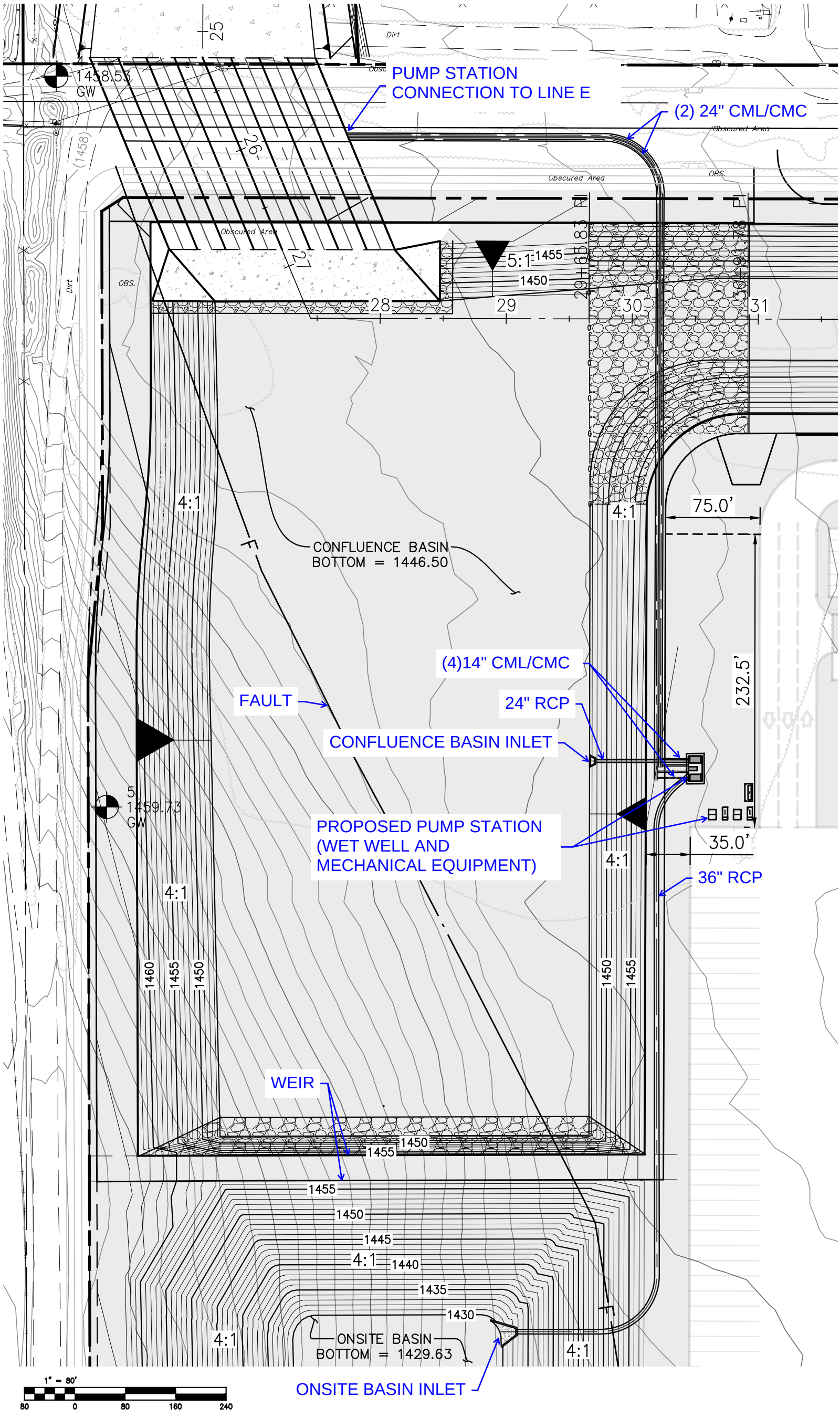
Table 7 -Basin's & Pump Station Details

Confluence Basin	
Dead Storage Volume	57.6 AF 2,509,056 CF
Required Pump Flow	10 cfs 3,142 gpm
Number of Pumps	2
Drawdown Time	72 hours
Onsite Basin	
Dead Storage Volume	146.4 AF 6,377,184 CF
Required Pump Flow	HCOC - 13 cfs (within 110% of 18.8 cfs the 2-year 24-hour event) = 5,834.8 gpm 100-Year - 13 cfs =5,834.8 gpm Combined 26 cfs =11,670 gpm
Number of Pumps	2
Drawdown Time	72 hours

Notes: "Dead storage" refers to the volume of water that has no free flow outlet, e.g., the water below the spillway.
AF = acre-feet; CF = cubic feet; cfs = cubic feet per second; hp = horsepower; gpm = gallon per minute

Pumps – (4) WEMCO H12K-SS	
Horse Power	35.6 HP each dry-pit submersible pump & motor
Required Pump Flow	Q_{total} = 16,158 gpm
Pump Selection	(2) 650 RPM @ 800 gpm at 15.5-ft TDH (2) 880 RPM @ 800 gpm at 32-ft TDH
Pumping Ranges controlled by VFDs	650 RPM @ 1,120 gpm (one pump, LWL) 650 RPM @ 16,000 gpm (four pumps, HWL) 880 RPM @ 4,080 gpm (one pump, LWL) 880 RPM @ 24,000 gpm (four pumps, HWL)
Piping	
Onsite Basin	600 LF, 36” dia. RCP
Confluence Basin	100 LF, 36” dia. RCP
Pump Station Discharge	300 LF, 14” dia. CML/CMC
Force Main Outlet	700 LF, (2) 24” dia. CML/CMC
Wet Well & Mechanical	
Wet Well Dimensions	40-foot deep wet well by 15-foot x 20-foot with 2’ thick reinforced concrete walls with removable galvanized steel grates for access Reinforced concrete pad foundation
Emergency Standby Generator	300 KW Weather and sound attenuating enclosure 400-gallon sub-base fuel tank
Electrical Service	480V, 3Ph, 400 Amp Transformer and Pad

Notes: “Dead storage” refers to the volume of water that has no free flow outlet, e.g., the water below the spillway.
AF = acre-feet; CF = cubic feet; cfs = cubic feet per second; hp = horsepower; gpm = gallon per minute



H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 16 PUMP STATION 3-2025.aprx: Map created 19 Mar 2025

FIGURE 16 - BASIN & CONCEPTUAL PUMP STATION

MDP LINE E

0 100 200 300
Feet

ALBERT A. WEBB ASSOCIATES

4.3 Hydraulic Model Results

The results of the hydraulic modeling suggest that post-project flow conditions approximate existing pre-project flow conditions through the MWD and EMWD rights-of-way near the San Jacinto Reservoir Spillway.

In addition, model results suggest the proposed Line E channel has sufficient capacity when an "n" value of 0.04 is applied (i.e., maximum vegetation density) while also sufficiently designed for no scour occurring at the "n" value of 0.03 (i.e., minimum vegetation density).

The velocity profiles along Line E depend on the modeling method used. Both WSPG and HEC-RAS produce similar results for slow and steady flow (see **Appendix A**, Long Plot, Sheets 2 & 3). However, as the flow transitions to unsteady conditions, the models begin to diverge.

This divergence is particularly evident at the STRDS drop structures, where WSPG struggles to accurately compute energy dissipation. WSPG predicts a high-energy hydraulic jump (as shown on Sheet 5 of the Long Plot), while HEC-RAS models a submerged hydraulic jump. The submerged jump is expected due to the downstream water surface elevation being higher than the upstream brink elevation.

Additionally, the Long Plot shows that approach velocities calculated by WSPG are approximately ±2 fps higher than those from HEC-RAS. This suggests that the approach apron in WSPG simulations would, in some cases, experience increased velocities.

Furthermore, the proposed drop structures (STRDS) reduce the 100-Year maximum channel velocities effectively. Model results show the same hydraulics occur downstream of and upstream of each drop structure. Because the net change in flow rates from the upstream and downstream areas of each drop structure is zero, scour is mitigated, and capacity maintained in the proposed channel. The design target velocity is 4 fps for the unvegetated channel and 4 to 6 fps for the vegetated channel. The proposed design has either concrete or ungrouted riprap armor in all locations where velocities are more than 6 fps. Indeed, the modeled velocities for the segment of the proposed Line E channel within the SJCCSP are 6 fps and less, (at the approach of one drop structure the approach velocity reaches 7 fps). Where velocities exceed 4 fps and are below 6 fps, hydroseed will be used for erosion control (refer to **Appendix E** for hydroseed mix provided by RFC&WCD).

Likewise, the low flow model results for pumping out the Confluence Basin and Onsite Basin suggest the downstream (offsite) system is not impacted during pumping out of the dead storage. Based on the model results, the (off-site) low flow channel has a capacity of 75 cfs before spilling over. However, the city-maintained 60" RCP culvert crossing Ramona Expressway, is undersized. Webb surveyed the existing culvert to include the actual culvert slope and length for the Low Flow Analysis, see **Appendix D** for result exhibits.

On the other hand, where the concrete-lined portion of Line E outlets to the existing downstream/offsite low flow channel to the north of the Project, as shown in ***Figure 11***, the velocity increases to more than existing. In addition, if the San Jacinto Reservoir overflows, but the San Jacinto River is not overflowing and flooding the area, the functionality of the 60-inch diameter RCP culvert under Ramona Expressway that drains the low flow channel to which the Project drains, is absolutely critical to successful drainage of the study area. However, that capacity is limited and by the time the peak flow from Line E arrives to the culvert at Ramona Expressway, the area will already be inundated. Detailed analysis of offsite downstream properties is not included in this study.

Section 5 Right of Way & Maintenance

Maintenance obligations are currently expected to be assigned as follows, overall maintenance and easement areas are defined in ***Figure 17*** MDP Line E Lower Reach (outlet) and ***Figure 18*** MDP Line E Upper Reach (Inlet):

- Riverside County Flood Control & Water Conservation District

  Project Components

  RCFC&WCD would maintain Training Berms & inlet line and grade via a drainage easement and slope easement, Line E channel (with 20-foot access roads) and owned right of way (includes Line E downstream of confluence basin to MWD right of way and starting from station 80+95 per the Long Plot in **Appendix A** (from station 80+95 to 82+25 access road transitions from a 15' to 20'), RCBs, and drop structures within Right of Way, Line E and over the Casa Loma Barrel No. 1 & MWD right-of-way via a maintenance easement, geotechnical and structural measures to protect Casa Loma Barrel No 1.

- City of San Jacinto

  Project Components

  City of San Jacinto would maintain the Line E channel segment (with 15-foot access roads) within the SJCCSP boundary via a drainage easement, onsite water quality basin, Confluence Basin, and Pump Station. The city-maintained segment of Line E ends at the downstream end of the first drop structure, which is station 80+95 per the Long Plot in **Appendix A**.

It should be noted that MWD will not maintain structural (structural protection of Casa Loma No. 1) or geotechnical (lightweight fill) design components of this project.

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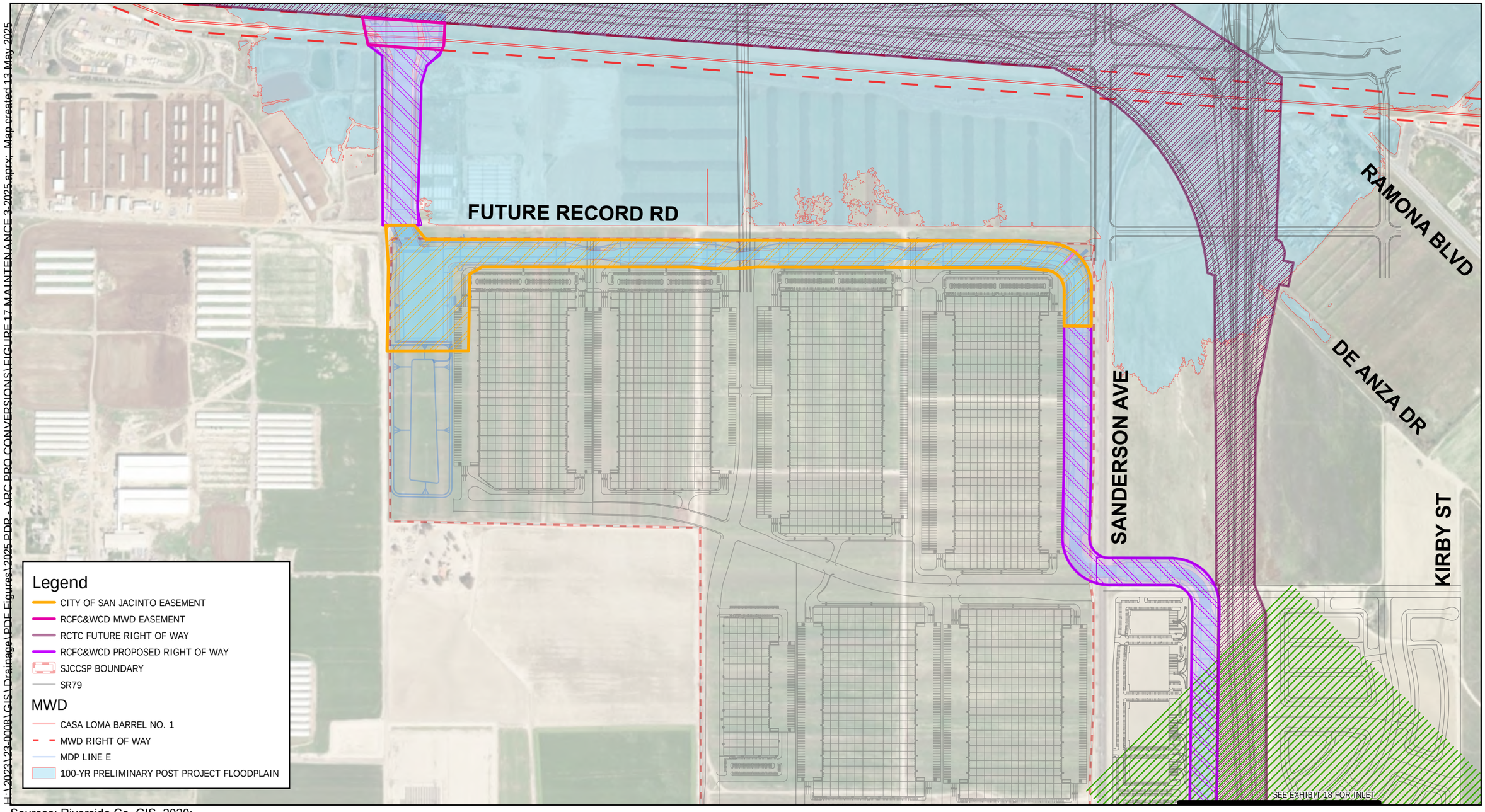


Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

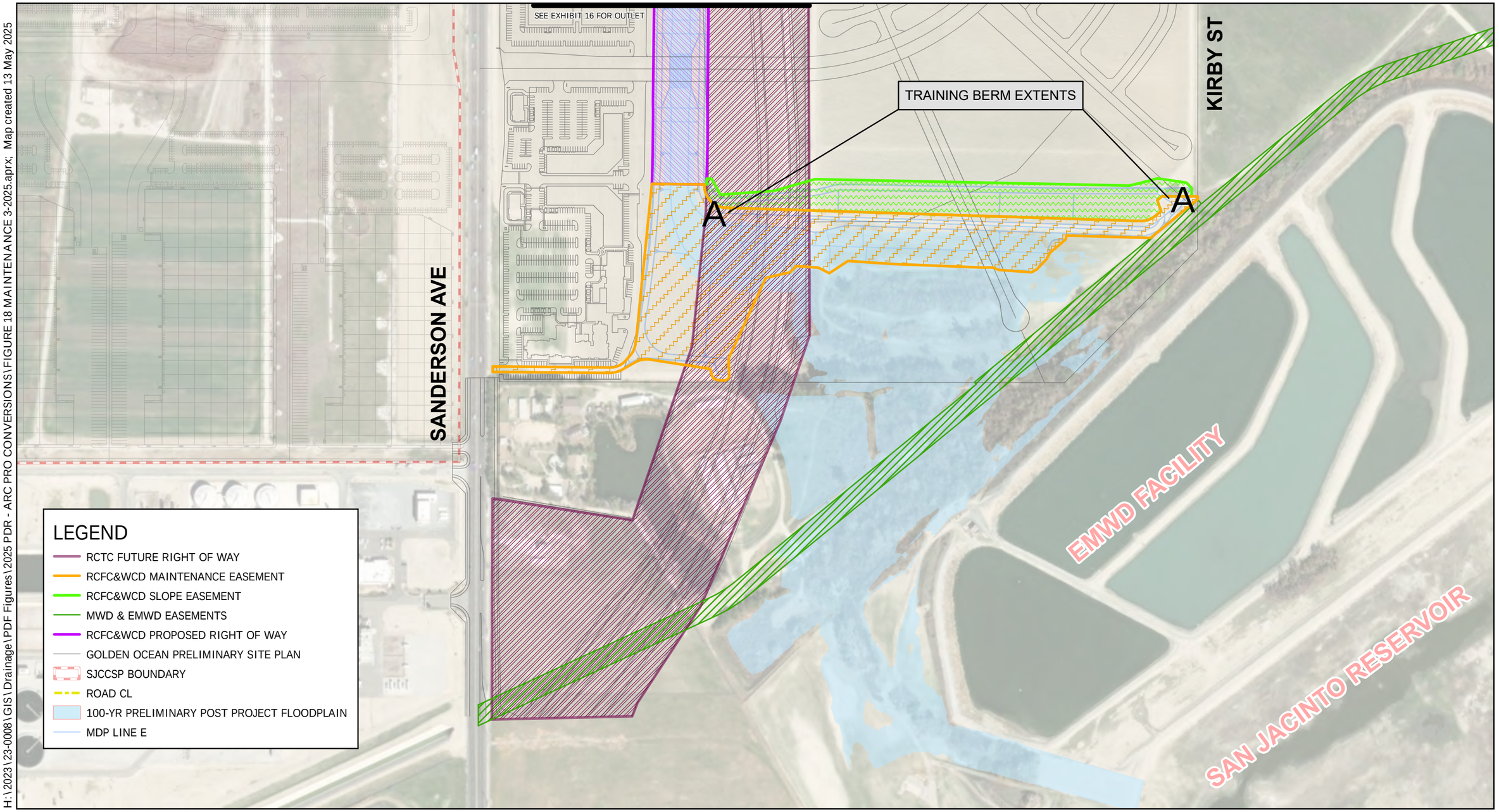
0 500 1,000 1,500 Feet

FIGURE 17 - MDP LINE E MAINTENANCE DELINEATION

LOWER REACH

ALBERT A. WEBB ASSOCIATES

H:\2023\23-0008\GIS\Drainage\PDF Figures\2025 PDR - ARC PRO CONVERSIONS\FIGURE 18 MAINTENANCE 3-2025.aprx; Map created 13 May 2025



Sources: Riverside Co. GIS, 2020;
USDA NAIP, 2016.

0 250 500 750 Feet

FIGURE 18 - MDP LINE E MAINTENANCE DELINEATION

UPPER REACH

ALBERT A. WEBB ASSOCIATES

Section 6 Recommendations

Based on the analysis presented herein, it is recommended that the City and RCFC&WCD approve the proposed modifications to the MDP Line E alignment. It is also recommended that Line V be removed because this drainage area will now be accommodated by an onsite system on the SJCCSP site. MDP Line E-2 will have to cross MWD Casa Loma Barrel No. 2 to connect to MDP Line E. Feasibility of MDP Line E-2 is not within the scope of this project.

Final design of the Line E system will take place in conjunction with the development of the SJCCSP, *Section 7* outlines the final design items. Other future projects will design downstream MDP facilities, Line G and Line E-2 as well as other backbone facilities throughout the City. It should also be noted that the connection of MDP Line E to the San Jacinto Spillway while crossing Casa Loma Barrel No. 2 and the San Diego Pipeline, is planned as a future project. It is recommended that the flow rates established in this report be utilized for the Final Design of Line E and Line G.

Section 7 Next Steps

Following the approval of the PDR the following items will need to be developed, coordinated, or designed in the final design stage of MDP Line E development. The following list includes long lead items but is not exhaustive of all design elements.

- MWD
  - Finalize structural design for Casa Loma Barrel No. 1 for final design
  - Finalize geotechnical analysis for final design
  - Casa Loma Barrel No. 1 blowoff manhole structural design to proposed grade
  - Lightweight fill extents and protection extents
  - Obtain final MWD approval on structural and geotechnical construction plans and reports
  - Easement for construction and RCFC&WCD to maintain Line E from MWD's Real Estate Group

- City of San Jacinto
  - Onsite & Confluence Basin
    - Size, freeboard, weir design, and scour protection
  - Pump Station
    - Final pump selection, mechanical selection, electrical plan, Structural design of wet well
  - Easement for the City of San Jacinto to maintain Line E

- RCFC&WCD
  - Obtain RCFC&WCD approval of freeboard for MDP Line E for areas outside of SJCCSP boundary and within adjacent developments to verify offsite drainage
  - 20' access roads within the SJCCSP boundary
  - Non-standard RCB structural design, transition structures structural design
  - Low flow channel per RCFC&WCD CH324, extents and design to be determined
  - Right of Way Acquisition and Easements for Line E Maintenance (including MWD)
  - Additional groundwater investigations near inlet
  - Construction phasing
- Environmental
  - Complete the CEQA process with the City of San Jacinto and obtain regulatory permits for the construction and maintenance of Line E.
  - City of San Jacinto, as CEQA lead agency adopts Addendum
  - RCFC&WCD as a CEQA-responsible agency makes Responsible Agency Findings
  - Implement mitigation measures identified in the Addendum's Clarified Mitigation Monitoring and Reporting Program (Clarified MMRP)

Section 8 References

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Lan	Lockwood, Andrews, and Newnan, Inc. *MS 212 San Jacinto MDP Line E Plan Check No. 1 Account No. 137-0-3-75369*. October 20, 2023. Plan Check 2
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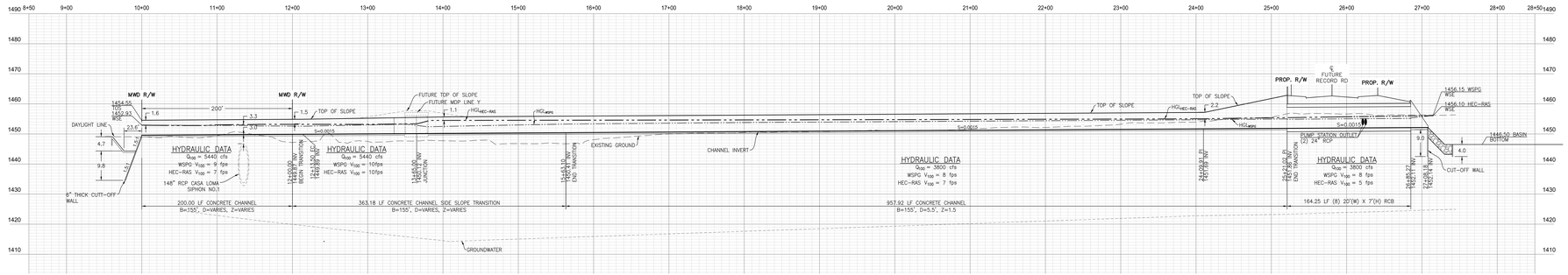
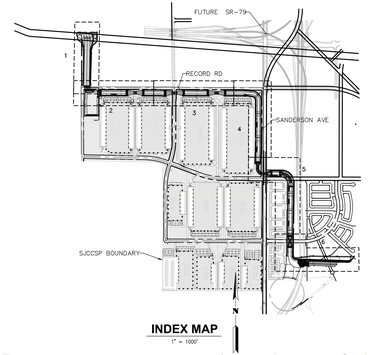
WEBB(a)	Albert A. Webb Associates. *Draft Environmental Impact Report for the San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment (SJV-MDP), SCH 2009041077 for City of San Jacinto.* May 2010. *Final Environmental Impact Report for the San Jacinto Valley Master Drainage Plan and the San Jacinto Regional Area Drainage Plan Amendment (SJV-MDP), SCH 2009041077, City of San Jacinto, October 2012. (Certified by the San Jacinto City Council on January 14, 2013. Responsible Agency Findings made by the Riverside County Flood Control and Water Conservation District Board of Supervisors, October 6, 2015.)*
WEBB(b)	Albert A. Webb Associates. *San Jacinto Valley MDP Line E Alternative Analysis Memorandum*. September 7, 2023.

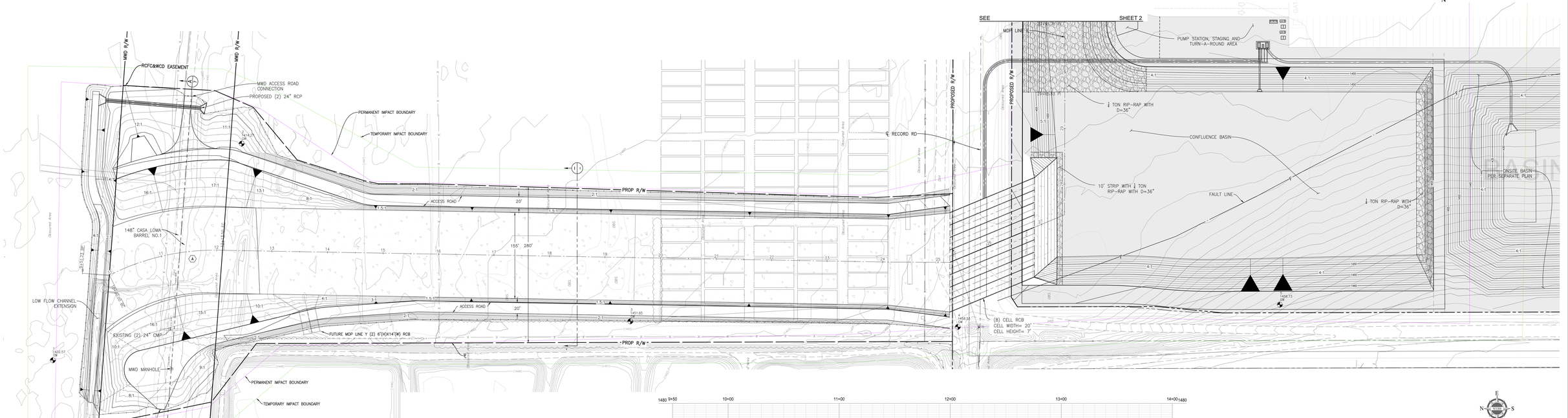
Appendices

Appendix A Long-Axis Plan





INDEX MAP
1" = 1000'



CURVE DATA	(A)
R	420.68'
∆	29°04'43"
L	213.50'
T	109.10'
BC	STA. 10+00.00
EC	STA. 12+13.50
PI NORTHING	2242990.847
PI EASTING	6326572.230

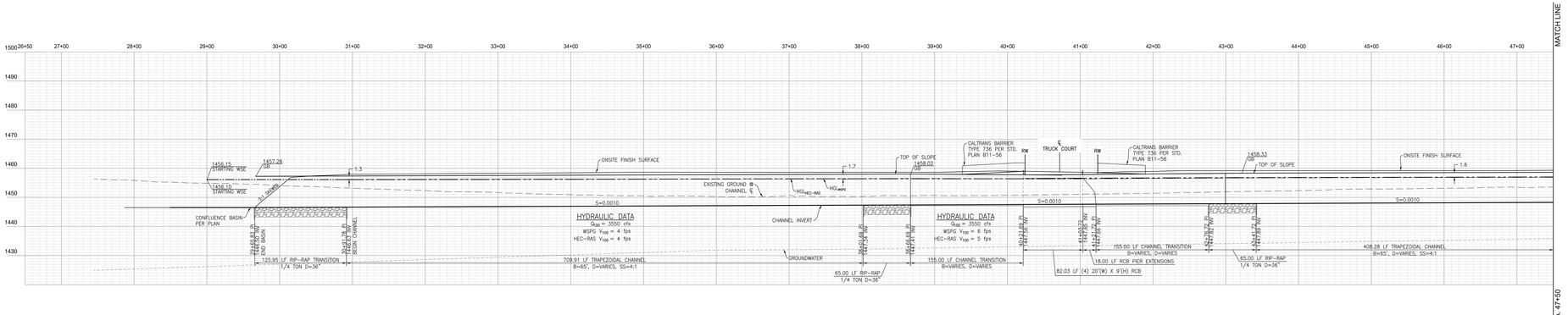
STA: 18+50 PROFILE

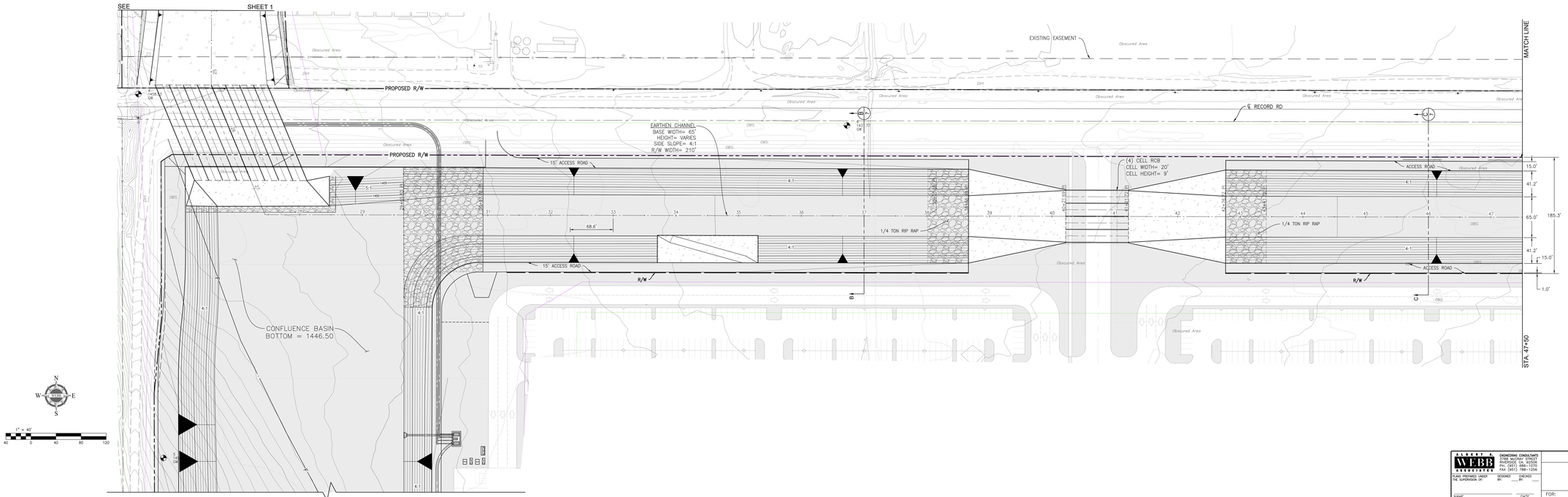
SECTION
1"=20'

E
N
S
W

1" = 40'
40 0 40 80 120

ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 MCRAY STREET RIVERSIDE, CA 92506 PH: (951) 686-1070 FAX (951) 788-1256			
PLANS PREPARED UNDER THE SUPERVISION OF:	DESIGNED BY:	CHECKED BY:	SHEA PROPERTIES MDP LINE E
NAME R.C.E. NO.:	DATE		MDP LINE E LONG AXIS
FOR: xxx	W.O 23-0008		SHEET 1 OF 7 SHEETS





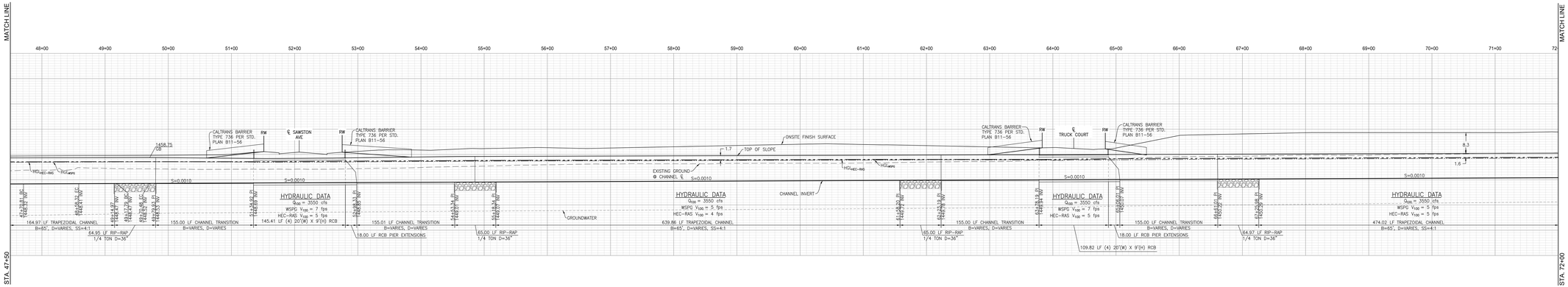
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA 92506
PH: (951) 686-1070
FAX (951) 788-1256

PLANS PREPARED UNDER THE SUPERVISION OF:
DESIGNED BY:
CHECKED BY:
NAME
R.C.E. NO.:
DATE

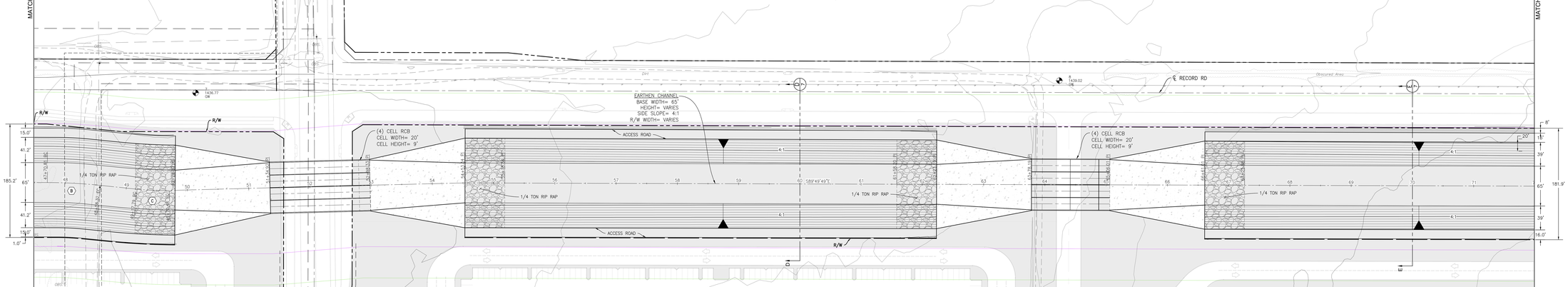
SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: XXX
W.O 23-0008
SHEET 2 OF 7 SHEETS

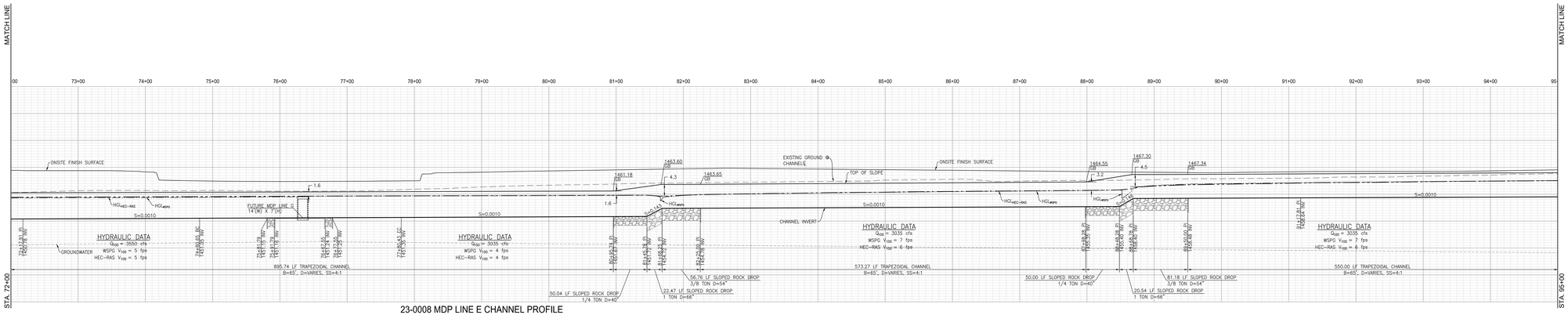


CURVE DATA	Ⓑ	Ⓒ
R	850.00'	400.00'
Δ	5°53'56"	7°32'52"
L	87.51'	52.69'
T	43.79'	26.38'
BC	STA. 47+70.81	STA. 49+17.79
EC	STA. 48+58.32	STA. 49+70.48
POINTS	NORTHING 2241363.576	2241349.989
	EASTING 6328701.756	6328830.689



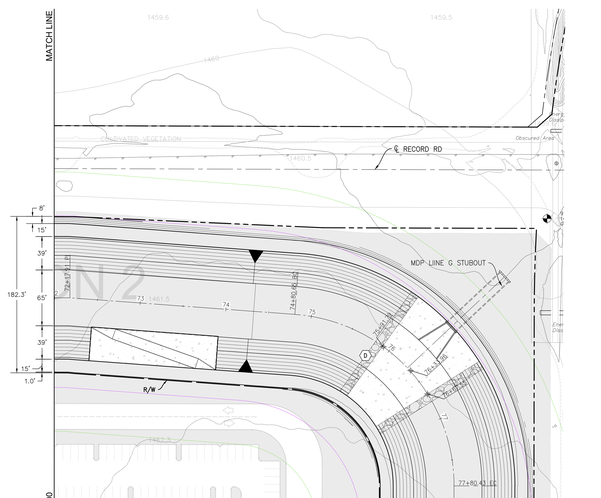
ALBERT A. WEBB ASSOCIATES — ENGINEERING CONSULTANTS, 3788 MCRAY STREET, RIVERSIDE, CA 92506, PH: (951) 686-1070, FAX (951) 788-1256	SHEA PROPERTIES MDP LINE E	
PLANS PREPARED UNDER THE SUPERVISION OF: NAME R.C.E. NO.: DATE	MDP LINE E LONG AXIS	
DESIGNED: BC CHECKED: BY:	FOR: xxx	W.O 23-0008 — SHEET 3 OF 7 SHEETS

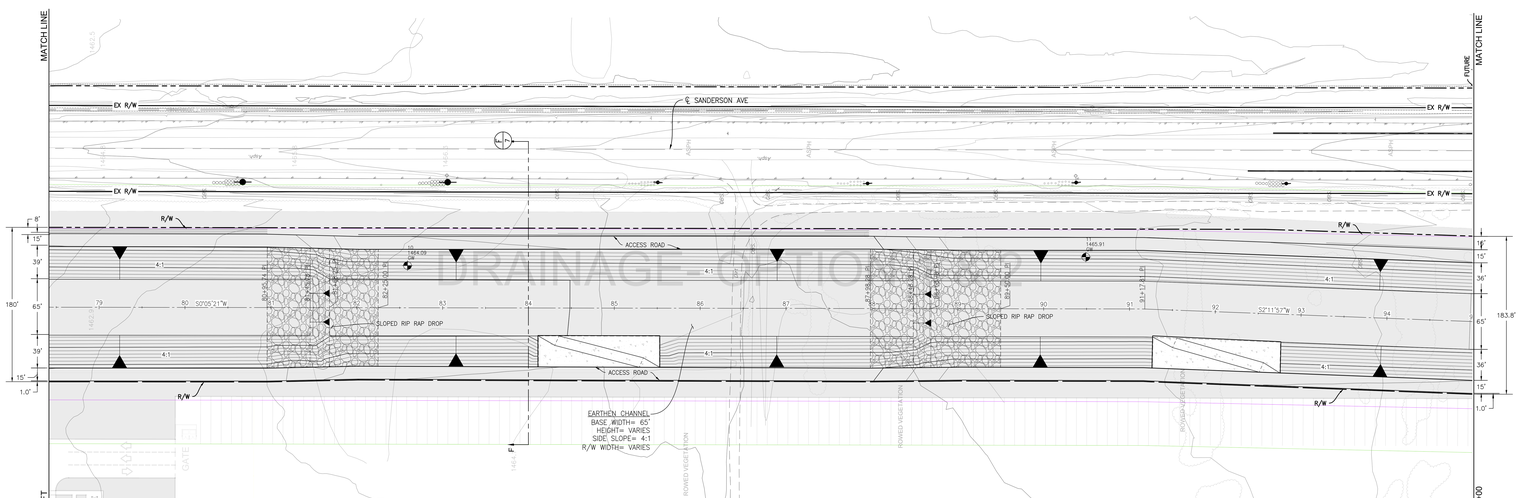
C:\23-0008\Drawings\PLAN SHEETS\SHEA LINE E LONG PLOT 03-2025.dwg 3/19/2025 8:59:23 PM



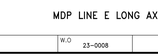
23-0008 MDP LINE E CHANNEL PROFILE

CURVE DATA	Ⓓ
R	200.00'
∠	85°52'46"
L	299.78'
T	186.11'
BC	STA. 74+80.65
EC	STA. 77+80.43
N NORTHING	2241324.784
EASTING	6331551.970





DRAINAGE - CONTINUED



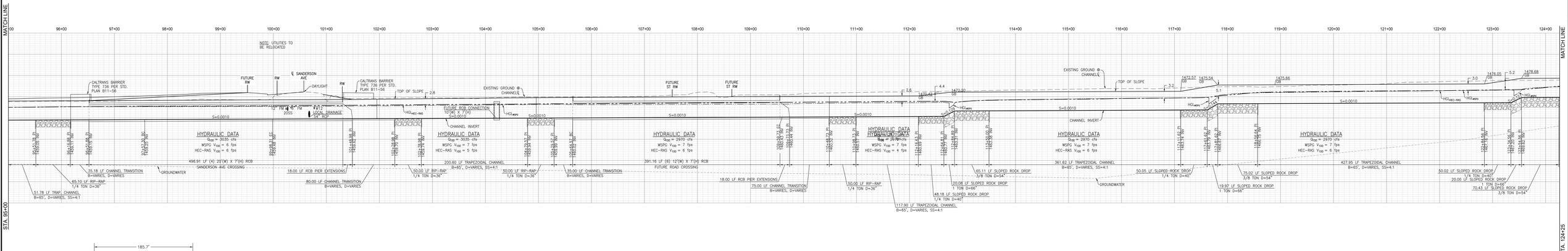
ALBERT A. WEBB ASSOCIATES	ENGINEERING CONSULTANTS 3788 MCRAY STREET RIVERSIDE, CA 92506 PH. (951) 686-1070 FAX (951) 788-1256
PLANS PREPARED UNDER THE SUPERVISION OF:	DESIGNED: BC CHECKED: BY:
NAME R.C.E. NO.:	DATE

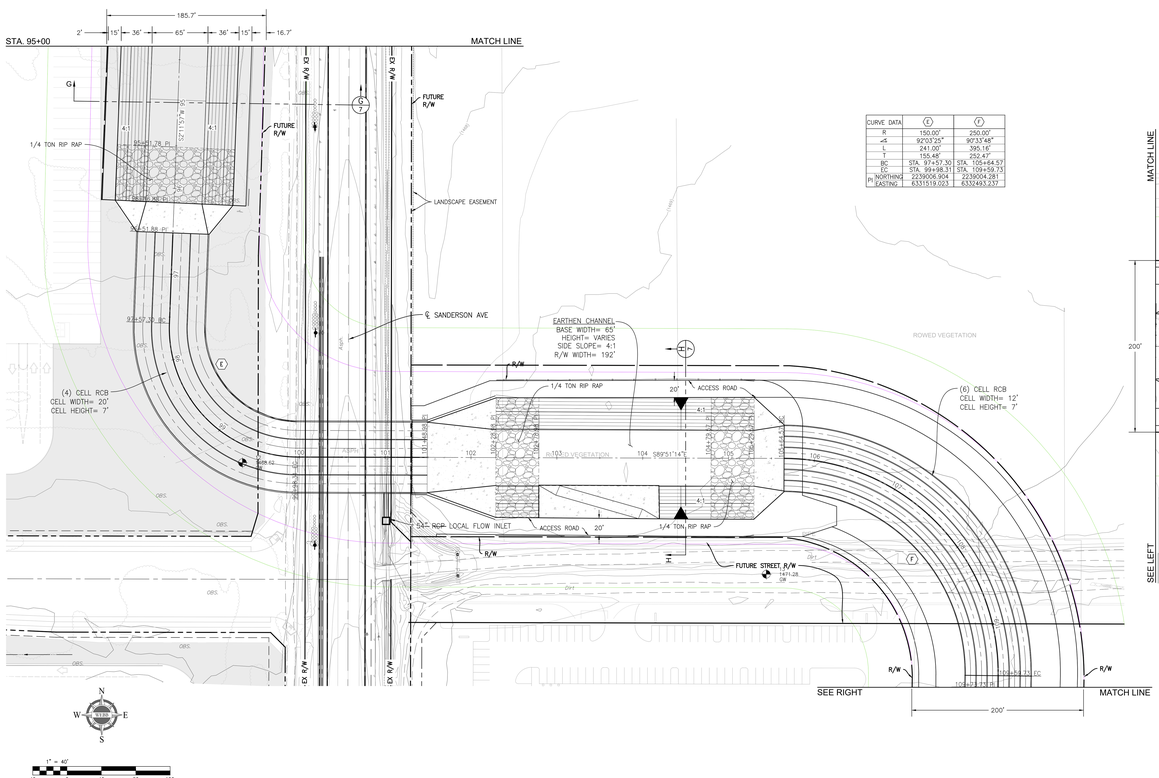
SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

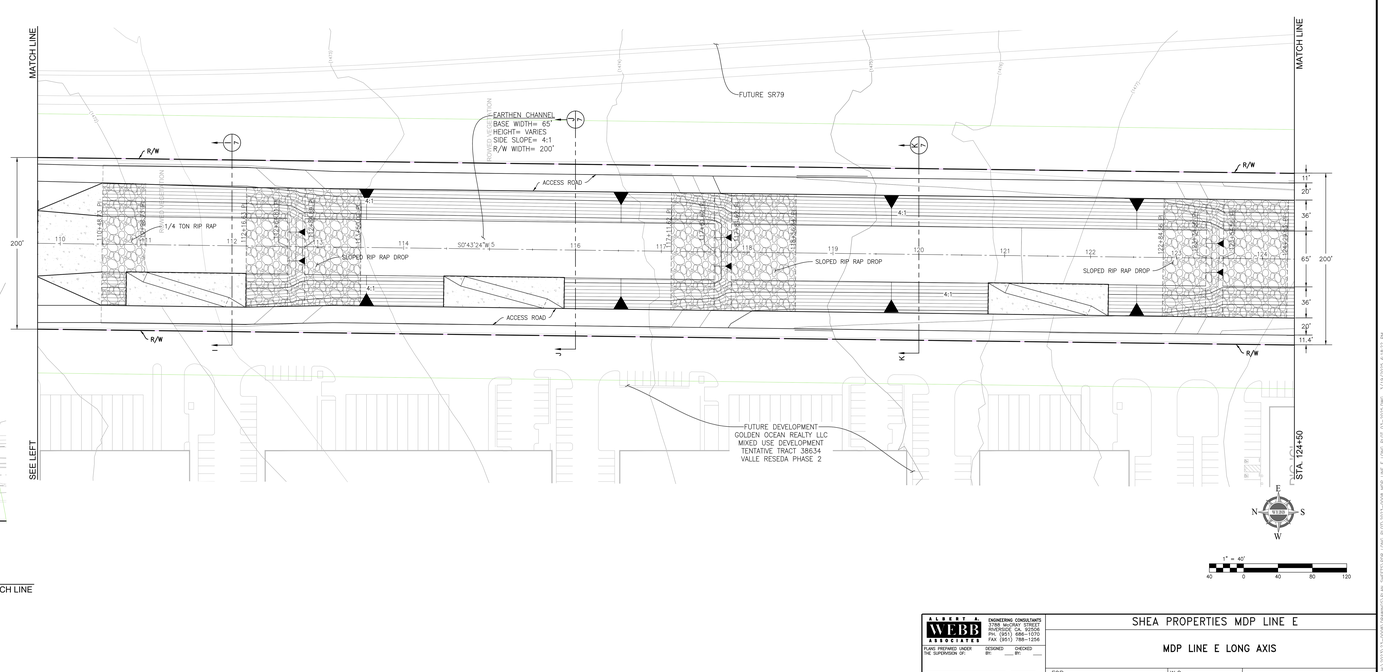
FOR:	W.O	SHEET
xxx	23-0008	SHEET 4 OF 7 SHEETS

N:\23-0008\Drawings\PLAN SHEETS\MDP LINE E LONG PLOT 03-20-25.dwg - 3/19/2025 8:18:53 PM





CURVE DATA	(E)	(F)
R	150.00'	250.00'
Δ	92°03'25"	90°37'48"
L	241.00'	395.16'
T	155.48'	252.47'
BC	STA. 97+57.30	STA. 105+64.57
EC	STA. 99+98.31	STA. 109+59.73
PI NORTHING	2239006.904	2239004.281
EASTING	6331519.023	6332493.237





1" = 40'
40 0 40 80 120

1" = 40'
40 0 40 80 120

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 MCCRAY STREET
RIVERSIDE, CA 92506
PH: (951) 686-1070
FAX (951) 788-1256

PLANS PREPARED UNDER THE SUPERVISION OF: DESIGNED BC CHECKED BY

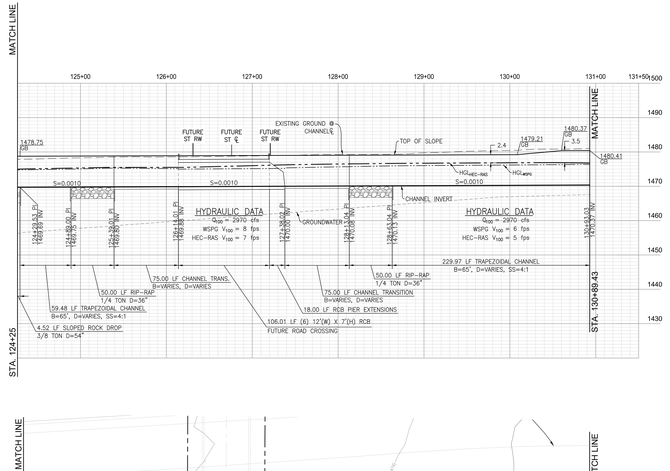
NAME R.C.E. NO.: DATE

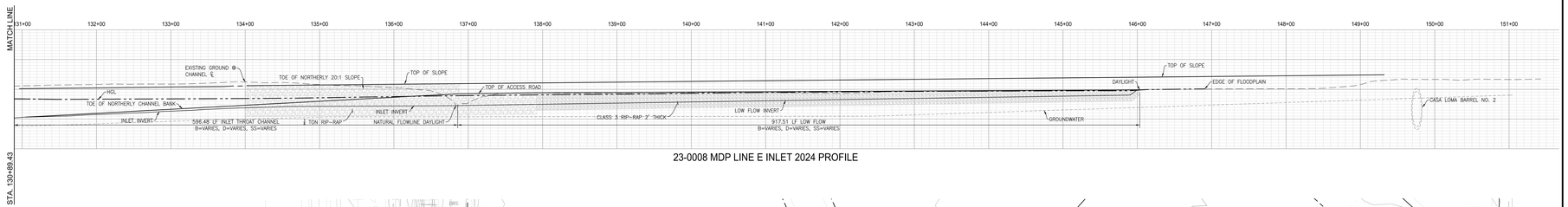
SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

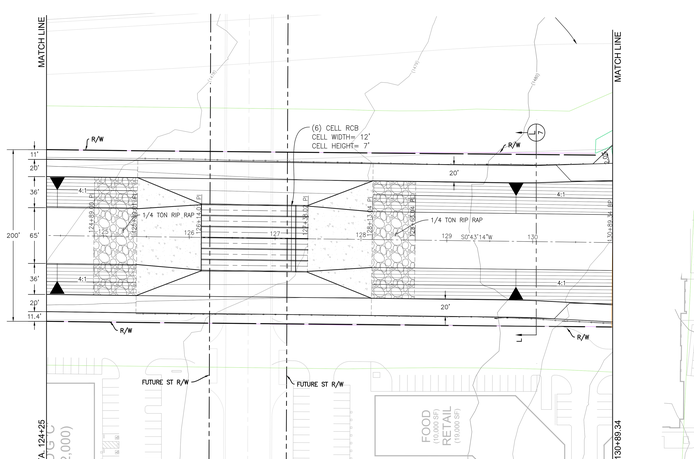
FOR: xxx | W.O 23-0008 | SHEET 5 OF 7 SHEETS

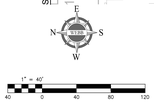
L:\23-0008\Drawings\Plan Sheets\Plan Sheets\23-0008 MDP Line E Long Axis.dwg 3/19/2025 8:59:51 PM



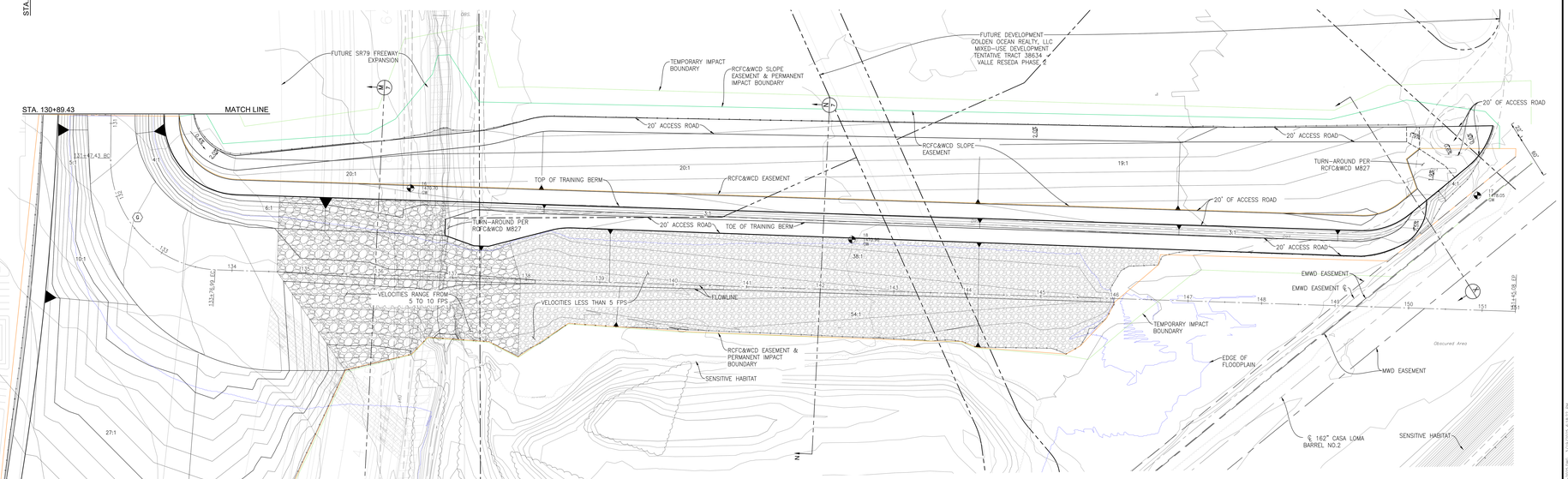


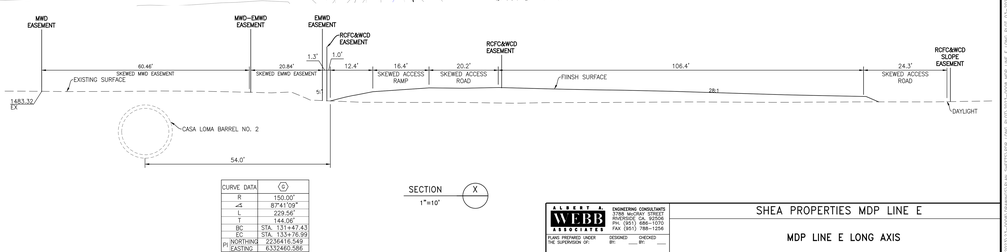
23-0008 MDP LINE E INLET 2024 PROFILE











CURVE DATA	ⓒ
R	150.00'
Δ	87°41'09"
L	229.56'
T	144.06'
BC	STA. 131+47.43
EC	STA. 133+76.99
POB NORTHING	2236416.549
EASTING	6332460.586

SECTION X
1"=10'

ALBERT A. WEBB ASSOCIATES
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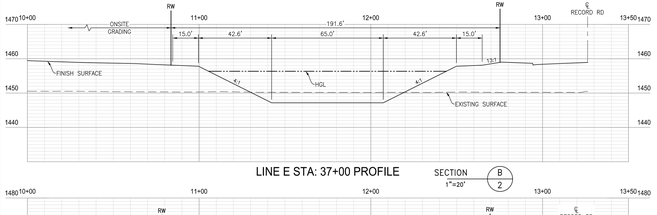
3788 MCCRAY STREET
RIVERSIDE, CA 92506
PH: (951) 686-1070
FAX (951) 788-1256
PLANS PREPARED UNDER THE SUPERVISION OF:
NAME
R.C.E. NO.:
DESIGNED BC
CHECKED BY:
DATE

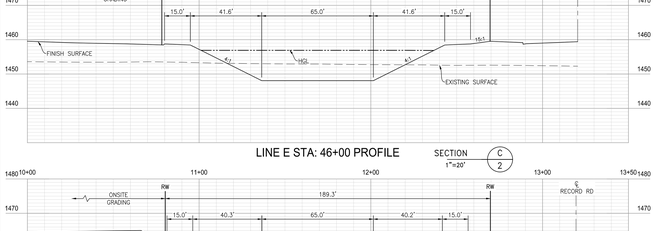
SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

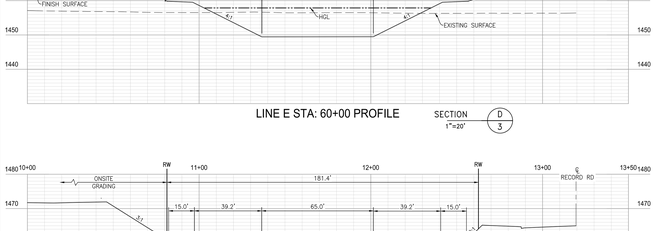
FOR: xxx
W.O 23-0008
SHEET 6 OF 7 SHEETS



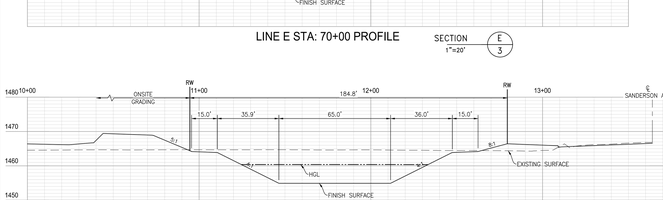
LINE E STA: 37+00 PROFILE SECTION B 2 1"=20'



LINE E STA: 46+00 PROFILE SECTION C 2 1"=20'



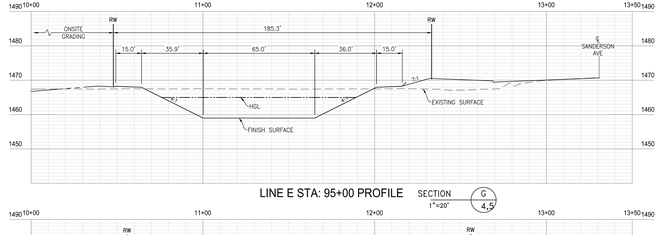
LINE E STA: 60+00 PROFILE SECTION D 3 1"=20'



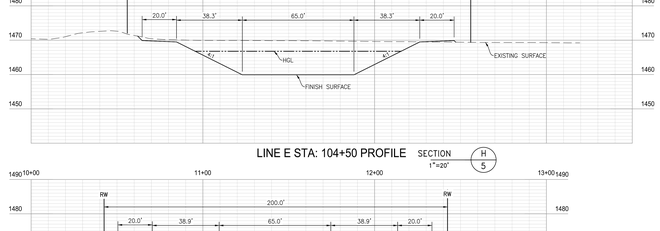
LINE E STA: 70+00 PROFILE SECTION E 3 1"=20'



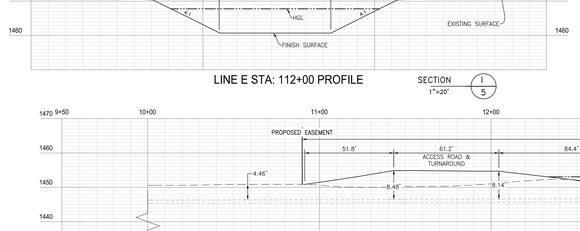
LINE E STA: 84+00 PROFILE SECTION F 4 1"=20'



LINE E STA: 95+00 PROFILE SECTION G 4,5 1"=20'



LINE E STA: 104+50 PROFILE SECTION H 5 1"=20'



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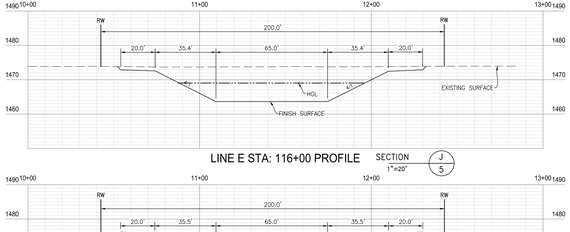
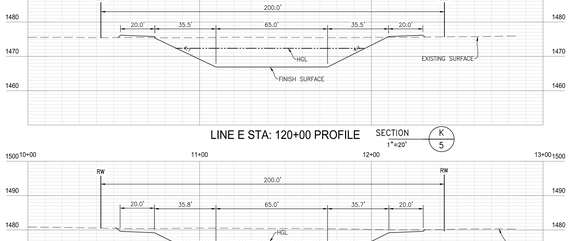


LINE E STA: 116+00 PROFILE SECTION J 5 1"=20'



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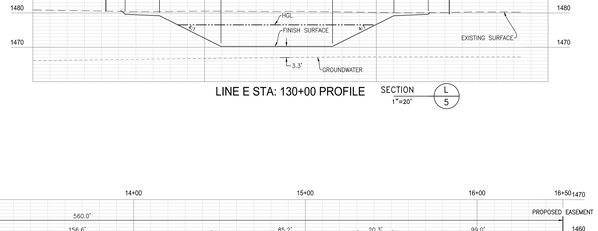
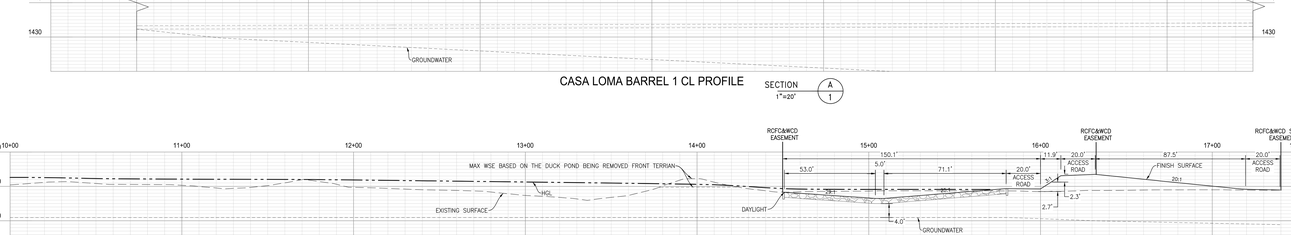
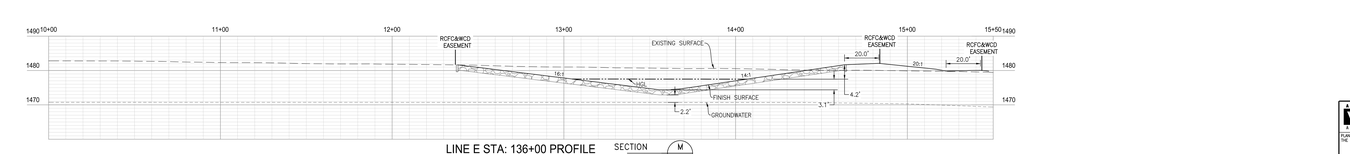


LINE E STA: 130+00 PROFILE SECTION L 5 1"=20'



CASA LOMA BARREL 1 CL PROFILE SECTION A 1 1"=20'



LINE E STA: 142+00 PROFILE SECTION N 6 1"=20'

LINE E STA: 136+00 PROFILE SECTION M 6 1"=20'

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ENGINEERING CONSULTANTS
3788 MCRAY STREET
RIVERSIDE, CA 92506
PH: (951) 686-1070
FAX (951) 788-1256

PLANS PREPARED UNDER THE SUPERVISION OF: DESIGNED BY: CHECKED BY:

NAME R.C.E. NO.: DATE

SHEA PROPERTIES MDP LINE E

MDP LINE E LONG AXIS

FOR: xxx | W.O 23-0008 | SHEET 7 OF 7 SHEETS

K:\23\23-0008\Drawings\Plan Sheets\PLOT\23-0008 MDP LINE E LONG PLOT 03-2025.dwg 3/19/2025 8:53:12 PM

Appendix B Geotechnical Report

MWD Approval Email of Geotechnical and Structural Reports

Haley Franco

From: Chung,Ken <kchung@mwdh2o.com>
Sent: Monday, March 03, 2025 2:17 PM
To: Haley Franco
Cc: Stuart McKibbin; 'Landon Browning (landon.browning@sheaproperties.com)'; Brian Knoll; Eric Hays; Joshua O'Rourke; 'Keith Gazaway - Kleinfelder (KGazaway@kleinfelder.com)'; 'Troy Covill (WCovill@Kleinfelder.com)'; 'Jake Montgomery - Kleinfelder (JMontgomery@Kleinfelder.com)'; Yavas, Cenk; 'Ruddy Argueta (rargueta@rivco.org)'; Albert Martinez; Stephanie Standerfer; Cheryl DeGano
Subject: RE: Line E - MWD Settlement & Structural Review (MS212, 2023-0008)

Haley,

There were no comments from our Engineering disciplines at this time. I am hopeful this email will suffice.

Ken

From: Haley Franco <haley.franco@webbassociates.com>
Sent: Monday, March 3, 2025 2:15 PM
To: Chung,Ken <kchung@mwdh2o.com>
Cc: Stuart McKibbin <stuart@trilakeconsultants.com>; 'Landon Browning (landon.browning@sheaproperties.com)' <landon.browning@sheaproperties.com>; Brian Knoll <brian.knoll@webbassociates.com>; Eric Hays <eric.hays@webbassociates.com>; Joshua O'Rourke <Joshua.orourke@webbassociates.com>; 'Keith Gazaway - Kleinfelder (KGazaway@kleinfelder.com)' <KGazaway@kleinfelder.com>; 'Troy Covill (WCovill@Kleinfelder.com)' <WCovill@Kleinfelder.com>; 'Jake Montgomery - Kleinfelder (JMontgomery@Kleinfelder.com)' <JMontgomery@Kleinfelder.com>; Yavas, Cenk <mcyavas@lan-inc.com>; 'Ruddy Argueta (rargueta@rivco.org)' <rargueta@rivco.org>; Albert Martinez <amart@rivco.org>; Stephanie Standerfer <stephanie.standerfer@webbassociates.com>; Cheryl DeGano <cheryl.degano@webbassociates.com>
Subject: RE: Line E - MWD Settlement & Structural Review (MS212, 2023-0008)

Thank you Ken, we appreciate your quick review.

Flood Control is looking for confirmation that MWD finds the preliminary/geotechnical package acceptable, and that we have approval to proceed with the final engineering plans and right-of-way. Are you able to provide us with a letter to provide to Flood Control with our submittal package? If not, I will include your email with our submittal.

Our preliminary design report will not include the final design items you've mentioned below, however we will begin working on those items once we receive approval from Flood Control on the PDR.

ALBERT A. WEBB ASSOCIATES

Haley Franco
Senior Project Coordinator
T (951)248-4244 | **C** (951)529-7552
E haley.franco@webbassociates.com
3788 McCray St | Riverside, CA | 92506



From: Chung,Ken <kchung@mwdh2o.com>
Sent: Monday, March 03, 2025 11:49 AM
To: Haley Franco <haley.franco@webbassociates.com>
Cc: Stuart McKibbin <stuart@trilakeconsultants.com>; 'Landon Browning (landon.browning@sheaproperties.com)' <landon.browning@sheaproperties.com>; Brian Knoll <brian.knoll@webbassociates.com>; Eric Hays <eric.hays@webbassociates.com>; Joshua O'Rourke <Joshua.orourke@webbassociates.com>; 'Keith Gazaway - Kleinfelder (KGazaway@kleinfelder.com)' <KGazaway@kleinfelder.com>; 'Troy Covill (WCovill@Kleinfelder.com)' <WCovill@Kleinfelder.com>; 'Jake Montgomery - Kleinfelder (JMontgomery@Kleinfelder.com)' <JMontgomery@Kleinfelder.com>; 'cenk.yavas@mcyconsult.com' <cenk.yavas@mcyconsult.com>; 'Ruddy Argueta (rargueta@rivco.org)' <rargueta@rivco.org>; Albert Martinez <amart@rivco.org>; Stephanie Standerfer <stephanie.standerfer@webbassociates.com>; Cheryl DeGano <cheryl.degano@webbassociates.com>
Subject: RE: Line E - MWD Settlement & Structural Review (MS212, 2023-0008)

Haley,

The PDR should include all applicable to the final design submittals including hydraulic, equipment, and MWD manhole related mitigations.

Ken

From: Chung,Ken
Sent: Monday, March 3, 2025 5:12 AM
To: Haley Franco <haley.franco@webbassociates.com>
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Subject: RE: Line E - MWD Settlement & Structural Review (MS212, 2023-0008)

Haley,

We have no comments on the settlement analysis and structural reports. We look forward to the PDR package for our review and written approval.

Ken Chung
Substructures Team
Engineering Services Group
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213-217-7670

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

From: Haley Franco <haley.franco@webbassociates.com>
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Subject: RE: Line E - MWD Settlement & Structural Review (MS212, 2023-0008)

Hi Ken,

Please find the enclosed revised structural and geotechnical report for the Line E project for your review: MWD PC3. The package includes the following:

- Responses to comments on the Geotechnical and Structural reports received on 12/5/2024.
- Updated Geotechnical report with settlement analysis.
- Updated Structural Report.

We anticipate this will satisfy your prior comments, and once approved we will proceed with resubmitting the PDR to the District. Please let us know if you have any questions, and what your turnaround timeframe for review looks like.

Thank you, and have a nice weekend.

ALBERT A. WEBB ASSOCIATES

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March 4, 2025
Kleinfelder Project No.: 24002328.001A

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

SUBJECT: Geotechnical Investigation Report
San Jacinto Line E Storm Drain
San Jacinto, California

Dear Mr. Hays:

Kleinfelder, Inc. (Kleinfelder) is pleased to present this Geotechnical Investigation Report for the San Jacinto Line E Storm Drain project in San Jacinto, California. This report summarizes the findings of our investigation and presents geotechnical design parameters and recommendations for design and construction of the project.

We appreciate the opportunity to be of service on this project. If you have any questions, comments, or require additional information, please do not hesitate to contact the undersigned.

Sincerely,

KLEINFELDER, INC.

Hector Marquez, PE
Project Engineer

Eric W. Noel, PE, GE
Sr. Principal Geotechnical Engineer

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GEOTECHNICAL INVESTIGATION REPORT
SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

KLEINFELDER PROJECT NO. 24002328.001A

MARCH 4, 2025

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ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

GEOTECHNICAL INVESTIGATION REPORT
SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

Prepared by:



Hector Marquez, PE
Project Engineer

Reviewed by:



Eric W. Noel, PE, GE
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March 4, 2025
Kleinfelder Project No. 24002328.001A

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B Laboratory Testing
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D Liquefaction Analysis
E Numerical Analysis of Proposed Crossing

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1 INTRODUCTION

This report presents the results of our geotechnical investigation for the San Jacinto Line E Storm Drain project in San Jacinto, California. The project location is shown on Figure 1, Site Vicinity Map. The purpose of the investigation was to evaluate surface and subsurface conditions in the area of planned improvements and to provide geotechnical recommendations for earthwork, design and construction considerations.

The conclusions and recommendations presented in this report are based on subsurface conditions encountered at the locations of our field investigation, laboratory testing, and our evaluation of the data. The provisions and requirements outlined in the Limitations section of this report are also an integral part of the development of our conclusions and recommendations.

1.1 PROJECT DESCRIPTION

We understand that the project involves design of an approximate 3-mile storm drain channel to be constructed in the City of San Jacinto. The new storm drain channel will be constructed near the existing ground surface and the majority of the alignment will consist of an earthen channel with a 65-foot base width, heights up to 10 feet, side slopes inclined at 4:1 (Horizontal:Vertical), and several sloped rip-rap drops along the alignment. In addition, several 6 to 8-cell reinforced concrete box (RCB) culverts with cell widths up to 14 feet and cell heights up to 9 feet are planned at existing or proposed roadways along the alignment. Storm water flow is generally south to north and a training berm is proposed on the south end of the alignment. At the northern portion of the alignment the proposed earthen channel terminates at a proposed confluence basin and the remainder of the alignment converts to a concrete channel with a 145-foot base width, height up to 10 feet, and side slopes inclined at 1.5:1 (H:V).

At the northern end of the proposed concrete channel portion, the proposed alignment crosses an existing Metropolitan Water District (MWD) pipeline (Casa Loma Siphon No. 1). We understand this pipeline is an approximately 14.5-foot diameter reinforced concrete pipe. It is proposed to cross the MWD pipeline with a relieving slab (approximately 14-inch thick concrete slab overlying a 6-inch low density polystyrene foam) supported on shallow footings to minimize adding loads to the existing pipeline. Per MWD requirements, we understand the crossing structure is required when cover over their pipe is less than 4 feet. We understand the crossing structure slab will be approximately 203 feet long and 31 feet wide. Footings will be continuous, approximately 10 feet wide, and approximately 7 to 9 feet deep.

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1.2 PURPOSE AND SCOPE

The purpose of this study was to investigate and evaluate the surface and subsurface conditions along the proposed project alignment. Field explorations were performed along the alignment to identify potential geologic hazards and provide geotechnical recommendations for design and construction of the project.

The services performed as part of this investigation were provided in general accordance with our proposal dated June 28, 2023. Specifically, our scope of work includes the following:

- A description of the proposed project including a site vicinity map and a site plan showing the locations of the subsurface explorations;
- A discussion of historical and geologic research pertinent to the proposed project;
- A summary of the surficial and subsurface site conditions encountered during our field investigation;
- A discussion of geologic hazards;
- Analysis for liquefaction potential;
- Recommendations for seismic design parameters;
- Analysis for MWD pipeline settlement;
- Recommendations for design and construction of the proposed MWD pipeline crossing;
- Recommendations for site preparation, earthwork, temporary slope inclinations, fill placement, and compaction specifications;
- Recommendations for temporary shoring;
- Recommendations for subgrade preparation and support of storm drain channel;
- Recommendations for pavement structural sections;
- Preliminary evaluation of the corrosion potential of the on-site soils; and
- Appendices including logs of borings and CPTs, laboratory test results, and surface wave measurement results.

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2 BACKGROUND STUDIES

2.1 LITERATURE REVIEW

Geologic and geotechnical literature was reviewed including reports, maps, and other documents prepared by the California Geological Survey (CGS), the U.S. Geological Survey (USGS), and other agencies. We also reviewed maps and preliminary documents pertaining to previous investigations at the site prepared by Leighton and Associates, Schaefer Dixon Associates, and SoCalGeo.

These reports, maps and other documents are listed in Section 8, References. Pertinent findings and information contained within these maps and reports are discussed within the body of this report.

2.2 FIELD RECONNAISSANCE

A field reconnaissance of the site was performed prior to initiation of our subsurface investigation program and following our literature review. The purposes of the field reconnaissance were as follows:

- Visit and observe site conditions at proposed exploration locations;
- Evaluate equipment accessibility for field investigations;
- Document earth materials and geologic conditions present along the alignment and surrounding area; and
- Evaluate features identified during the literature review.

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3 FIELD INVESTIGATION

The field investigation activities for this project commenced with utility clearance for proposed boring and Cone Penetrometer Tests (CPT) explorations. Following utility clearance, the field investigation included drilling and sampling of 19 hollow-stem auger borings and performing 2 CPTs. Discussions of the field investigation program including utility clearances, exploration methods and sampling methods are provided below.

3.1 UTILITY CLEARANCES

Prior to beginning the field exploration program, Underground Service Alert (USA) was contacted to identify potential conflicts between the planned exploration locations and existing, documented, underground utilities. Ground penetrating radar was also performed for utility clearances at the exploration locations. Furthermore, the boring and CPT locations were hand augured generally to 5 feet below the existing ground surface before commencing work.

3.2 FIELD EXPLORATION

The subsurface exploration program included drilling 19 hollow-stem auger borings, performing 2 CPTs, and performing 2 seismic surface wave measurement arrays along the project alignment for geotechnical characterization purposes. The borings were drilled between September 26, 2023 and September 28, 2023. The CPTs were performed on October 11, 2023. The seismic surface wave measurement arrays were performed on September 23, 2024 and September 24, 2024.

In general, the borings were located along the storm drain alignment, with adjustments made in the field as needed to avoid access or utility conflicts. The CPT locations and seismic surface wave measurement arrays were performed in the vicinity of the proposed MWD pipeline crossing. The approximate locations of the exploration locations are shown on Figure 2, Exploration Location Map.

3.3 SOIL BORINGS

For this project, 19 soil borings were drilled using truck-mounted hollow-stem auger drill rigs supplied by 2R Drilling of Chino, California. Hollow-Stem Auger (HSA) drill rigs were equipped with 8-inch outside diameter (O.D.) continuous flight, hollow-stem augers. The auger method was used following the general ASTM guidelines D1452 “Standard Practice for Soil

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Investigation and Sampling by Hollow-Stem Augers." The drilling equipment was selected based on anticipated subsurface conditions and vehicle access. The borings were drilled to a depth of approximately 20 feet below ground surface (bgs), with exception to the borings in the vicinity of the proposed MWD pipeline crossing (B-1 and B-2) and at the southern end of the concrete channel portion of the alignment (B-4), which were drilled to approximately 50 feet bgs. Four (4) of the 19 borings were converted to piezometers (Borings B-6, B-9, B-14, and B-15). The remainder of the borings were backfilled with excess soil cuttings upon completion.

Subsurface conditions encountered in the soil borings were logged by an experienced engineer or geologist, under the review and direction of a licensed Engineering Geologist or Geotechnical Engineer, who also performed the sampling described below. Soils were logged in general accordance with the Unified Soils Classification System. The boring logs are presented in Appendix A, Field Exploration.

3.4 SAMPLING METHODS FOR SOIL BORINGS

Disturbed and relatively undisturbed samples of the subsurface materials were obtained from the borings using Standard Penetration test (SPT) samplers and California-type (CAL) samplers, respectively. The SPT sampler has a 1.375-inch inside diameter and a 2.0-inch outside diameter. The CAL sampler has a 2.42-inch inside diameter and a 3.0-inch outside diameter. Samples were collected in accordance with the general guidelines of ASTM D1586 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils."

Samples were driven 18 inches into the soil using a 140-pound automatic hammer falling 30 inches. SPT and CAL samples were obtained at 5-foot intervals alternating between the SPT and the CAL until reaching the boring target depth. Large bulk samples were also obtained within the upper 5 feet from each boring.

The number of blows required to drive the samplers were recorded for each 6-inch penetration interval. The number of blows required to drive the samplers for the last 12 inches, or the interval achieved where higher resistance was encountered, is referred to as the blow count and is noted on the boring logs. The blow counts recorded on the boring logs are recorded in 6-inch intervals. Where the sample was driven less than 12 inches, the number of blows to drive the sample for each 6-inch segment, or portion thereof, is shown on the logs. For example, 50/4" indicates 50 blows to drive the sampler 4 inches to refusal. After the samplers were withdrawn from the test borings, select samples were carefully removed, sealed to reduce moisture loss, and transported to our laboratory for testing.

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3.5 CONE PENETRATION TESTING

Two CPTs were performed in the vicinity of the proposed MWD pipeline crossing because potentially liquefiable soils were anticipated. The CPTs were performed by Kehoe Testing & Engineering, Inc. of Huntington Beach, California using a 30-ton truck rig. The CPTs were advanced to a maximum depth of 100 ft bgs. Upon completion, the CPTs were backfilled with hydrated bentonite chips. The CPT visual plots and data are presented in Appendix A, Field Exploration.

3.6 SURFACE WAVE MEASUREMENT TESTING

Two seismic surface wave measurement arrays were performed in the vicinity of the proposed MWD pipeline crossing to determine shear (S) wave velocity profiles in support of the MWD pipeline settlement analysis. The surface wave measurements were performed by GEOVision of Corona, California. The approximate array locations are shown on Figure 2. A detailed report of the surface wave measurements is presented in Appendix C, Surface Wave Measurements Report.

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4 LABORATORY TESTING

4.1 GEOTECHNICAL TESTING

Laboratory testing was performed on samples obtained from the borings following field exploration. Laboratory tests were performed on drive and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Selected samples from the borings were tested to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with the emphasis on evaluating the density, plasticity, shear strength, and gradation of the soils encountered. Classifications made in the field were modified as appropriate, based on the laboratory test results. The description of the subsurface conditions and classifications presented in the boring logs reflect the changes made as a result of the laboratory tests.

The laboratory index tests, and engineering property tests performed included determination of in-situ moisture content and dry density, wash sieve, sieve & hydrometer analysis, Atterberg limits, direct shear, consolidation testing, expansion index, compaction curve testing, R-Value, and preliminary corrosivity testing including pH, minimum resistivity, sulfate content, and chloride content. Laboratory test results are presented in Appendix B, Laboratory Testing.

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5 SITE CONDITIONS

5.1 TOPOGRAPGHY AND DRAINAGE

The project is in the San Jacinto Valley in west Riverside County, about 4 miles northwest of the city of San Jacinto, California. The project site is in an area of farmland on the floodplain on the southwest side of the San Jacinto River, which is channelized in the northern San Jacinto Valley and which drains northwest before turning southwest toward Lake Elsinore. The site is on the west side of the valley below the granitic highlands of the Lakeview Mountains to the west and the San Jacinto Mountains to the east.

5.2 GEOLOGIC SETTING

California is divided into eleven natural geomorphic provinces that are recognized based on geology, landscape or landform, topographic relief, and climate. The project is in the Peninsular Ranges province which extends from the San Gabriel and San Bernardino mountains north of the site southward into lower California, and from the coast eastward to the Colorado Desert (Norris and Webb, 1990).

The Peninsular Ranges are a series of northwest-trending mountain ranges and valleys subparallel to major faults branching from the San Andreas fault system. The Peninsular Ranges are divided into three fault-bounded structural blocks comprised of mostly granitic rocks intruding sedimentary rocks and older metamorphic rocks (Norris and Webb, 1990). The project area is near the north end of the middle (Perris) block.

The north end of the Perris block is bounded by active faults: the Sierra Madre fault on the north, the Elsinore fault on the west, and the San Jacinto fault on the east. The site is in the San Jacinto fault zone (SJFZ) at the east edge of the Perris block.

The northwest-striking SJFZ is a major right-lateral strike-slip fault zone in southern California (Onderdonk et al., 2013). The San Jacinto Valley is a pull-apart basin bounded on the northeast by the Claremont strand of the SJFZ and on the southwestern margin of the valley by the Casa Loma fault strand, two of the many fault strands that make up the SJFZ. Northwest of the site, the Casa Loma fault bounds a 1.5-mile-wide extensional step-over at Mystic Lake (a sag pond), and to the southeast the Casa Loma fault is co-linear with the Clark fault, the primary strand of the central SJFZ (Rockwell et al., 2015). The Casa Loma fault intersects the proposed onsite

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and confluence basins at the north end of the alignment and the proposed Line E inlet at the south end (USGS, 2006).

The proposed alignment lies east of the Casa Loma fault (USGS, 2006), with the exception of the onsite basin, and is within the structural basin part of the San Jacinto Valley between the Casa Loma and Claremont faults. The thickness of valley sediments within the structural basin between the Casa Loma and Claremont faults may exceed 5000 feet, but valley sediments are much thinner west of the Casa Loma fault, reaching maximum depths of about 900 feet (DWR, 2013).

5.3 STATIGRAPHY

The proposed alignment occupies the floodplain of the San Jacinto River and is underlain by alluvium comprised of sandy fluvial deposits and silty to clayey overbank (flood) deposits. Geologic mapping by Morton et al. (2001) shows young alluvial deposits east of the Casa Loma fault scarp and slightly older deposits west of the scarp, which was a barrier to flood deposition. Radiocarbon dates from detrital charcoal samples collected near the alignment for studies of the Casa Loma fault (Schaefer Dixon, 1993; Givler et al., 2022) indicate the fault juxtaposes late Holocene deposits on the east against latest Pleistocene to early Holocene deposits on the west.

Following are brief descriptions of the soil units encountered in our borings. Detailed logs are presented in Appendix A.

5.3.1 Artificial Fill

Artificial fill is present locally along portions of the study area, generally beneath existing roads. The fill overlies native materials and generally consists of a thin veneer of locally-derived sandy silt and silty sand. The fill soils are considered undocumented and are not shown.

5.3.2 Young Alluvium (axial valley floor deposits [Qya])

Holocene-age sandy fluvial deposits and silty to clayey overbank (flood) deposits associated with the San Jacinto River (Morton et al., 2001). Alluvial soils were encountered in borings B-1 through B-19 and primarily consisted of fine silty sand and sandy silt, with lesser amounts of silt, sand, and clayey sand. Boreholes drilled farther from the river channel encountered slightly finer soils, consistent with floodplain deposition. Relative density ranges from predominantly loose to medium dense and stiff to very stiff.

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5.4 FAULTING AND SEISMICITY

5.4.1 Faulting

The project is in seismically active southern California. The project is within the zone of influence for several faults which are considered active or potentially active. An active fault is a fault that has experienced seismic activity during historic time (since roughly 1800) or exhibits evidence of surface displacement during Holocene time (Bryant and Hart, 2007; CGS, 2018). The definition of "potentially active" varies. A generally accepted definition of "potentially active" is a fault showing evidence of displacement that is older than 11,700 years (Holocene age) and younger than 2.6 million years (Pleistocene age). However, "potentially active" is no longer used as criteria for zoning by the California Geologic Survey (CGS). The terms "sufficiently active" and "well-defined" are now used by the CGS as criteria for zoning faults under the Alquist-Priolo (AP) Earthquake Fault Act. A "sufficiently active fault" is a fault that shows evidence of Holocene surface displacement along one or more of its segments and branches, while a "well-defined fault" is a fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The definition "inactive" generally implies that a fault has not been active since the beginning of the Pleistocene Epoch (older than 2.6 million years old).

The project site is east of and adjacent to the Casa Loma fault strand of the SJFZ, and the Casa Loma fault intersects the proposed onsite and confluence basins at the north end of the alignment and the proposed Line E inlet at the south end (USGS, 2006). The SJFZ has a geologic slip rate of 12-18 mm/year (Blisniuk et al. 2013; Rockwell et al. 2015). Paleoseismic data along the SJFZ indicate an average recurrence interval of surface-rupturing earthquakes of 185–254 years with moment magnitudes (Mw) ranging from 6.75 to 7.7 and per-event displacements of approximate 1.0 to 4.0 meters (Salisbury et al. 2012; Onderdonk et al. 2013; 2015; Rockwell et al. 2015).

5.4.2 Seismicity

The project is within the zone of influence for several faults which are considered active or potentially active and which are capable of producing seismic shaking at the site that could potentially be damaging to buildings and appurtenant structures. It is anticipated that the project site will periodically experience ground acceleration as the result of moderate to large magnitude earthquakes on faults outside the project area.

A number of earthquakes have occurred within the region of the site (approximately a 50-kilometer, or 31-mile, radius) during historic time (since 1800), including two earthquakes on

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the SJFZ (Table 1). The largest of these historic earthquakes was a Mw 6.8 event on the SJFZ centered only 8 miles from the project area which resulted in ground rupture near the proposed Line E inlet at the south end of the project alignment.

Table 1
Historic Earthquakes within 50 km of Site (>Mw 4.9)

Earthquake Name	Distance (miles)	Magnitude (Mw)	Date	Latitude	Longitude
San Jacinto	8	6.8	4/21/1918	33.750014	-116.883430
North San Jacinto Fault	18	6.3	7/22/1923	33.999690	-117.238216
Elsinore	25	6	5/15/1910	33.749453	-117.450194
Big Bear	26	6.4	6/28/1992	34.175257	-116.867476
North Palm Springs	27	5.6	7/8/1986	33.998575	-116.608877

5.5 GROUNDWATER

Information on groundwater presented in this report is based on information derived from our geotechnical investigation, review of recent data from temporary groundwater observation wells installed in the vicinity of the project (SoCalGeo, 2022), and review of observation well water levels in the database of the State of California Department of Water Resources (DWR, 2021).

Groundwater was encountered in several borings drilled during this investigation in the floodplain of the San Jacinto River (Appendix A). Groundwater was measured in the borings when first encountered and then measured again at the completion of the borehole. Groundwater was encountered in 12 of the 19 borings drilled at depths ranging from approximately 6 feet to 33 feet bgs, with shallow water (6 to 12 feet bgs) encountered near the San Jacinto Reservoir adjacent to the south end of the alignment. There are several ponds or retention basins in the site vicinity, including the San Jacinto Reservoir, which may contribute to shallow water conditions, together with agriculture irrigation. Kleinfelder borings B-6, B-9, B-14, and B-15 were converted to piezometers and groundwater readings were taken following the field exploration, as summarized in the table below.

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Table 2
Summary of Piezometer Groundwater Measurements

Date	Groundwater Depth (ft bgs)			
	B-6	B-9	B-14	B-15
Initial Drill Date	18.5 (9/27/2023)	17.5 (9/27/2023)	17.5 (9/26/2023)	18.5 (9/26/2023)
12/20/2023	7.5	14.8	15.8	16.0

We reviewed data from 16 temporary groundwater observation wells that were installed in the vicinity of the project as part of a proposed commercial/industrial development (SoCalGeo, 2022). The wells were installed at various depths, depending on the depth groundwater was encountered, and water level measurements were taken three times between January and March 2022. Groundwater levels in the wells were generally similar to the various depths groundwater was encountered during borehole drilling for the subject project, with the exception of four wells installed in and adjacent to the Casa Loma fault which did not encounter groundwater despite well depths of 61.5 to 66.5 feet bgs. The absence of groundwater along the Casa Loma fault may reflect the presence of recent, Holocene-age alluvium on the east side of the fault scarp but not on the west side (Morton et al., 2001).

There are several groundwater observation wells in the State database (DWR, 2021) showing data for 2021-2023 that are within or adjacent to the project footprint. Nearby wells on both sides of the Casa Loma fault were found to have similar groundwater depths of approximately 200 feet bgs. This observation suggests there is a lower aquifer with similar groundwater levels on both sides of the fault, and an upper (possibly perched) aquifer that is limited to the recent, Holocene-age alluvium that was deposited east of the Casa Loma fault scarp. The proposed project is located east of the fault where shallow groundwater is present.

5.6 GEOLOGIC HAZARDS

5.6.1 Fault Rupture

As discussed in Section 5.4.1, the Casa Loma strand of the SJFZ is adjacent to the north and south ends of the proposed drainage alignment, and the mapped trace of the fault (USGS, 2006) intersects the Line E inlet and basin facilities. The AP Fault Zone setback associated with the mapped fault traces (CGS, 2021) impinges on the proposed channel alignment at the south end near Bridge Street and Sanderson Avenue, and at the north end where the alignment crosses Record Road.

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The AP Fault Zone setback does not appear conservative. Fault trench exploration and mapping performed about one-half mile northwest of the Line E inlet for a proposed residential development (Leighton, 2004) indicates that sections of the Casa Loma fault have numerous splays and that these fault splays effectively widen the fault zone by 250 feet or more.

Consequently, it is our opinion that the risk of surface fault rupture within the project alignment is high. A map presenting the location of the project alignment relative to the nearest faults is provided in Figure 3, Fault Location Map.

5.6.2 Flood Hazard

Based on Flood Hazard Maps available through the Federal Emergency Management Agency (FEMA) online service (FEMA, 2021), most of the project alignment lies within or adjacent to special flood hazard areas. Flood risk areas subject to inundation by a 1% annual chance flood (100-year flood) are presented (FEMA zone A or AE). Overall, the risk of flooding along the alignment is considered high. However, we anticipate construction of the proposed storm drain will warrant modifications to the referenced Flood Hazard Map. We anticipate the proposed storm drain improvements will decrease flood risk caused by potential flooding of the San Jacinto Reservoir south of the proposed alignment, however the proposed storm drain improvements would not change the flood risk caused by potential flooding of the San Jacinto River north of the proposed alignment.

5.6.3 Erosion

Erosion and sedimentation are natural processes that occur on slopes, hillsides, and natural drainages. The proposed storm drain alignment site is farmland on the distal margin of floodplain of the San Jacinto River and the risk of erosion is considered low to moderate, whereas the risk of sedimentation is considered moderate because the proposed open drainage channel will act as a sediment sink in the event of a flood. Scour and sedimentation analysis is beyond the scope of this study.

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6 ENGINEERING CONCLUSIONS AND RECOMMENDATIONS

6.1 GENERAL

Based on the results of the field explorations, laboratory testing, and our engineering analyses conducted during this study, it is our professional opinion that the proposed project is geotechnically feasible provided the recommendations presented in this report are incorporated into the project design and construction. The following opinions, conclusions, and recommendations are based on the properties of the materials encountered in the field explorations, the results of the laboratory testing program, and our engineering analyses performed. Our recommendations regarding the geotechnical aspects of the design and construction of the project are presented in the following sections.

6.2 SEISMIC DESIGN CONSIDERATIONS

6.2.1 Seismic Design Parameters

According to ACSE/SEI 7-16 (2016), which is incorporated into the 2022 California Building Code (CBC) by reference, sites subject to liquefaction, as discussed below, should be classified as Site Class F, which requires a site response analysis. However, ACSE/SEI 7-16 states that for a short period (less than ½ second) structure on liquefiable soils, Site Class D or E may be used instead of Site Class F to estimate design seismic loading on the structure. The selection of Site Class D or E is based on the assessment of the site soil profile assuming no liquefaction. We have assumed that the period of the structures will be less than ½ second. The assumption that the structures have a period of less than ½ second should be verified by the project structural engineer.

Based on data obtained from our field explorations, published geologic literature and maps, and on our interpretation of the 2022 CBC criteria, it is our opinion that the project site may be classified as Site Class D, Stiff Soil, according to Section 1613 of 2022 CBC and Table 20.3-1 of ASCE/SEI 7-16 (2016). Approximate coordinates for the site are noted below.

- Latitude: 33.8208° N
- Longitude: 117.0247° W

In accordance with Section 11.4.8 of ASCE 7-16, a site-specific ground motion hazard analysis is required for Site Class D sites with an S1 greater than 0.2 g. However, a site-specific ground

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motion hazard analysis is not required if the exceptions in Section 11.4.8 of ASCE 7-16 are taken. In accordance with the 2022 CBC, which adopts Supplement 3 of the ASCE 7-16, the exception would be if the values of the parameters S_{M1} and S_{D1} are increased by 50 percent. The assumption that the exception will be used should be verified by the project structural engineer during final design based on the governing code. Based on the assumption that the exception will be taken in accordance with the governing code, the 2022 CBC Seismic Design Parameters (non site-specific) for the project site are provided in Table 3.

Table 3
2022 CBC Seismic Design Parameters

DESIGN PARAMETER	RECOMMENDED VALUE
Site Class	D
S_s (g)	2.138
S_1 (g)	0.866
F_a	1.0
F_v	N/A*
S_{MS} (g)	2.138
S_{M1} (g)	N/A
S_{DS} (g)	1.425
S_{D1} (g)	N/A
PGA_M (g)	1.062

*Section 11.4.8 of ASCE 7-16 requires a site-specific ground motion hazard analysis be performed for Site Class D sites with S_1 values greater than or equal to 0.2g unless exceptions are taken. If exceptions are taken, then a F_v value of 1.7 could be used only to calculate the T_s value.

6.3 LIQUEFACTION AND SEISMICALLY INDUCED SETTLEMENT

Soil liquefaction is a phenomenon in which saturated, cohesionless soils lose their strength due to the build-up of excess pore water pressure during cyclic loading such as that induced by earthquakes. The primary factors affecting the liquefaction potential of a soil deposit are: 1) intensity and duration of earthquake shaking, 2) soil type and relative density, 3) overburden pressures, and 4) depth to groundwater. Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands, and non-plastic silts that are saturated. Silty sands and silts, under certain site conditions, may also be susceptible to liquefaction.

Generalized liquefaction potential zones have been mapped for areas of Riverside County (Riverside County, 2021). The zones are based on generalized criteria for sediment types,

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groundwater levels, and ground shaking potential. Based on the screening criteria used to develop the generalized maps, the project alignment is identified as having a moderate potential for liquefaction.

The potential for liquefaction settlement in the vicinity of the proposed MWD pipeline crossing was evaluated using data from the CPTs performed for the project and CPT liquefaction assessment software (Cliq v.3.0.3.4). Although hollow stem auger borings were performed at the locations of potentially liquefiable soils, the blow count data is generally not as reliable as CPT data for liquefaction calculations. Samples collected from the borings and associated laboratory tests were used in verifying the CPT results.

The proposed MWD pipeline crossing area is underlain primarily by sandy silt and silty sand. The apparent density of the granular soil layers ranged from loose to medium dense. When encountered, groundwater levels in the borings ranged from approximately 6 to 33 feet below the ground surface. A design groundwater level of 5 feet bgs was used in the liquefaction calculations, which corresponds to the anticipated highest groundwater level at the site.

Two important input parameters for the liquefaction analysis are PGA and the earthquake magnitude. According to Chapter 18 of the 2022 California Building Code (CBC) the PGA used for liquefaction analysis should be consistent with the maximum considered earthquake ground motions. The 2022 CBC states that the peak ground acceleration shall be determined in accordance with Section 11.8.3 of ASCE 7-16. We determined the peak ground acceleration for each vault and transition structure location where liquefiable soils were present. The design PGA_M used in the liquefaction analysis was 1.06g. In order to estimate the controlling magnitude at the site, the 2014 USGS interactive deaggregation tool was used from the United States Geological Survey (USGS), and a dominant earthquake modal magnitude of 8.1 was calculated, utilizing a 2% exceedance probability in 50 years (return period of about 2,475 years) according to the 2022 CBC and ASCE/SEI 7-16.

Our analyses indicated that liquefaction could occur within interbedded sand layers throughout the upper 60 feet bgs. We have used procedures outlined in Moss et al. (2006) for CPT-based liquefaction triggering and estimation of volumetric compaction or settlement. Estimated total liquefaction-induced settlements in the vicinity of the proposed MWD pipeline crossing result in approximately 2 inches based on the CPT results. Based on the results of our field investigations, the subsurface soil conditions in the MWD pipeline crossing area is generally uniform. The CPTs were performed at locations approximately 300 feet from each other and the difference in liquefaction settlement results is less than ¼-inch. Based on these conditions,

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differential liquefaction-induced settlement is considered generally negligible in the MWD pipeline crossing area. We have ignored any liquefaction and associated settlements below a depth of 60 feet, as their effects on the surface should be minimal. The results of our liquefaction calculations are included in Appendix C, Liquefaction Analysis.

It should be noted the calculated liquefaction settlement is a free-field settlement independent of existing or proposed improvements. Based on liquefaction analysis results by SoCalGeo (2021), other portions of the site in the vicinity of the proposed storm drain alignment may experience approximately 2 to 6 inches of liquefaction settlement during a design level earthquake event.

6.4 MWD PIPELINE CROSSING

6.4.1 Foundations

Based on the results of our field explorations, laboratory testing, and geotechnical analyses, the proposed MWD pipeline crossing may be supported on shallow footing foundations. Recommendations for the design and construction of shallow foundations are presented below.

Allowable Soil Bearing Pressure

Footings embedded at least 5 feet below the lowest adjacent exterior grade may be designed for a net allowable soil bearing pressure of 3,000 pounds per square foot (psf) for dead plus sustained live loads. The footing dimension and reinforcement should be designed by the structural engineer; however, continuous footings should have a minimum width of 18 inches. A one-third increase in the above bearing pressure can be used for transient wind or seismic loads.

Estimated Settlements

Based on design initial dead and service loads provided by the structural engineer, we estimate total static settlement of foundations designed and constructed in accordance with the recommendations presented above to be on the order of ½ inch for initial dead loads and grading and 1½ inches when including service and flood loads. Based on the generally granular nature of the subsurface soils, the initial dead load settlement is anticipated to be generally “immediate” (on the order of days to weeks). We understand the construction will be staged such that the initial dead load settlement will have occurred prior to allowing service loads to be imposed. Provided this construction staging is performed, total settlement of footings is

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estimated to be up to 1 inch and differential static settlement between similarly loaded footings is estimated to be less than 1 inch over 50 feet.

In addition to the estimated static settlement, as previously discussed, it is estimated that liquefaction-induced settlement of saturated sandy soils due to strong ground shaking during an MCE-level seismic event could be on the order of 2 inches of total settlement, however, based on the generally uniform soil conditions in the MWD crossing area, differential liquefaction-induced settlement is considered generally negligible. We anticipate the liquefaction induced settlement impacts will be relatively similar between the crossing structure and the MWD pipe.

Lateral Resistance

Lateral load resistance may be derived from passive resistance along the vertical sides of the footings, friction acting at the base of the footing, or a combination of the two. An allowable passive resistance of 250 psf per foot of depth may be used for design. Allowable passive resistance values should not exceed 2,500 psf. An allowable coefficient of friction of 0.3 between the base of the footings and the on-site soils can be used for sliding resistance using the dead load normal stresses. Friction and passive resistance may be combined without reduction. We recommend that the first foot of soil cover be neglected in the passive resistance calculations if the ground surface is not protected from erosion or disturbance by a slab, pavement, or in a similar manner.

6.4.2 MWD Pipeline Settlement

Construction of the proposed storm drain would involve cuts and fills over the existing MWD pipeline. Grade changes, construction sequencing, flooding, and crossing structure footings could subject the MWD pipeline to change in loads that could cause settlement due to an increase in overburden stress or heave due to a decrease in overburden stress. We understand MWD requires proposed improvements in the vicinity of their pipe to not induce displacements on their pipe of more than ¼-inch per 100 feet. We have performed numerical modeling of the subsurface conditions and proposed structures using the 3-D finite element program PLAXIS 3D. The details and results of these analyses are included in Appendix E. The results of the analysis indicate the proposed improvements will meet MWD's tolerance provided the key recommendations and assumptions presented below are implemented in the design and construction of the crossing and storm drain.

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The results of the analysis are presented in Appendix E, Numerical Analysis of Proposed Crossing. The key recommendations and assumptions utilized in the modeling that must be implemented in the design and construction of the crossing and storm drain channel are:

- Excavations will not be completed at a time when MWD has emptied the pipeline (i.e. it is not in-service).
- The crossing structure footings are constructed following the 1/3 sequence of excavation and footing placement.
    - Excavation of the subsequent 1/3 shall not progress until the footing for the previous 1/3 is in-place.
    - Excavation slopes and benches shall not be flatter than 1.5H:1V.
- Excavation and footing construction sequence shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean:
    - Elevations in excavations on either side shall not be more than 1 ft different.
    - The concrete footings shall be poured on both sides at the same time.
- Excavations shall not be backfilled until the full footing construction sequence is completed.
    - Backfill will consist of a medium weight flowable fill material (e.g. LCC) with a unit weight of approximately 85 pcf which does not require high vibration compactor equipment during placement. The medium weight flowable fill should have a friction angle of at least 30 degrees and cohesion of at least 50 psf.
    - Backfill shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean elevations of the backfill on each side shall not be more than 1 ft different.
- Lightweight flowable fill shall be used for embankments within 50 ft from the edge of the MWD pipe. Embankment fill shall consist of lightweight flowable fill material (e.g. LCC) not to exceed a unit weight of 30 pcf and does not require compaction to limit vibration impacts.
- Embankment fill shall be placed such that the elevation difference across (upstream to downstream sides) the MWD pipe is not greater than 1 ft at any time until final grades are established.

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- The channel section shall limit the 100-yr flood event to a peak water elevation of 1453.47 ft.

6.4.3 Additional Constructability Considerations

Construction of the proposed MWD pipe crossing and storm drain in the vicinity of the existing MWD pipe while meeting MWD's requirements is considered feasible provided the key recommendations and assumptions utilized in the modeling provided above are implemented during design and construction. In addition, the following constructability considerations should also be considered based on MWD requirements.

- Vibrations on the MWD pipe should be less than 0.5 inches/second for "continuous" sources based on guidance provided by MWD. Based on Caltrans *Transportation and Construction Vibration Guidance Manual* (2020), vibratory rollers or similar equipment should not be used within 20 feet of the MWD pipe to meet MWD's limit.
- Any excavation within 2 feet of the MWD pipe should be performed by "hand" equipment as approved by MWD.
- Areas to receive fill that are not specified to require flowable fill as described above may utilize the on-site soil or import soil as structural fill in accordance with Section 6.9.
- Appropriate observations and inspections should be completed to ensure that the recommendations and assumptions made during our evaluation are followed during construction. Construction within the MWD right-of-way should conform to the relevant MWD construction standards, observations and inspections.

6.5 EXPANSIVE SOILS

Expansive soils are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from rainfall, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors, and may cause unacceptable settlement or heave of structures, concrete slabs supported-on-grade, or pavements supported over these materials. Depending on the extent and location below finished subgrade, expansive soils can have a detrimental effect on structures.

In general, the soils encountered at the majority of the borings were silty or granular in nature. Laboratory testing resulted in Expansion Index values of 34 and 44, indicating a "low" expansion

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potential. If import soil materials are used during construction, testing of the final subgrade soils should be performed to further evaluate the expansion potential.

6.6 CORROSIVITY

Selected near-surface soil samples from borings throughout the alignment were tested for potential corrosion to concrete and reinforcing steel. The samples were tested in general accordance with California Standard Test Methods to evaluate pH, minimum electrical resistivity, soluble sulfates, and chlorides content. These tests are only an indicator of soil corrosivity for the samples tested. Other soils found on site may be more, less, or of a similar corrosive nature.

Resistivity values ranged from 299 to 1,763 ohm-cm. Resistivity values less than 1,000 ohm-cm are considered extremely corrosive to buried ferrous metals. Resistivity values between 1,000 to 3,000 to ohm-cm are considered highly corrosive to buried ferrous metals (Roberge, 2006).

The concentrations of soluble sulfates indicate that the subsurface soils represent a Class S0 exposure to sulfate attack on concrete in contact with the soil based on ACI 318-19 Table 19.3.1.1 (ACI, 2019). Therefore, in accordance with ACI Building Code 318-19, no special provisions for selection of cement type are required.

The values obtained from corrosion potential testing are shown in Appendix B, Laboratory Testing. Kleinfelder's scope of services does not include corrosion engineering and, therefore, a detailed analysis of the corrosion test results is not included. We recommend the review of these results and consultation of a corrosion expert for further evaluation, if necessary.

6.7 TEMPORARY SHORING

6.7.1 General

Temporary shoring may be required where space or other restrictions do not allow a sloped excavation. Design and installation are the responsibility of the contractor. Temporary shoring may consist of a turn-key shoring system, soldier piles and lagging, or other system. Recommendations for design of temporary shoring are presented below.

The contractor's shoring design should be provided by a civil engineer registered in the State of California and experienced in the design and construction of shoring under similar conditions. Once the final excavation and shoring plans are complete, the plans and design should be

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reviewed by Kleinfelder for conformance with the design intent and geotechnical recommendations provided herein.

6.7.2 Lateral Pressures

For the design of cantilevered shoring, an equivalent fluid pressure of 40 pounds per cubic foot (pcf) for drained conditions or 82 pcf for undrained conditions may be used for level backfill. Where the surface of the retained earth slopes up away from the shoring, a greater pressure should be used. Design data can be developed for additional cases when the design conditions are established.

In addition to the recommended earth pressure, any surcharge (live, including traffic, or dead load) located within a 1H:1V plane drawn upward from the base of the shored excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind the wall may be calculated by multiplying the surcharge by 0.36 for the level backfill condition. Lateral load contributions of surcharges located at a distance behind the shored wall may be provided once the load configurations and layouts are known. As a minimum, a 2-foot equivalent soil surcharge (250 psf) is recommended to account for traffic or nominal construction loads. Stockpiled material should not be placed closer to the edge of an excavation than a distance equal to the depth of the excavation, and never closer than 4 feet from the edge of the excavation.

6.7.3 Design of Soldier Piles

All soldier piles should extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. We recommend the required embedment depths be calculated based on the principles of force and moment equilibrium. For this method, the ultimate passive pressure against soldier piles that extend below the level of excavation may be assumed to be equivalent to a fluid pressure of 250 pcf, with a maximum resistance value of 2,500 psf. To account for arching, the passive resistance may be assumed to act over a width 2.0 times the width of the embedded portion of the pile, provided adjacent piles are spaced at least 3.0 pile diameters, center-to-center.

Drilling of the soldier pile shafts could be accomplished using heavy-duty drilling equipment. Groundwater may be encountered. The piles may be constructed partly below groundwater and, therefore, caving of the pile shafts should be anticipated and will need to be prevented. Temporary steel casing may be required to stabilize the sides of the pile shaft. Concrete for piles should be placed immediately after the drilling of the hole is complete. The concrete should

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be pumped to the bottom of the drilled shaft using a tremie. Once concrete pumping is initiated, a minimum head of 5 feet of concrete above the bottom of the tremie should be established and maintained throughout the concrete placement to prevent contamination of the concrete by soil inclusions. If steel casing is used, the casing should be removed as the concrete is placed.

To develop full lateral resistance, provisions should be taken to assure firm contact between the soldier piles and undisturbed materials. The concrete placed in the soldier pile excavations may be a lean-mix concrete. However, the concrete used in that portion of the soldier pile that is below the planned excavated level should provide sufficient strength to adequately transfer the imposed loads to the surrounding materials.

6.7.4 Lagging

Continuous treated timber lagging and/or steel plates should be used between the soldier piles. The lagging/steel plates should be installed as the excavation proceeds. If treated timber is used, the lagging may remain in place after backfilling. The lagging should be designed for the recommended earth pressure but limited to a maximum value of 400 psf.

Some caving and running of the upper soils should be anticipated. To reduce the potential for loss of ground and settlement of the soil behind the wall, the contractor should backfill any space between the lagging and the cut slope with clean sand or sand-cement slurry after installation.

6.7.5 Deflection

Shoring adjacent to existing structures or improvements should be designed and constructed to reduce potential movement. The shoring system designer should evaluate potential deflections in their design. If the deflection analysis indicates excessive deflections, positive reinforcements such as tie backs may be needed.

6.7.6 Monitoring

Some deflection of the shored excavation should be anticipated during the planned excavation. We recommend the project civil engineer perform a survey of all existing utilities and structures adjacent to the shored excavation. The purpose of this survey would be to evaluate the ability of existing utility lines or improvements to withstand horizontal movements associated with a shored excavation and to establish the baseline condition in case of unfounded claims of

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damage. If existing improvements are not capable of withstanding anticipated lateral movements, alternative shoring systems may be required.

Horizontal and vertical movements of the shoring system should be monitored by a licensed surveyor. The construction monitoring and performance of the shoring system are ultimately the contractor's responsibility. However, at a minimum, we recommend that the top of shoring be surveyed prior to excavation and that the top and bottom of the soldier beams be surveyed on a weekly basis until the shoring is not needed. Surveying should consist of measuring movements in vertical and two perpendicular horizontal directions.

6.8 REINFORCED CONCRETE BOX DESIGN

6.8.1 Design Parameters

The following geotechnical design recommendations are provided for the design of standard reinforced concrete box (RCB) for use along the entire storm drain project alignment.

Table 4
Standardized RCB Parameters

Soil Description	Sandy Silt to Silty Sand
Soil Density	110 pcf
Active Earth Pressure (Equivalent Fluid Pressure)	40 pcf (Drained) 20 pcf (Undrained***) 35 pcf (Seismic Increment*)
At-Rest Earth Pressure** (Equivalent Fluid Pressure)	60 pcf (Drained) 30 pcf (Undrained***)
Soil Cohesion	50 psf
Ultimate Passive Resistance	250 pcf
Coefficient of Friction	0.3
Allowable Net Bearing Pressure	2,000 psf

*Retaining structures supporting more than 6 feet of backfill should be designed to support an incremental seismic lateral pressure, which is applied as a triangular pressure distribution with a maximum pressure at the bottom of the retaining structure, similar to the active lateral earth pressure.

**For restrained retaining structures (at-rest condition), use the static active earth pressure and seismic increment to check the seismic condition; use at-rest earth pressure only to check the static condition; the larger loading of both cases should be used for the design of restrained retaining structure.

***Retaining structures should be designed with adequate drainage to reduce the potential for a buildup of hydrostatic pressures. For retaining structures where drainage outlets are not feasible, the undrained earth pressures listed above should be used. In addition to the above lateral pressures, walls should be designed to resist hydrostatic pressures. Hydrostatic pressures should assume a unit weight of 62.4 pcf and extend the full height of the wall. Hydrostatic pressure is applied as a triangular pressure distribution with a maximum pressure at the bottom of the wall, similar to the active lateral earth pressure. The resultant force may be assumed to at a height of 0.33H above the wall footing, where H is the retaining wall height.

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6.8.2 Estimated RCB Settlement

The static settlement of individual RCB's will vary, depending on the depth of embedment, the plan dimensions of the vaults and the actual loading. We estimate the maximum total static settlement of vaults designed and constructed in accordance with the recommendations in this report to be on the order of 1 inch or less. Differential settlement is expected to be less than ½ inch, provided vaults are founded on similar materials. The estimated settlements discussed above do not include potential seismically-induced settlement discussed in Section 6.3.

6.9 EARTHWORK AND GRADING

Grading plans were not available for the project at the time this report was prepared. We anticipate earthwork and grading will be relatively minor. The final grading plans should be reviewed and, if needed, additional recommendations should be provided.

6.9.1 Site Preparation

All site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations, and other local, state, or federal specifications. All references to maximum unit weight should be established in accordance with the current ASTM Standard Test Method D1557 and may supersede references cited herein. The earthwork operations should be observed and tested by a representative of Kleinfelder.

6.9.2 Stripping and Grubbing

Prior to general site grading, existing pavement, vegetation, organic topsoil, existing fill soils, and debris shall be stripped and disposed of outside the construction limits. Deeper stripping or grubbing may be required where concentrations of fill debris, organic soils, existing trees, or thick root mats are encountered during site grading. Stripped topsoil (less any debris) may be stockpiled and reused for landscape purposes elsewhere on the project; however, this material should not be incorporated into any engineered fill.

In areas where existing trees will be removed, care should be taken to remove the root-ball, roots exceeding 1 inch in diameter, remaining organics, and to backfill the excavations with compacted engineered fill. We strongly recommend having a representative of Kleinfelder present during tree removal, in areas to receive fill or beneath foundations to observe removal of large roots and subsequent scarification and recompaction. Engineered fill should be placed and compacted in accordance with recommendations provided below.

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6.9.3 Earthwork

At the RCB subgrade and storm drain bottoms, the exposed surface should be scarified to a minimum depth of 6 inches, moisture-conditioned, and compacted to at least 90 percent relative compaction. Any areas of loose or yielding soils should be over-excavated and re-compacted. Any soils that cannot be compacted, or are otherwise unsuitable for the planned use, should be excavated and disposed of from the project site and replaced with suitable engineered fill.

All materials to be placed as fill should be free of vegetation, organics, debris, and other deleterious materials. During fill placement, “oversize” material should be placed accordingly. Oversize material is any material with maximum dimension greater than 3 inches. All oversize material should be exported to an appropriate disposal facility. The larger rock, if any, will require special handling to reduce its size or place as windrows in a rock disposal fill.

All fill placed should be placed in horizontal lifts less than 8 inches in loose thickness, moisture-conditioned to within 2 percent of the optimum moisture content and compacted to 90 percent relative compaction per ASTM D1557. Engineered fill placed within the upper 12 inches of unpaved access roads or 12 inches below pavement subgrades should be compacted to at least 95 percent relative compaction of the maximum dry density obtained by ASTM D1557.

Import materials, if required, should have an Expansion Index (EI) of less than 20 with no more than 30 percent of the particles passing the No. 200 sieve and no particles greater than 3 inches in maximum dimension. The maximum EI for imported soils may be modified by the project geotechnical engineer depending on its proposed use. Imported fill should be documented to be free of hazardous materials, including petroleum or petroleum byproducts, chemicals and harmful minerals. Kleinfelder should evaluate the proposed imported materials prior to their transportation and use on site.

6.9.4 Temporary Excavations

All excavations must comply with applicable federal, state, and local safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below solely as a service to our client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor’s activities. Such responsibility is not being implied and should not be inferred.

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Temporary cut slopes up to 15 feet high may be sloped back at an inclination of no steeper than 1.5:1 (horizontal to vertical) in the existing site soils. Minor sloughing and/or raveling of sandy slopes should be anticipated as they dry out. If signs of slope instability are observed, the inclination recommended above should be decreased until stability of the slope is obtained. Kleinfelder should be onsite full time to observe the temporary backcuts. Where space for sloped embankments is not available, shoring will be necessary. All applicable excavation safety requirements and regulations, including OSHA requirements, should be met.

Where sloped excavations are used, the tops of the slopes should be barricaded so that vehicles and storage loads do not encroach the tops of excavated slopes within a distance equal to the depth of the excavation. Greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. Kleinfelder should be advised of such heavy vehicle loadings so that specific setback requirements can be established. If temporary construction slopes are to be maintained during the rainy season, berms are recommended along the tops of the slopes to reduce runoff that may enter the excavation and erode the slope faces. Stockpiled material should not be placed closer to the edge of an excavation than a distance equal to the depth of the excavation, and never closer than 4 feet from the edge of the excavation.

Temporary, shallow excavations with vertical side slopes less than 4 feet high should generally be stable, although sloughing may be encountered in the granular deposits. Vertical excavations greater than 4 feet high should not be attempted without appropriate shoring to prevent local instability. All trench excavations should be braced and shored in accordance with good construction practice and all applicable safety ordinances and codes. The contractor should be responsible for the structural design and safety of the temporary shoring system, and we recommend that this design be submitted to Kleinfelder for review to check that our recommendations have been incorporated. For planning purposes, the on-site soils may be considered as a Type C soil, as defined using the current OSHA soil classification.

6.9.5 Unstable Subgrade Conditions

Groundwater may be encountered during site grading. We recommend that a dewatering plan be prepared such that the groundwater is maintained below the storm drain subgrade elevation during construction. Following dewatering, we anticipate pumping subgrade conditions may be encountered, and the subgrade may need to be stabilized. An unstable subgrade could be over-excavated 12 to 24 inches below the subgrade elevation and replaced with an equal amount of ¾- or 1-inch compacted crushed rock wrapped by geotextile fabric. The geotextile fabric should

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consist of a woven geotextile, such as Mirafi 600X or equivalent. The final depth of removal will depend upon the conditions observed in the field once over-excavation begins. The geotextile fabric should be placed in accordance with the manufacturer's recommendations. Alternate stabilization methods approved by Kleinfelder may also be performed.

6.10 PERMANENT SLOPES

Permanent slopes may be constructed for the proposed project. The following sections provide general recommendations for both fill and cut slopes. Revised recommendations may be needed based on our review of the final project plans.

6.10.1 Fill Slopes

Fill slopes may be inclined up to 2:1 (horizontal:vertical) or flatter. Where the toe of a fill slope terminates on a natural or cut slope, a keyway is required at the toe of the fill slope. The fill slope keyway should be a minimum width of 15 feet, with a minimum depth of 3 feet into competent natural material and should extend a distance equal to the depth of the keyway beyond the toe of the fill. Benching should be cut into the existing slope to bind the fill to the slope. Benches should be step-like in profile, with each bench not less than four feet in height and established in competent material. Figure 4, Typical Engineered Fill Slope Detail shows a typical section for a fill slope including keyway and benching. For slopes 10 feet high or less, the keyway depth and width may be reduced as presented in Table 5 below.

Table 5
Minimum Keyway Recommendations

Keyway Recommendations for Fill Slopes			
Slope Height	5 feet or less	> 5 feet to 10 feet	> 10 feet
Minimum Keyway Depth	1 foot into competent material	2 feet into competent material	3 feet into competent material
Minimum Keyway Width	8 feet *	8 feet	15 feet

* For fill slopes 5 feet or less in height, further evaluation of the keyway width can be made by the Engineer of Record based on field conditions and construction methods employed.

Compressible or other unsuitable soils should be removed from the slope prior to benching. Competent material is defined as being essentially free of loose soil, heavy fracturing or erosion prone material and is established by the Geotechnical Consultant during grading. Following

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completion of the excavation for the keyway, the project Geotechnical Consultant shall observe the keyway prior to backfilling with certified engineered fill.

Depending on fill slope construction and actual site conditions encountered in the field to be verified by the Geotechnical Engineer or their representative, back drains may be required within the compacted fill to prevent the buildup of hydrostatic pressures behind the fill slope. Field conditions, such as observed seepage, or the presence of water within the slope may require the use of subdrains to adequately prevent buildup of hydrostatic pressures behind the fill slope. In general, fill slopes with design heights less than 10 feet will likely not require subdrains.

When constructing fill slopes, the contractor shall avoid spillage of loose material down the face of the slope during dumping and rolling conditions. Preferably, the incoming load shall be dumped behind the face of the slope and bladed into place. As a preferred method, the slope should be over-built and then trimmed back to expose a compacted core. As an alternative method, after each 4 feet of vertical height has been obtained, the contractor shall compact the outer face of the slope by backing the tamping roller over the top of the slope and thoroughly covering the entire slope surface with overlapping passes of the roller and accepted by geotechnical engineer of record. The foregoing should be repeated after the placement of each 4-foot thickness of fill.

As discussed previously, fill slopes should conform to the requirements of the “Earthwork” section of this report and should contain no particles greater than 3 inches in maximum dimension. The fill slope surface should be compacted to a minimum of 90 percent relative compaction per ASTM D1557, or as specified in the project plans and specifications. Surface drainage control, such as berms at the tops of slopes, should be included in the design of fill slopes to direct sheet flow away from the tops of slopes and reduce the potential for slope erosion.

6.10.2 Cut Slopes

In general, cut slopes should be a maximum inclination of 2:1 (horizontal:vertical). Due to the potential for adverse geologic conditions, cut slopes proposed in formational material should be evaluated on a case-by-case basis. We recommend that a qualified geologist be on site during grading of the cut slopes to map the exposed geology for consistency with the conditions presented in this report. Revised recommendations may be needed based on the in-grading mapping.

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6.11 EXCAVATION CHARACTERISTICS

In general, the drilling equipment used for our geotechnical investigation was able to reach the target depths at all of the borings, suggesting that the subsurface soils can be excavated with conventional excavation equipment.

6.12 SCOUR CONSIDERATIONS

We understand scour analysis will be performed by others. The near-surface soil generally consisted of sandy silt and silty sand. The sieve analysis results presented in Appendix B can be used to support scour analyses. The grain size representing percent passing 50% (D_{50}) obtained from the sieve analyses of the near-surface soil are summarized in Table 6 below.

Table 6
D_{50} Results

Boring Number	Depth (ft)	D_{50} (mm)
B-1	5	0.072
B-2	5	0.045
B-3	0 – 5	>0.1
B-4	0 – 5	0.14
B-5	5	0.025
B-6	0 – 5	0.040
B-7	0 – 5	0.094
B-8	5	0.052
B-9	5	0.13
B-10	0 – 5	0.067
B-11	0 – 5	0.071
B-12	0 - 5	0.059
B-13	0 – 5	0.10
B-14	0 – 5	0.76
B-15	0 – 5	0.31
B-16	5	0.096
B-17	5	0.097
B-18	0 – 5	0.28
B-19	0 – 5	0.26

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6.13 PAVEMENT RECOMMENDATIONS

6.13.1 Asphalt Concrete

If proposed access roads will be paved, the required pavement structural sections will depend on the expected wheel loads, volume of traffic, and subgrade soils. The Traffic Indexes (TI's) assumed should be reviewed by the project Owner, Architect, and/or Civil Engineer to evaluate their suitability for this project. Changes in the TI's will affect the corresponding pavement section. The pavement subgrade should be prepared just prior to placement of the base course. Positive drainage of the paved areas should be provided since moisture infiltration into the subgrade may decrease the life of pavements. A preliminary asphalt concrete pavement section is provided in Table 7, below.

Table 7
Preliminary Asphalt Concrete Pavement Sections
(Design R-value = 50)

Assumed Traffic Index (TI)	Minimum Asphalt Concrete (inches)	Minimum Aggregate Base (inches)
5	3.0	4.0

Based on laboratory testing results, a design R-Value of 50 was selected for pavement design. Since the characteristics of the near-surface soils can change as a result of grading, we recommend that representative subgrade samples be obtained during grading and additional R value tests performed. Should the results of these tests indicate a significant difference, the design pavement section(s) provided above may need to be revised. Pavement sections provided above are contingent on the following recommendations being implemented during construction.

- The upper 12 inches of subgrade below pavements should be compacted to at least 95 percent relative compaction.
- Subgrade soils should be in a stable, non-pumping condition at the time aggregate base materials are placed and compacted.
- Aggregate base materials should be compacted to at least 95 percent relative compaction.
- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet.

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- Aggregate base materials should meet current Caltrans specifications for Class II aggregate base rock or crushed miscellaneous base as specified in the "Standard Specifications for Public Work Construction" ("Greenbook").
- The asphalt pavement should be placed in accordance with “Green Book” specifications or the City of San Jacinto requirements, as appropriate. We recommend that the asphalt pavement be placed in a single layer of ½-inch aggregate mix for pavements 4 inches thick or less. If the pavement section is over 4 inches thick, then the asphalt should be placed in at least two layers of mix. The first layer should consist of a base or coarse layer (¾-inch mix). The second layer (i.e., top layer) should consist of a medium or fine layer of ½-inch mix.

6.13.2 Portland Cement Concrete

Portland cement concrete (PCC) pavement should have a minimum 28-day compressive strength of 3,000 psi. Control joints should be spaced approximately every 10 feet. The concrete pavement section should be placed on at least 18 inches of engineered fill compacted to at least 90 percent of the maximum dry density with the upper 12 inches below pavements compacted to at least 95 percent relative compaction. Prior to fill placement, the exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to near optimum moisture content at the time of compaction. The following table presents our recommendations of Portland Cement Concrete pavement sections.

Table 8
Preliminary PCC Pavement Sections

Assumed Traffic Index (TI)	Minimum Concrete Thickness (inches; using a 28-day compressive strength of 3,000 psi)	Minimum Concrete Thickness (inches; using a 28-day compressive strength of 4,000 psi)
5	6.5	6.0

As an alternative to placing PCC pavements directly over 18 inches of engineered fill, 6 inches of aggregate base material may be added between the PCC and engineered fill to provide additional load distribution, drainage, and an option to reduce the thickness of the recommended PCC. If 6 inches of aggregate base material (compacted to 95% relative compaction) is used between the recommended 18 inches of engineered fill and PCC pavement, the recommended PCC thickness may be reduced by ½ inch. Aggregate base materials should meet current Caltrans specifications for Class 2 aggregate base or crushed

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miscellaneous base as specified in the "Standard Specifications for Public Work Construction" ("Greenbook").

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7 LIMITATIONS

Recommendations contained in this report are based on our field observations and subsurface explorations, laboratory tests, and our present knowledge of the proposed project. It is possible that soil conditions could vary between or beyond the points explored. If soil conditions are encountered during construction, which differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed project, including the proposed foundation systems or vault locations, change from that described in this report, our recommendations should also be reviewed and a response issued. References to elevations and locations provided within this report were based upon general information provided for our use. Kleinfelder did not provide surveying services.

Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the authors of this report, are only mentioned in the given standard; they are not incorporated into it or "included by reference," as the latter term is used relative to contracts or other matters of law.

We have strived to prepare the findings, conclusions, and recommendations in this report in a manner consistent with the standards of care and skill ordinarily exercised by members of this profession practicing under similar conditions in the geographic vicinity and at the time the services were performed. No warranty or guarantee, express or implied, is made. Information and recommendations presented in this report should not be extrapolated to other areas or be used for other projects without our prior review and response.

This report may be used only by Albert A. Webb Associates and their subcontractors and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than Albert A. Webb Associates and their subcontractors who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

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Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

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FIGURES

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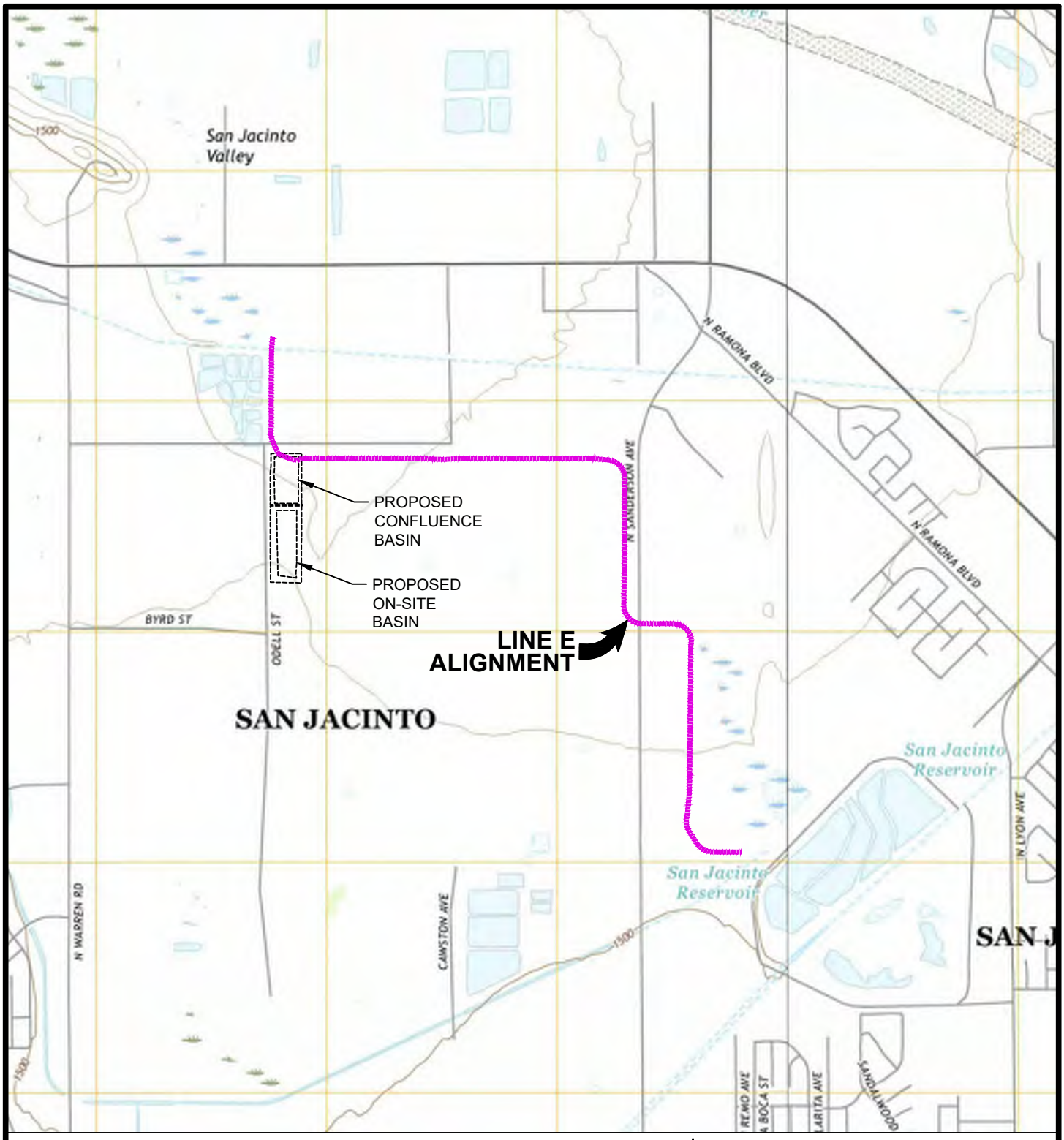

SOURCE: U.S.G.S. 7.5' topographic series, Lakeview and San Jacinto, California quadrangles dated 2018.

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APPROXIMATE SCALE (feet)

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SITE VICINITY MAP

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE

1

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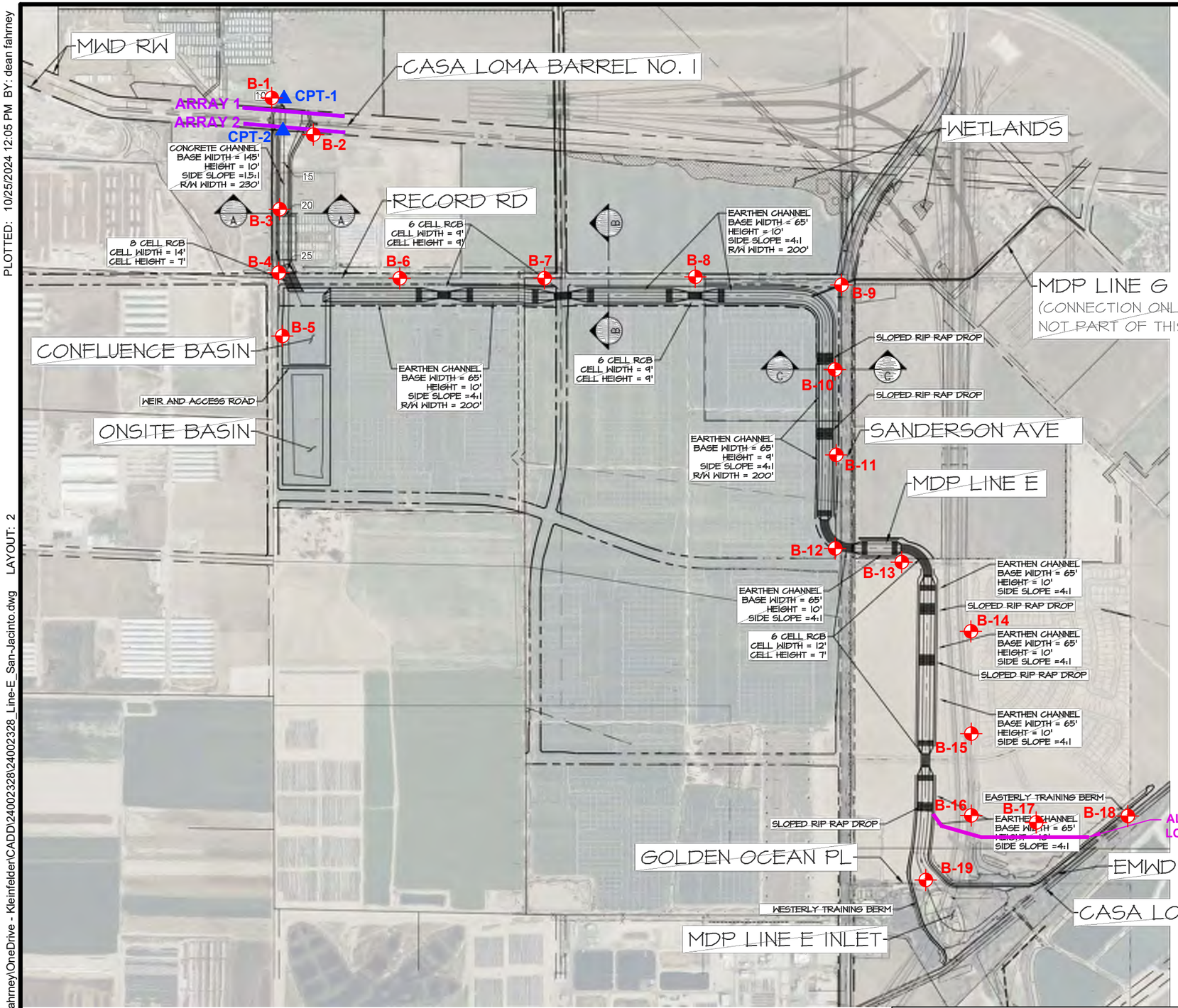

REFERENCE: BASE MAP PROVIDED BY ALBERT A. WEBB ASSOCIATES, DATED 08/23/2023

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EXPLORATION LOCATION MAP

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE
2

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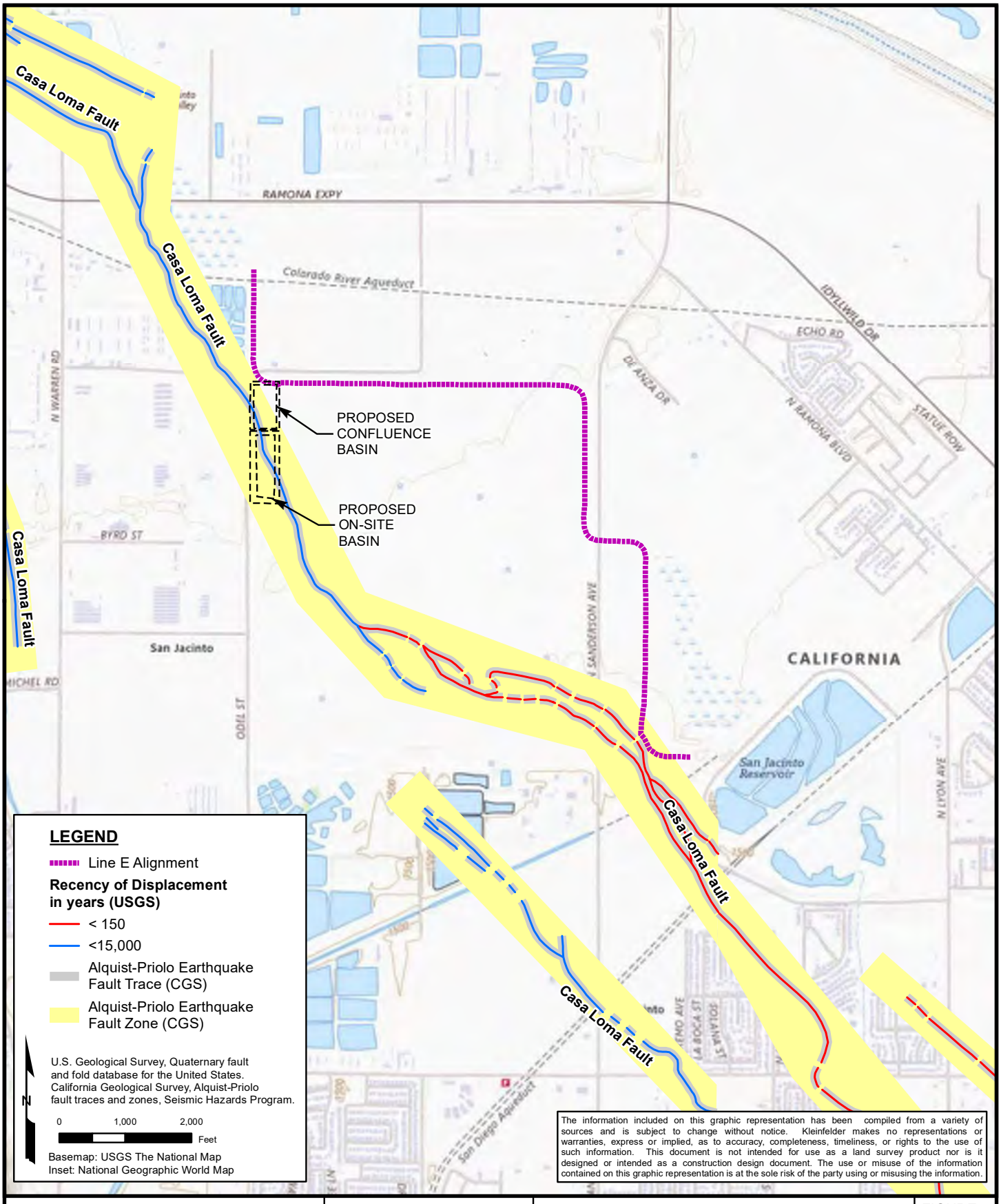

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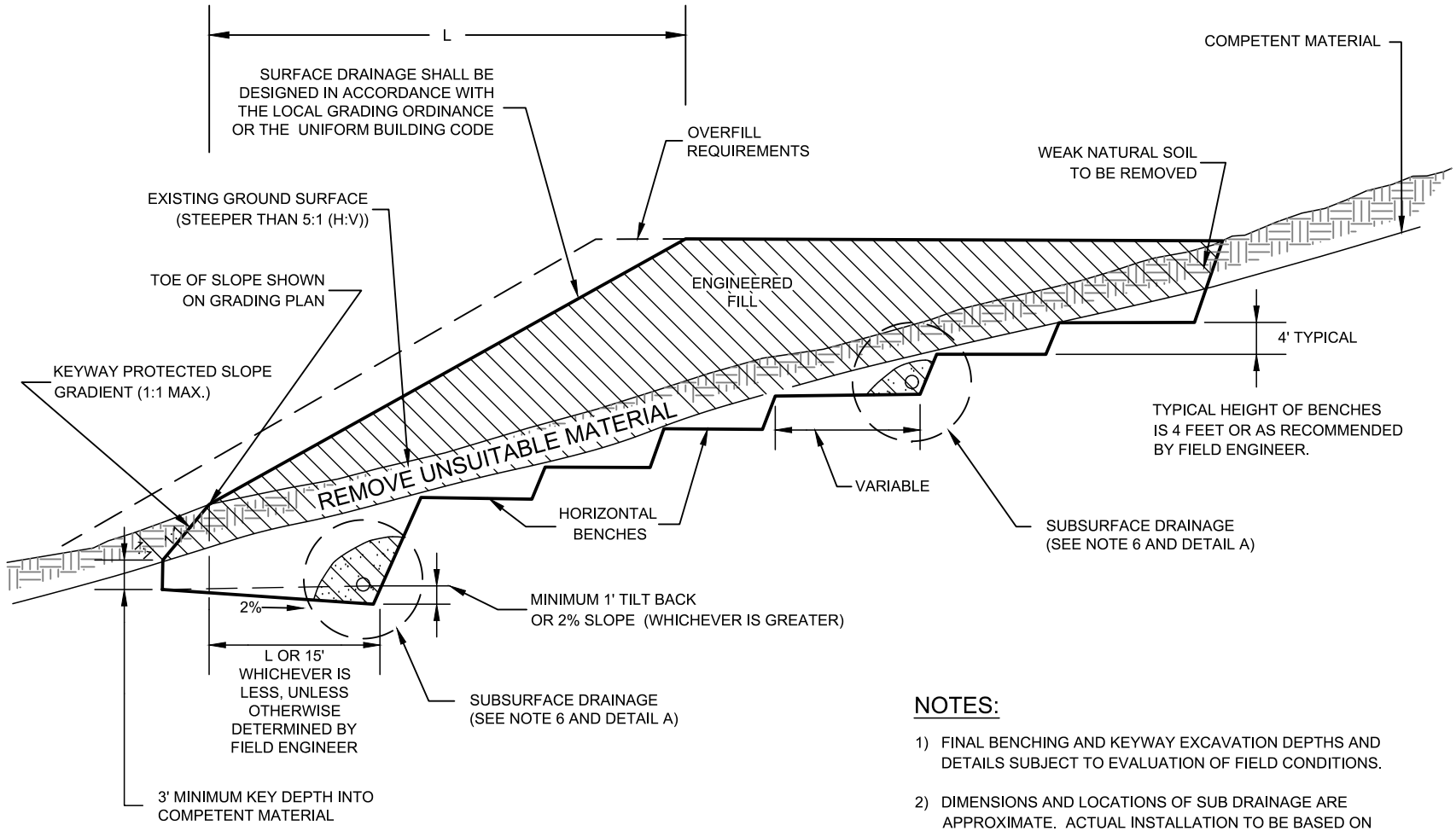
FAULT LOCATION MAP

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

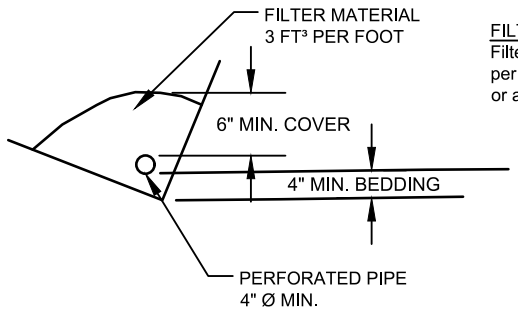
FIGURE

3



DETAIL A:

PERFORATED PIPE SURROUNDED BY FILTER MATERIAL



FILTER MATERIAL:
Filter material shall be class 2 permeable material per State of California Standards Specifications, or an approved alternate.

NOTES:

1) FINAL BENCHING AND KEYWAY EXCAVATION DEPTHS AND DETAILS SUBJECT TO EVALUATION OF FIELD CONDITIONS.
2) DIMENSIONS AND LOCATIONS OF SUB DRAINAGE ARE APPROXIMATE. ACTUAL INSTALLATION TO BE BASED ON FIELD CONDITIONS.
3) GRADE PIPES TO DRAIN TO AN APPROPRIATE DISCHARGE FACILITY.
4) INSTALL CLEANOUTS AT ENDS, ANGLES, AND JUNCTIONS OF PIPE.
5) BENCH SHALL BE REQUIRED WHEN NATURAL SLOPES ARE EQUAL TO OR STEEPER THAN 5:1 OR WHEN RECOMMENDED BY THE FIELD ENGINEER.
6) SUBDRAINAGE: BACK DRAIN SHOULD BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL CONSULTANT.

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TYPICAL ENGINEERED FILL SLOPE DETAIL

SAN JACINTO LINE E STORM DRAIN
SAN JACINTO, CALIFORNIA

FIGURE: 4

APPENDIX A
FIELD EXPLORATION

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APPENDIX A
FIELD EXPLORATION

Field explorations included a site reconnaissance and subsurface explorations. During the site reconnaissance phase, each proposed boring site was visited to evaluate exploration equipment, accessibility, and general site conditions. The subsurface exploration program included drilling 19 hollow-stem auger borings and performing 2 CPTs.

The borings were drilled to depths ranging from approximately 20 to 50 feet bgs. Truck-mounted hollow-stem auger drill rigs supplied by 2R Drilling of Chino, California were used for the soil borings. Hollow-Stem Auger (HSA) drill rigs were equipped with 8-inch outside diameter (O.D.) continuous flight, hollow-stem augers.

The CPTs were advanced to a maximum depth of 100 ft bgs. The CPTs were performed by Kehoe Testing & Engineering, Inc. of Huntington Beach, California using a 30-ton truck rig.

Disturbed and relatively undisturbed samples of the subsurface materials were obtained from the borings using Standard Penetration test (SPT) samplers and California-type (CAL) samplers, respectively. The SPT sampler has a 1.375-inch inside diameter and a 2.0-inch outside diameter. The CAL sampler has a 2.42-inch inside diameter and a 3.0-inch outside diameter. Samples were driven 18 inches into the soil using a 140-pound automatic hammer falling 30 inches. SPT and CAL samples were obtained at 5-foot intervals alternating between the SPT and the CAL until reaching the boring target depth. Large bulk samples were also obtained within the upper 5 feet from each boring. The number of blows required to drive the samplers were recorded for each 6-inch penetration interval. The number of blows required to drive the samplers for the last 12 inches, or the interval achieved where higher resistance was encountered, is referred to as the blow count and is noted on the boring logs. Where the sample was driven less than 12 inches, the number of blows to drive the sample for each 6-inch segment, or portion thereof, is shown on the logs. For example, 50/4" indicates 50 blows to drive the sampler 4 inches to refusal. After the samplers were withdrawn from the test borings, select samples were carefully removed, sealed to reduce moisture loss, and transported to AP Engineering and Testing, Inc. for testing.

A legend to the logs is presented as Figure A-1 and A-2. The boring logs are presented as Figure A-3 through A-24. The logs describe the earth materials encountered, indicate the locations of the samples obtained, and show field and laboratory tests performed. The excavations were logged by an engineer from Kleinfelder using methods outlined in the Unified Soil Classification System (USCS) and general procedures established in ASTM D2488. The

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boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. The CPT visual plots and data are also attached in Appendix A following the logs.

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DRILLING METHOD/SAMPLER TYPE GRAPHICS

BULK SAMPLE

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after stabilizing period)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Solid lines separating strata on the logs represent approximate boundaries only, dashed lines are inferred or extrapolated boundaries. Actual transitions may be gradual or differ from those represented.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (ASTM D2488/D2487) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., CL-ML, GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a pound hammer falling inches.

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UNIFIED SOIL CLASSIFICATION SYSTEM[1]

COARSE GRAINED SOILS (More than 50% retained on No. 200 Sieve)	**GRAVELS** (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVEL WITH <5% FINES	**GW**	WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP	POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH 5% TO 12% FINES	**GW-GM**	WELL-GRADED GRAVEL WITH SILT, WELL-GRADED GRAVEL WITH SILT AND SAND
			GW-GC	WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY), WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILT CLAY AND SAND)
			GP-GM	POORLY GRADED GRAVEL WITH SILT, POORLY GRADED GRAVEL WITH SILT AND SAND
			GP-GC	POORLY GRADED GRAVEL WITH CLAY (OR SILTY CLAY), POORLY GRADED GRAVEL WITH CLAY AND (OR SILTY CLAY AND SAND)
		GRAVELS WITH > 12% FINES	**GM**	SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
			GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL WITH SAND
	SANDS (50% or more of coarse fraction passes the No. 4 Sieve)	CLEAN SANDS WITH <5% FINES	**SW**	WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP	POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL
		SANDS WITH 5% TO 12% FINES	**SW-SM**	WELL-GRADED SAND WITH SILT, WELL-GRADED SAND WITH SILT AND GRAVEL
			SW-SC	WELL-GRADED SAND WITH CLAY (OR SILTY CLAY), WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
			SP-SM	POORLY GRADED SAND WITH SILT, POORLY GRADED SAND WITH SILT AND GRAVEL
			SP-SC	POORLY GRADED SAND WITH CLAY, POORLY GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
		SANDS WITH > 12% FINES	**SM**	SILTY SAND, SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND, CLAYEY SAND WITH GRAVEL
			SC-SM	SILTY, CLAYEY SAND, SILTY, CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS (50% or more passes the No. #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		**ML**	SILT, SILT WITH SAND, SILT WITH GRAVEL
			CL	LEAN CLAY, LEAN CLAY WITH SAND, LEAN CLAY WITH GRAVEL
			CL-ML	SILTY CLAY, SILTY CLAY WITH SAND, SILTY CLAY WITH GRAVEL
			OL	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL
	SILTS AND CLAYS (Liquid Limit 50 or greater)		**MH**	ELASTIC SILT. ELASTIC SILT WITH SAND, ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY, FAT CLAY WITH SAND, FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

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PROJECT NO.: 24002328.001A

DRAWN BY: DE

CHECKED BY: HM

DATE:

GRAPHICS KEY

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE

A-1

PLOTTED: 11/07/2023 08:55 PM BY: DEdrees
PROJECT NUMBER: 24002328.001A OFFICE FILTER: RIVERSIDE
gINT FILE: Klf_gint_master_2024 gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_GEO_LEG1_GRAPHICS_KEY_W_USCS]

GRAIN SIZE[1]

DESCRIPTION		SIEVE SIZE	GRAIN SIZE
Boulders		>12 in.	>12 in. (304.8 mm.)
Cobbles		3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)
Gravel	coarse	3/4 -3 in.	3/4 -3 in. (19 - 76.2 mm.)
	fine	#4 - 3/4 in.	0.19 - 0.75 in. (4.8 - 19 mm.)
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)
Fines		Passing #200	<0.0029 in. (<0.07 mm.)

SECONDARY CONSTITUENT[1]

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

PLASTICITY[1]

DESCRIPTION	CRITERIA
Non-Plastic	A 1/8 in. (3 mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT[1]

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CONSISTENCY - FINE-GRAINED SOIL[2, 3]

CONSISTENCY	SPT - N (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Easily penetrated several inches by fist
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1,000	Easily penetrated several inches by thumb
Medium Stiff	4 - 8	0.5 ≤ PP <1	1,000 - 2,000	Can be penetrated several inches by thumb with moderate effort
Stiff	8 - 15	1 ≤ PP <2	2,000 - 4,000	Readily indented by thumb but penetrated only with great effort
Very Stiff	15 - 30	2 ≤ PP <4	4,000 - 8,000	Readily indented by thumbnail
Hard	>30	4 ≤ PP	>8,000	Indented by thumbnail with difficulty

APPARENT DENSITY - COARSE-GRAINED SOIL[2]

APPARENT DENSITY	SPT-N (# blows / ft)
Very Loose	<4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

STRUCTURE[1]

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6mm) thick, note thickness.
Laminated	Alternating layers of varying material or color with the layers less than 1/4-in. (6 mm) thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.
Homogeneous	Same color and appearance throughout

ANGULARITY[1]

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

REACTION WITH HYDROCHLORIC ACID[1]

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

CEMENTATION[1]

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or little finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

REFERENCES

1. American Society for Materials and Testing (ASTM), 2017, ASTM D2488: Standard Practice for Description and Identification of Soils (Visual Manual Procedures).
2. Terzaghi, K and Peck, R., 1948, Soil Mechanics in Engineering Practice, John Wiley & Sons, New York.
3. United States Department of the Interior Bureau of Reclamation (USBR), 1998, Earth Manual, Part I.

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SOIL DESCRIPTION KEY
(For additional tables, see ASTM D2488)

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-2

PLOTTED: 11/07/2023 08:56 PM BY: DEdrees
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PROJECT NUMBER: 24002328.001A
gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_GEO_LEG2_SOIL_DESC_KEY]

BORING LOG B-1

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling		
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.82065°
Longitude: -117.02476°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist	1										Hand Auger 5' bgs Corrosion Test
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist											
1445	5		stiff, increase in sand content	2		BC=3 5 8	18"	10.2	101.7	100	53			
			very stiff	3		BC=5 7 8	18"	26.4	90.2					Direct Shear Test
1440	10		brown, stiff	4		BC=3 3 5	18"	40.6	81.4					
1435	15			5		BC=1 2 3	18"	36.7	83.7					Consolidation Test
			SILT (ML): low plasticity, olive, moist, medium stiff											
1430	20		increase in sand content	6		BC=3 1 3	18"					38	12	
			SILT with Sand (ML): fine sand, non-plastic, olive, moist, stiff											
1425	25			7		BC=4 4 6	18"	36.8	84.2		76			Direct Shear Test
1420	30		olive, moist to wet, medium stiff	8		BC=1 2 2	18"					NP	NP	
			Silty SAND (SM): fine sand, olive, wet, loose											

LABORATORY RESULTS

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DATE:

BORING LOG B-1

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-3

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
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PROJECT NUMBER: 24002328.001A
gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-1**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			FIELD EXPLORATION: Latitude: 33.82065° Longitude: -117.02476° Approximate Ground Surface Elevation (ft.): 1,450.00 Surface Condition: Sparse Vegetation					LABORATORY RESULTS						
			Silty SAND (SM): fine sand, olive, wet, loose	9		BC=4 5 8	18"							
			SILT with Sand (ML): non-plastic, olive, wet, stiff											
1410	40			10		BC=3 5 6	18"				71			
1405	45		olive gray, medium stiff	11		BC=1 3 4	18"							
			Clayey SAND (SC): fine sand, medium plasticity, olive, wet, loose											
1400	50			12		BC=2 3 4	18"					44	18	
1395	55													
1390	60													
1385	65													

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
- ⊻ Groundwater was observed at approximately 29.5 ft. below ground surface during drilling.
- ▼ Groundwater was observed at approximately 16.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-1

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-4

gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 24002328.001A
OFFICE FILTER: RIVERSIDE

BORING LOG B-2

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling		
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.82004°
Longitude: -117.02428°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, light brown, moist	1										Hand Auger 5' bgs Expansion Index Test
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, light brown, moist, medium stiff, trace mica											
1445	5			2		BC=2 3 3	18"	32.3	83.0	100	59			
			stiff	3		BC=4 7 7	18"	25.8	93.2					
1440	10			4		BC=2 3 8	18"	27.4	92.7					Direct Shear Test
			SILT with Sand (ML): fine sand, non-plastic, light brown, moist, medium stiff, trace mica											
1435	15			5		BC=2 2 3	18"				80			
1430	20		olive, hard	6		BC=6 13 17	18"							
			Sandy Elastic SILT (MH): low plasticity, olive, moist, medium stiff											
1425	25		medium stiff, fine sand	7		BC=2 2 3	18"					65	30	
1420	30			8		BC=3 4 3	18"	35.3	85.1		57			Direct Shear Test
			Silty SAND (SM): fine sand, non-plastic, olive, moist to wet, loose											

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BORING LOG B-2

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-5

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gINT FILE: Klf_gint_master_2024 gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-2**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.82004°
Longitude: -117.02428°
Approximate Ground Surface Elevation (ft.): 1,450.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, olive, moist to wet, loose	9		BC=2 3 6	18"					NP	NP	
1410	40		wet, medium dense	10		BC=4 4 11	18"	39.3	81.3		47			Consolidation Test
1405	45			11		BC=4 5 6	18"					NP	NP	
1400	50			12		BC=4 8 10	18"							
1395	55													
1390	60													
1385	65													

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 34.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 33 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-2

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-6

PAGE: 2 of 2

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PROJECT NUMBER: 24002328.001A
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-3**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81791°
Longitude: -117.02451°
Approximate Ground Surface Elevation (ft.): 1,455.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, dry to moist, trace clay	1						100	59			Hand Auger 5' bgs Modified Proctor Corrosion Test
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, dry to moist, trace clay											
1450	5		light gray, hard	2		BC=11 20 21	18"	3.3	97.4					
			fine to medium sand	3		BC=9 13 20	18"	0.8	95.9					
1445	10		**SILT (ML)**: trace fine sand, non-plastic, olive gray, moist, hard	4		BC=11 28 28	18"	6.2	99.8		90			
			Silty SAND (SM): fine sand, olive, moist, medium dense, trace mica											
1440	15			5		BC=3 7 9	18"	29.1	90.1					
1435	20		loose, decrease in sand content	6		BC=2 2 7	18"							
1430	25													
1425	30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	24002328.001A
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BORING LOG B-3

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-7

PAGE: 1 of 1

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
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PROJECT NUMBER: 24002328.001A
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gINT FILE: Klf_gint_master_2024

Date Begin - End: 9/27/2023 **Drilling Company:** 2R Drilling

Logged By: D. Edrees **Drill Crew:** Miguel/Justin

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-75 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

BORING LOG B-4

Latitude: 33.81654°
Longitude: -117.02420°
Approximate Ground Surface Elevation (ft.): 1,459.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, light brown, moist	1						100	22			Hand Auger 5' bgs (very loose) R-Value Test Corrosion Test
			Alluvium **Silty SAND (SM)**: fine sand, light brown, moist											
1455	5			2		BC=10 11 11	18"	8.3	108.0			NP	NP	Consolidation Test
			olive gray, medium dense	3		BC=9 13 15	18"	5.5	114.3					
1450	10			4		BC=4 8 12	18"	7.1	93.9					
1445	15		**Sandy SILT (ML)**: fine sand, low plasticity, olive, moist, medium stiff	5		BC=1 3 4	18"					45	15	
1440	20		**Clayey SAND (SC)**: fine sand, low plasticity, olive, moist, medium dense	6		BC=4 5 10	18"							
1435	25		**Silty SAND (SM)**: fine sand, low to medium plasticity, olive, moist, medium dense	7		BC=2 6 9	18"							
1430	30		olive gray	8		BC=6 8 10	18"					NP	NP	
1425														

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DATE:

BORING LOG B-4

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE

A-8

PLOTTED: 11/07/2023 08:57 PM BY: DEdrees
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PROJECT NUMBER: 24002328.001A
gINT FILE: Klf_gint_master_2024
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2024.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-4**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81654°
Longitude: -117.02420°
Approximate Ground Surface Elevation (ft.): 1,459.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
			Silty SAND (SM): fine sand, low to medium plasticity, olive, moist, medium dense dark olive gray	9		BC=3 4 6	18"
1420	40			10		BC=4 8 12	18"
1415	45		increase in fines content	11		BC=4 5 9	18"
1410	50			12		BC=7 13 14	18"
1405	55						
1400	60						
1395	65						
1390							

LABORATORY RESULTS

Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 51.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-4		FIGURE
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California		A-9
CHECKED BY: H.M			
DATE:			PAGE: 2 of 2

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PROJECT NUMBER: 24002328.001A
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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-5**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81486°
Longitude: -117.02388°
Approximate Ground Surface Elevation (ft.): 1,463.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, dark brown, moist, trace clay	1										Hand Auger 5' bgs
1460		**Alluvium** **Sandy SILT (ML)**: fine sand, non-plastic, dark brown, moist, trace clay											
	5	olive yellow, moist, very stiff, increase in sand content	2		BC=7 11 18	18"	14.6	113.3	100	67			
		fine sand, olive, moist, trace medium sand											
1455			3		BC=7 12 16	18"	12.4	111.0					
	10	**Silty SAND (SM)**: fine sand, light gray, moist, dense	4		BC=11 20 23	18"	4.8	120.4					
1450		**Sandy SILT (ML)**: fine sand, non-plastic, olive gray, moist, stiff											
	15		5		BC=4 7 5	18"							
1445		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist, dense											
	20		6		BC=14 22 22	18"							
1440													
	25												
1435													
	30												
1430													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-5

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-10

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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-6**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81644°
Longitude: -117.02061°
Approximate Ground Surface Elevation (ft.): 1,452.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist	1										Hand Auger 5' bgs Modified Proctor
1450			**Alluvium** **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist							100	69			
	5		stiff, increase in sand	2		BC=4 6 8	18"	27.5	91.8					Direct Shear Test
1445				3		BC=6 8 9	18"	27.8	90.0					
	10		fine sand, olive, moist to wet, medium stiff	4		BC=4 3 3	18"	34.7	83.8					
1440														
	15		wet, stiff	5		BC=9 10 10	18"	26.6	95.9					
1435			**Silty SAND (SM)**: fine sand, olive, wet, loose											
	20			6		BC=3 3 3	6"							
1430														
	25													
1425														
	30													
1420														

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 10.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 18.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-6

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-11

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-7**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81645°
Longitude: -117.01632°
Approximate Ground Surface Elevation (ft.): 1,457.00
Surface Condition: Unpaved Road

Approx. Elevation (ft)	Depth (ft)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1455	0	**Artificial Fill** **Silty SAND (SM)**: fine sand, olive gray, moist, trace clay	1						100	46			Hand Auger 5' bgs Expansion Index Test Corrosion Test
		Alluvium **Silty SAND (SM)**: fine sand, olive gray, moist, trace clay											
	5	light gray, medium dense	2		BC=5 9 13	18"	7.4	101.2					
1450		increase in sand content	3		BC=7 12 14	18"	3.6	99.8					
	10	olive gray, moist	4		BC=3 7 13	18"	15.2	100.5					
1445													
	15		5		BC=5 8 12	18"							
1440 ▼		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, light gray, moist to wet, dense											
	20		6		BC=8 19 28	18"							
▽		wet											
1435													
	25												
1430													
	30												
1425													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-7

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-8**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81640°
Longitude: -117.01184°
Approximate Ground Surface Elevation (ft.): 1,459.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Sandy SILT (ML)**: fine sand, non-plastic, olive brown, moist, trace medium sand	1										Hand Auger 5' bgs
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive brown, moist, trace medium sand											
1455	5		stiff, increase in sand content	2		BC=4 5 6	18"	27.8	90.0	100	66			
			very stiff	3		BC=5 9 13	18"	8.7	98.1					
1450	10		light gray	4		BC=8 11 16	18"	3.8	99.0					
1445	15		olive, moist to wet, stiff	5		BC=2 4 9	18"							
1440	20		olive gray, wet	6		BC=3 5 9	18"							
1435	25													
1430	30													
1425														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 15 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 19 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-8		FIGURE
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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-9**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.81617°
Longitude: -117.00761°
Approximate Ground Surface Elevation (ft.): 1,463.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to medium sand, light brown, moist	1										Hand Auger 5' bgs Modified Proctor
1460			**Alluvium** **Silty SAND (SM)**: fine to medium sand, light brown, moist											
	5		fine sand, olive, loose, increase in fines	2		BC=3 7 6	18"	14.1	110.2	100	39			
1455			fine to medium sand, medium dense	3		BC=4 6 6	18"	12.1	107.9					
	10		fine sand, trace medium sand	4		BC=4 9 10	18"	14.9	111.2					
1450														
	15		olive, moist to wet	5		BC=3 9 12	18"	12.1	112.3					
1445														
	20		fine to medium sand, wet, increase in sand	6		BC=6 5 5	18"							
1440														
	25													
1435														
	30													
1430														

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 15 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-9

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-14

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Date Begin - End:	9/27/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-10**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.81403°
Longitude: -117.00741°
Approximate Ground Surface Elevation (ft.): 1,467.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1465	0	**Artificial fill** **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist	1						100	54			Hand Auger 5' bgs
		Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive, moist											
	5	**Poorly Graded SAND (SP)**: fine to coarse sand, light gray, moist, loose	2		BC=5 3 4	18"	2.1	103.6		2.3			
1460		**Silty SAND (SM)**: fine sand, olive, moist, loose	3		BC=2 3 4	18"	23.7	91.6					
	10		4		BC=3 4 10	18"	20.9	103.1					
1455		**Sandy SILT (ML)**: fine to medium sand, non-plastic, moist, medium stiff											
	15		5		BC=1 2 3	18"							
1450		**Silty SAND (SM)**: fine sand, olive gray, moist, medium dense											
	20		6		BC=7 8 13	18"							
1445													
	25												
1440													
	30												
1435													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 27, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-10

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
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Date Begin - End: 9/28/2023 **Drilling Company:** 2R Drilling

Logged By: D. Edrees **Drill Crew:** Miguel/Justin

Hor.-Vert. Datum: Not Available **Drilling Equipment:** CME-75 **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: Sunny **Bore Diameter:** 8 in. O.D.

BORING LOG B-11

Latitude: 33.81185°
Longitude: -117.00735°
Approximate Ground Surface Elevation (ft.): 1,469.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Artificial Fill	1										Hand Auger 5' bgs
		Sandy SILT (ML): fine sand, non-plastic, dark brown, moist							100	52			Corrosion Test
		Alluvium											
1465		**Sandy SILT (ML)**: fine sand, non-plastic, dark brown, moist											
	5	olive gray, stiff, increase in sand content	2		BC=3 3 5	18"	10.7	80.0					Direct Shear Test
		medium stiff	3		BC=2 3 4	18"	23.0	95.4					
1460	10	very stiff	4		BC=2 8 15	18"	8.1	110.4					
		Poorly Graded SAND with Silt (SP-SM): fine to medium sand, light gray, moist, medium dense											
		Silty SAND (SM): fine sand, olive gray, moist, medium dense											
1455	15		5		BC=8 8 16	18"	13.4	102.2					
1450	20	decrease in silt, trace medium sand	6		BC=7 11 13	18"							
1445	25												
1440	30												
1435													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-11

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-16

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gINT FILE: Klf_gint_master_2024

Date Begin - End:	9/28/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-12**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80946°
Longitude: -117.00736°
Approximate Ground Surface Elevation (ft.): 1,471.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1470			**Artificial Fil** **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, moist	1						100	59			Hand Auger 5' bgs Modified Proctor
			Alluvium **Sandy SILT (ML)**: fine sand, non-plastic, olive gray, moist											
1465	5		very stiff, increase in sand	2		BC=3 5 10	18"	16.8	104.8					
			olive	3		BC=3 6 9	18"	16.1	98.5					
1460	10		light gray, trace medium sand	4		BC=5 10 16	18"	19.2	94.5					
1455	15		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, olive gray, moist, medium dense	5		BC=3 5 7	18"							
			Silty SAND (SM): fine to medium sand, light gray, moist, dense											
1450	20			6		BC=6 20 30	18"							
1445	25													
1440	30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 28, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-12

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-17

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-13**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80917°
Longitude: -117.00521°
Approximate Ground Surface Elevation (ft.): 1,475.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fil	1										Hand Auger 5' bgs
			Silty SAND (SM): fine sand, olive gray, moist							100	38			R-Value Test
			Alluvium											Corrosion Test
			Silty SAND (SM): fine sand, olive gray, moist trace medium sand											
1470	5		loose	2		BC=2 3 4	18"	17.8	104.1		34			
			Poorly Graded SAND (SP): fine sand, olive, moist, loose	3		BC=2 2 7	18"	35.3	84.4					
1465	10		**Sandy SILT (ML)**: fine sand, non-plastic, olive, moist, very stiff	4		BC=3 5 10	18"	22.2	100.9					
			Silty SAND (SM): fine to medium sand, olive, moist, loose, trace coarse sand											
1460	15			5		BC=2 2 6	18"							
1455	20		fine sand, dark gray, moist, medium dense	6		BC=5 5 10	18"							
1450	25													
1445	30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-13		FIGURE
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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-14**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.80735°
Longitude: -117.00326°
Approximate Ground Surface Elevation (ft.): 1,477.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1475	0	**Artificial Fill** **Well-Graded SAND with Silt (SW-SM)**: fine to medium sand, light gray, moist	1						99	6.0			Hand Auger 5' bgs
		Alluvium **Well-Graded SAND with Silt (SW-SM)**: fine to medium sand, light gray, moist											
		SILT with Sand (ML): fine sand, light gray, moist, medium stiff											
	5		2		BC=1 2 3	18"	37.8	81.3		71			
1470		olive gray, loose	3		BC=3 3 7	18"	8.6	108.7					
		Poorly Graded SAND with Silt (SP-SM): fine sand, olive gray, moist, medium dense											
	10		4		BC=2 4 12	18"	13.5	100.6					
1465		**Sandy SILT (ML)**: fine sand, non-plastic, dark gray, moist, very stiff											
		Silty SAND (SM): fine sand, dark grey, moist, loose											
	15		5		BC=4 5 7	18"	26.7	93.3					
1460 ▼		**Poorly Graded SAND with Silt (SP-SM)**: fine to medium sand, dark grey, moist, medium dense											
	20		6		BC=5 6 4	18"							
▽		wet											
1455													
	25												
1450													
	30												
1445													

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-14
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California
CHECKED BY: H.M	
DATE:	

FIGURE
A-19
PAGE: 1 of 1

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-15**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80475°
Longitude: -117.00315°
Approximate Ground Surface Elevation (ft.): 1,479.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill	1										Hand Auger 5' bgs
			Silty SAND (SM): fine to medium sand, olive brown, moist							99	25			Modified Proctor Corrosion Test
			Alluvium											
1475			**Silty SAND (SM)**: fine to medium sand, olive brown, moist											
			fine sand, olive											
	5		loose	2		BC=2 3 3	18"	29.1	86.1					Direct Shear Test
			Poorly Graded SAND (SP): fine sand, light gray, moist, medium dense, trace mica	3		BC=4 7 9	18"	9.4	104.2					
1470														
	10			4		BC=6 10 10	18"	25.5	93.4					
			Clayey SAND (SC): fine sand, low to medium plasticity, light gray, moist, loose											
1465														
	15			5		BC=1 2 4	18"							
			Silty SAND (SM): light gray, moist, medium dense											
1460														
	20			6		BC=5 7 9	18"							
			wet											
1455	25													
1450	30													
1445														

The boring was terminated at approximately 21.5 ft. below ground surface. Monitoring Well installed to a depth of 21.5

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 18.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-15
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California
CHECKED BY: H.M	
DATE:	

FIGURE
A-20

PAGE: 1 of 1

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-16**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.80256°
Longitude: -117.00315°
Approximate Ground Surface Elevation (ft.): 1,483.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, grayish brown, moist	1										Hand Auger 5' bgs
			Alluvium **Silty SAND (SM)**: fine sand, grayish brown, moist, loose											
1480	5			2		BC=5 5 5	18"	3.8	108.3	100	39			
1475 ▼			olive gray, loose, increase in sand content	3		BC=4 4 8	18"	21.1	97.5					
▽	10		olive, moist to wet, decrease in sand content	4		BC=2 2 3	18"	33.9	87.3					
1470														
	15		fine to medium sand, wet	5		BC=3 4 4	18"	25.7	99.9					
1465			**Poorly Graded SAND with Silt (SP-SM)**: fine to coarse sand, light gray, wet, loose											
	20			6		BC=1 2 6	18"							
1460														
	25													
1455														
	30													
1450														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 10.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 8 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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BORING LOG B-16

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-21

PAGE: 1 of 1

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-17**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

Latitude: 33.80223°
Longitude: -117.00116°
Approximate Ground Surface Elevation (ft.): 1,483.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine sand, dark brown, moist	1										Hand Auger 5' bgs Corrosion Test
1480			**Alluvium** **Silty SAND (SM)**: fine sand, dark brown, moist											
	5		loose	2		BC=1 2 3	18"	27.3	97.5	100	38			
1475			moist to wet, increase in sand	3		BC=5 7 7	18"	43.1	80.9					
	10		very loose	4		BC=2 2 2	18"	23.0	91.9					
1470														
	15		wet, medium dense	5		BC=3 7 7	18"							
1465														
	20		fine to medium sand, medium dense, trace coarse sand	6		BC=3 4 15	18"							
1460														
	25													
1455														
	30													
1450														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 8 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 12.5 ft. below ground surface after drilling completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.: 24002328.001A	BORING LOG B-17
DRAWN BY: D.E	San Jacinto Line E Storm Drain San Jacinto, California
CHECKED BY: H.M	
DATE:	

FIGURE
A-22
PAGE: 1 of 1

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PROJECT NUMBER: 24002328.001A
OFFICE FILTER: RIVERSIDE

Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-18**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80212°
Longitude: -116.99922°
Approximate Ground Surface Elevation (ft.): 1,483.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Artificial Fill **Silty SAND (SM)**: fine to medium sand, brown, moist	1						100	22			Hand Auger 5' bgs R-Value Test
1480			**Alluvium** **Silty SAND (SM)**: fine to medium sand, brown, moist											
	5		medium dense	2		BC=6 7 8	18"	16.4	104.6					Direct Shear Test
			fine sand, olive gray, moist to wet	3		BC=1 2 3	18"	34.8	83.0					
1475														
	10		**Sandy SILT (ML)**: fine sand, non-plastic, dark gray, wet, soft	4		BC=1 1 1	18"	38.3	85.3					
1470			**Silty SAND (SM)**: fine to medium sand, dark grey, wet, medium dense											
	15			5		BC=1 7 17	18"	20.3	112.5					
1465														
	20		increase in fines	6		BC=6 10 12	18"							
1460														
	25													
1455														
	30													
1450														

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
⧖ Groundwater was observed at approximately 9 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 5.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	24002328.001A
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CHECKED BY:	H.M
DATE:	

BORING LOG B-18

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-23

PAGE: 1 of 1

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Date Begin - End:	9/26/2023	**Drilling Company:**	2R Drilling	**BORING LOG B-19**	
Logged By:	D. Edrees	**Drill Crew:**	Miguel/Justin		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	8 in. O.D.		

FIELD EXPLORATION

Latitude: 33.80100°
Longitude: -117.00472°
Approximate Ground Surface Elevation (ft.): 1,491.00
Surface Condition: Unpaved Road

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1490			**Artificial Fill** **Silty SAND (SM)**: fine sand, brown, moist	1						100	13			Hand Auger 5' bgs Modified Proctor
			Alluvium **Silty SAND (SM)**: fine sand, brown, moist											
			SILT (ML): low plasticity, olive gray, moist, medium stiff, trace clay											
1485	5			2		BC=2 3 3	18"	18.4	93.5					
			Poorly Graded SAND with Silt (SP-SM): fine to medium sand, moist, medium dense	3		BC=5 10 20	18"	3.7	107.7					
1480	10		trace mica	4		BC=8 17 17	18"	19.2	102.7					
1475	15			5		BC=5 7 9	18"							
			Silty SAND (SM): fine sand, olive gray, moist to wet, medium dense											
1470	20		wet	6		BC=8 15 23	18"							
1465	25													
1460	30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled with auger cuttings on September 26, 2023.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 21 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 17.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Google Earth.

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PROJECT NO.:	24002328.001A
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BORING LOG B-19

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE
A-24

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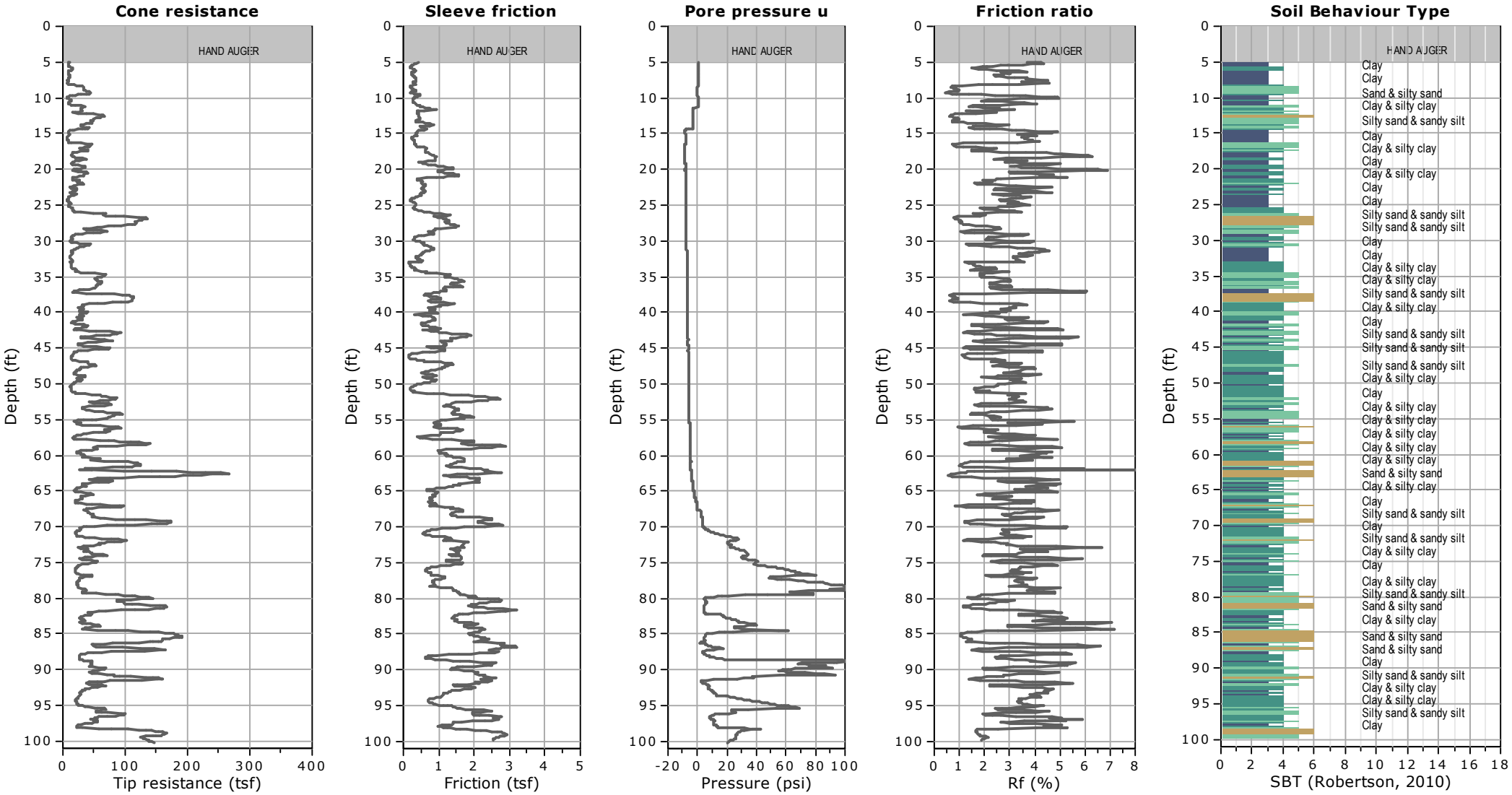
gINT FILE: Klf_gint_master_2024

Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Kleinfelder/ Line E San Jacinto**
Location: **San Jacinto, CA**

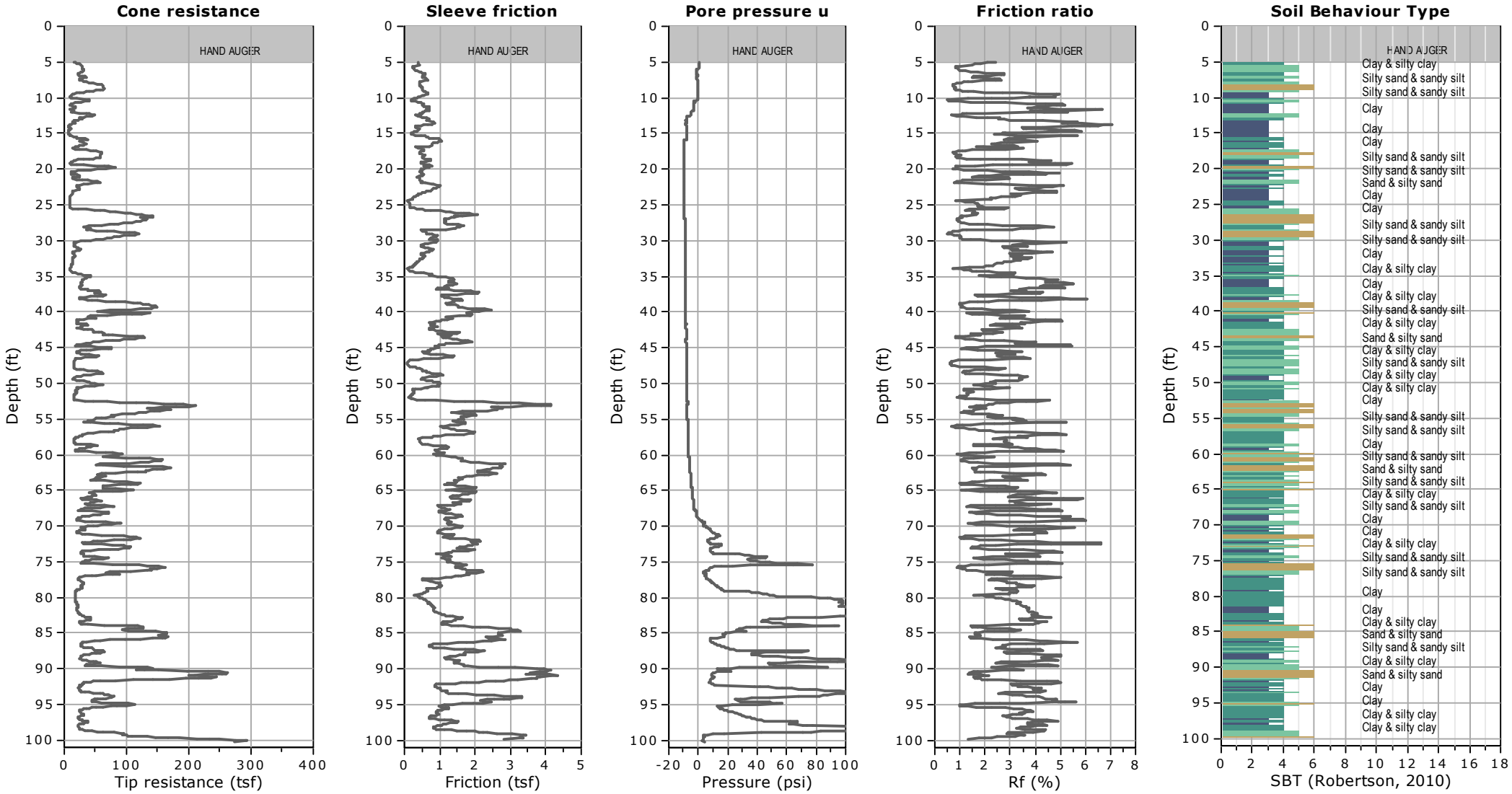
CPT-1
Total depth: 100.14 ft, Date: 10/12/2023



Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Kleinfelder/ Line E San Jacinto**
Location: **San Jacinto, CA**

CPT-2
Total depth: 100.14 ft, Date: 10/12/2023



APPENDIX B
LABORATORY TESTING

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APPENDIX B
LABORATORY TESTING

Laboratory tests were performed on drive and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed by Kleinfelder's Ontario, California lab and AP Engineering & Testing, Inc. (AP) of Pomona, California. The test results are presented herein. Visual classifications presented on the lab plates were performed by AP during their laboratory testing and may differ from those presented on the boring logs provided in Appendix A.

IN-SITU MOISTURE CONTENT AND DRY UNIT WEIGHT

In-situ moisture content and dry unit weight tests were performed on samples that could be recovered in a relatively undisturbed condition. Moisture content was evaluated in general accordance with ASTM Test Method D2216. Dry unit weight was evaluated in general accordance with ASTM Test Method D7263. The results are presented on the boring logs in Appendix A.

WASH SIEVE

To provide information on the fines content of the soil layers at the site, wash sieves were performed to determine the percentage passing the #200 sieve. The wash sieves were performed in accordance with ASTM Test Method D1140. The results are presented on the boring logs in Appendix A.

GRAIN SIZE DISTRIBUTION

Sieve & hydrometer analyses were performed on soil samples to evaluate the gradation of the material and to aid in soil classification. Tests were performed in general accordance with ASTM Standard Test Method D6913. The results are presented on the boring logs in Appendix A and in the attached laboratory data in Appendix B.

ATTERBERG LIMITS (PLASTICITY INDEX)

Plasticity limit and liquid limit testing was performed on soil samples to evaluate behavior conditions at varying water contents. Testing was performed in general accordance with ASTM Standard Test Method D4318. The results are presented on the boring logs in Appendix A and in the attached laboratory data in Appendix B.

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DIRECT SHEAR

Direct shear strength tests were performed by AP on drive samples to evaluate the drained shear strength of the onsite soils. Samples were tested in a near-saturated condition in general accordance with ASTM Test Method D 3080 (consolidated, drained). The results are presented in the attached laboratory data in Appendix B.

CONSOLIDATION TEST

Consolidation testing was performed by AP on selected relatively undisturbed samples by AP Engineering in accordance with ASTM D 2435. The tests were performed on 1.0-inch-high, 2.41-inch diameter samples. After trimming the ends, the sample was placed in a consolidometer and an initial reading was recorded. The sample was saturated during loading, and thereafter, the sample was incrementally loaded. The results are presented in the attached laboratory data in Appendix B.

EXPANSION INDEX

Expansion Index testing was performed on near surface bulk samples to determine the expansion potential of the soil. The testing was performed in accordance with ASTM Standard Test Method D4829. The results are presented in the attached laboratory data in Appendix B.

COMPACTION TESTING (MAXIMUM DRY DENSITY-OPTIMUM MOISTURE)

Maximum dry density-optimum moisture tests were performed on select bulk samples of the on-site soils to determine compaction characteristics. The tests were performed in accordance with ASTM Standard Test Method D1557. The results are presented in the attached laboratory data in Appendix B.

R-VALUE TESTING

Resistance value (R-value) tests were performed on bulk soil samples obtained to evaluate pavement support characteristics of the near-surface onsite soils. R-value tests were performed in accordance with ASTM Standard Test Method D2844. The results are presented in the attached laboratory data in Appendix B.

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CORROSIVITY TESTS

Chemical analyses were performed on samples of the near surface soil by AP to estimate pH, minimum resistivity, soluble sulfate, and chloride contents. The tests were performed in accordance with Caltrans standards. The results are presented in the attached laboratory data in Appendix B.

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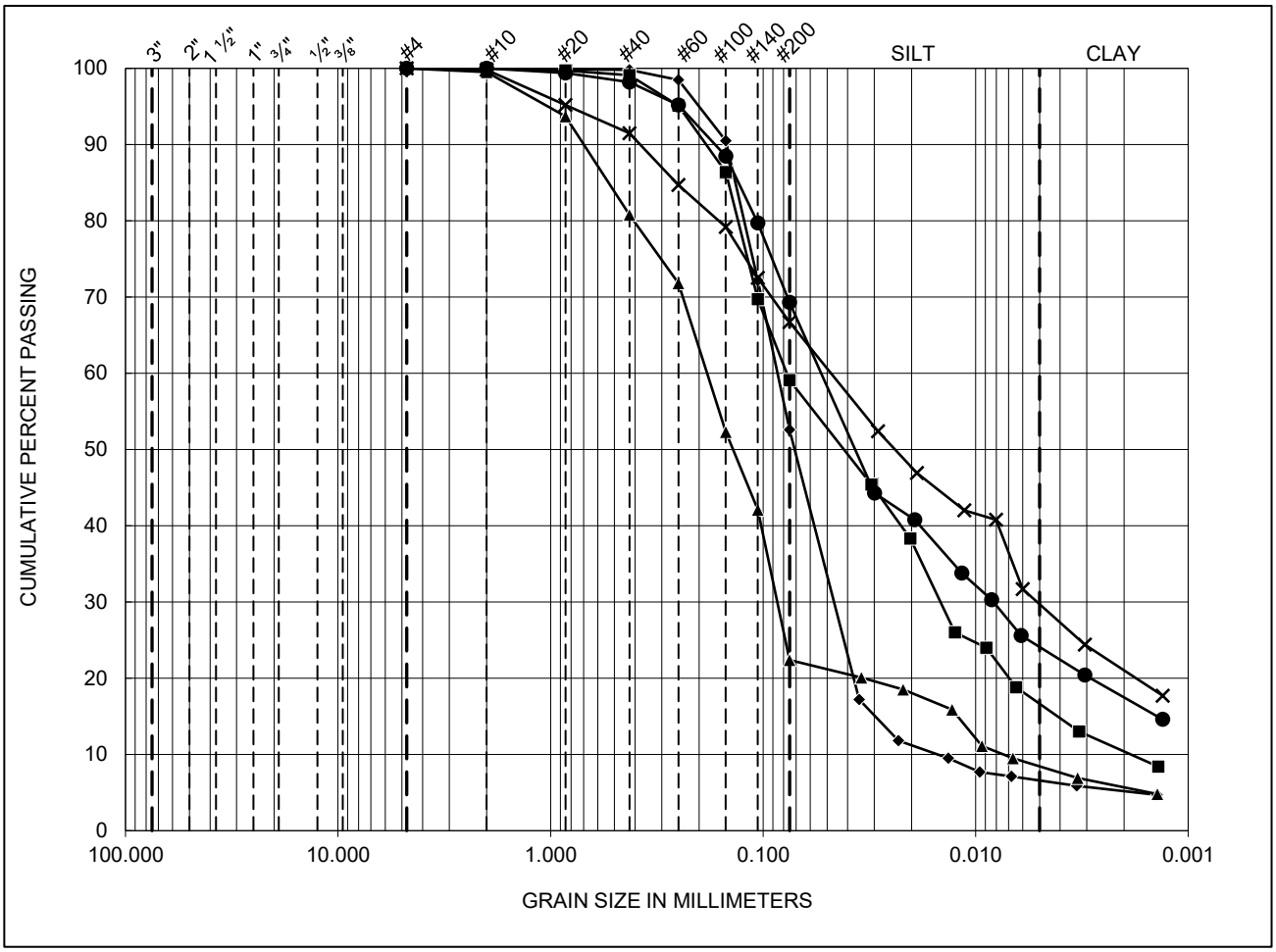

COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-1	2	5	0.0	47.4	52.6	NM	NM	NM	Sandy Silt (ML)
■	B-2	2	5	0.0	40.9	59.1	NM	NM	NM	Sandy Silt (ML)
▲	B-4	1	0-5	0.0	77.6	22.4	NM	NM	NM	Silty Sand (SM)
×	B-5	2	5	0.0	33.3	66.7	NM	NM	NM	Sandy Silt (ML)
●	B-6	1	0-5	0.0	30.7	69.3	NM	NM	NM	Sandy Silt (ML)

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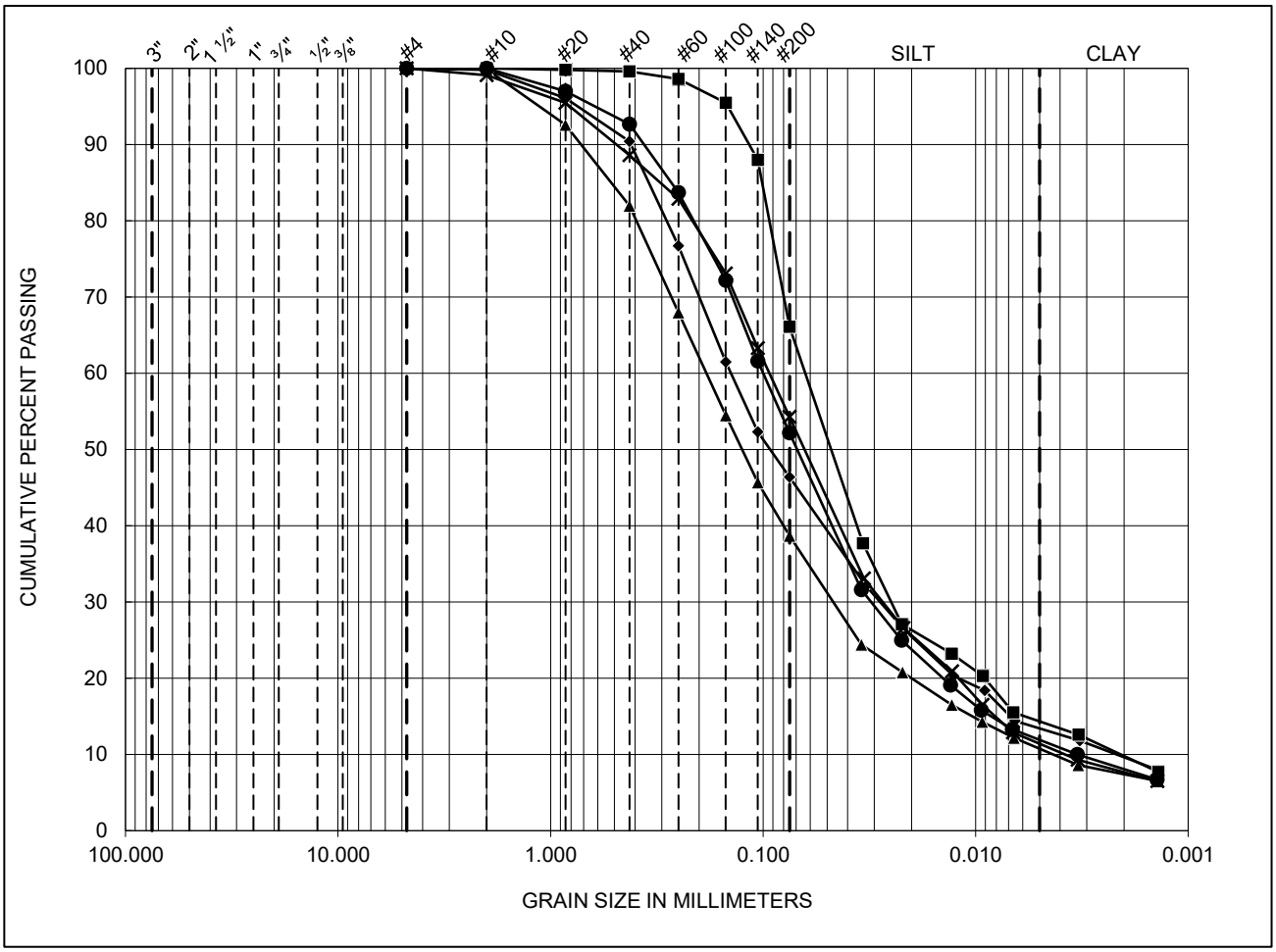
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-7	1	0-5	0.0	53.6	46.4	NM	NM	NM	Silty Sand (SM)
■	B-8	2	5	0.0	33.9	66.1	NM	NM	NM	Sandy Silt (ML)
▲	B-9	2	5	0.0	61.3	38.7	NM	NM	NM	Silty Sand (SM)
×	B-10	1	0-5	0.0	45.7	54.3	NM	NM	NM	Sandy Silt (ML)
●	B-11	1	0-5	0	47.8	52.2	NM	NM	NM	Sandy Silt (ML)

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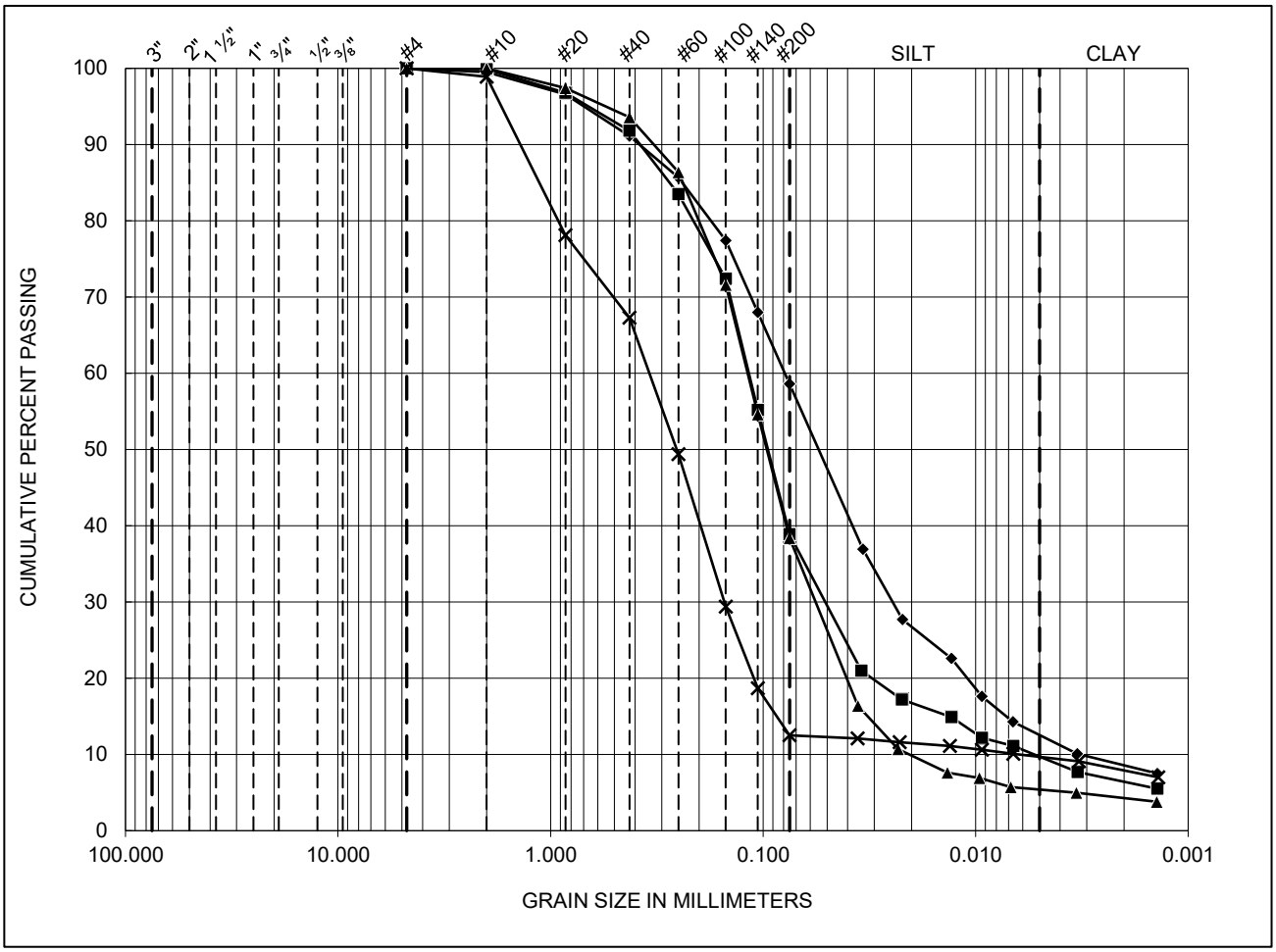
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-12	1	0-5	0.0	41.4	58.6	NM	NM	NM	Sandy Silt (ML)
■	B-16	2	5	0.0	61.1	38.9	NM	NM	NM	Silty Sand (SM)
▲	B-17	2	5	0.0	61.6	38.4	NM	NM	NM	Silty Sand (SM)
×	B-19	1	0-5	0.0	87.5	12.5	NM	NM	NM	Silty Sand (SM)

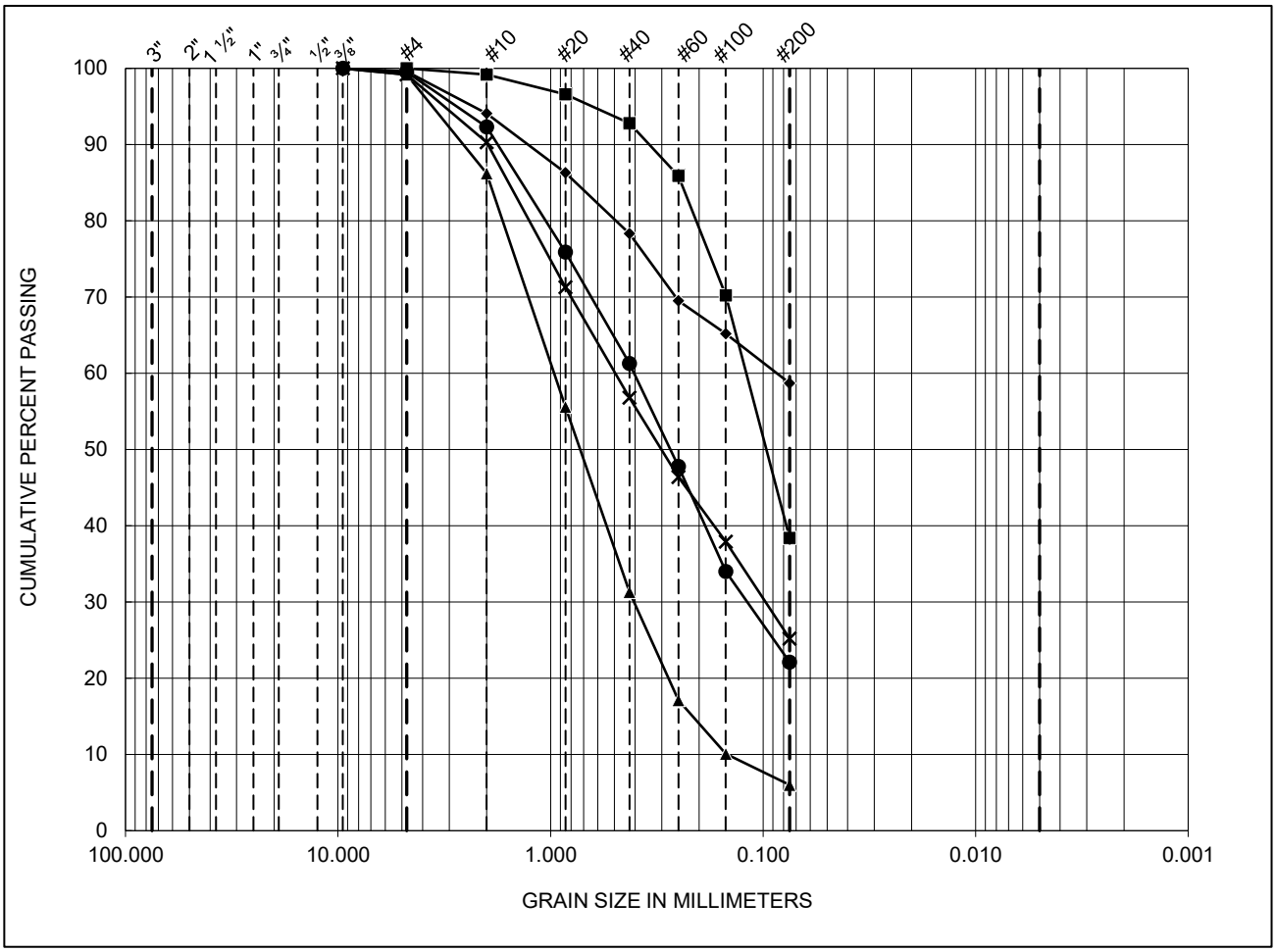
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002823.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI	
◆	B-3	1	0-5	0.4	40.9	58.7	NM	NM	NM	Sandy Silt (ML)
■	B-13	1	0-5	0.0	61.6	38.4	NM	NM	NM	Silty Sand (SM)
▲	B-14	1	0-5	0.8	93.2	6.0	NM	NM	NM	Well Graded Sand w/Silt (SW-SM)
×	B-15	1	0-5	0.8	74.0	25.2	NM	NM	NM	Silty Sand (SM)
●	B-18	1	0-5	0.5	77.4	22.1	NM	NM	NM	Silty Sand (SM)

KLEINFELDER
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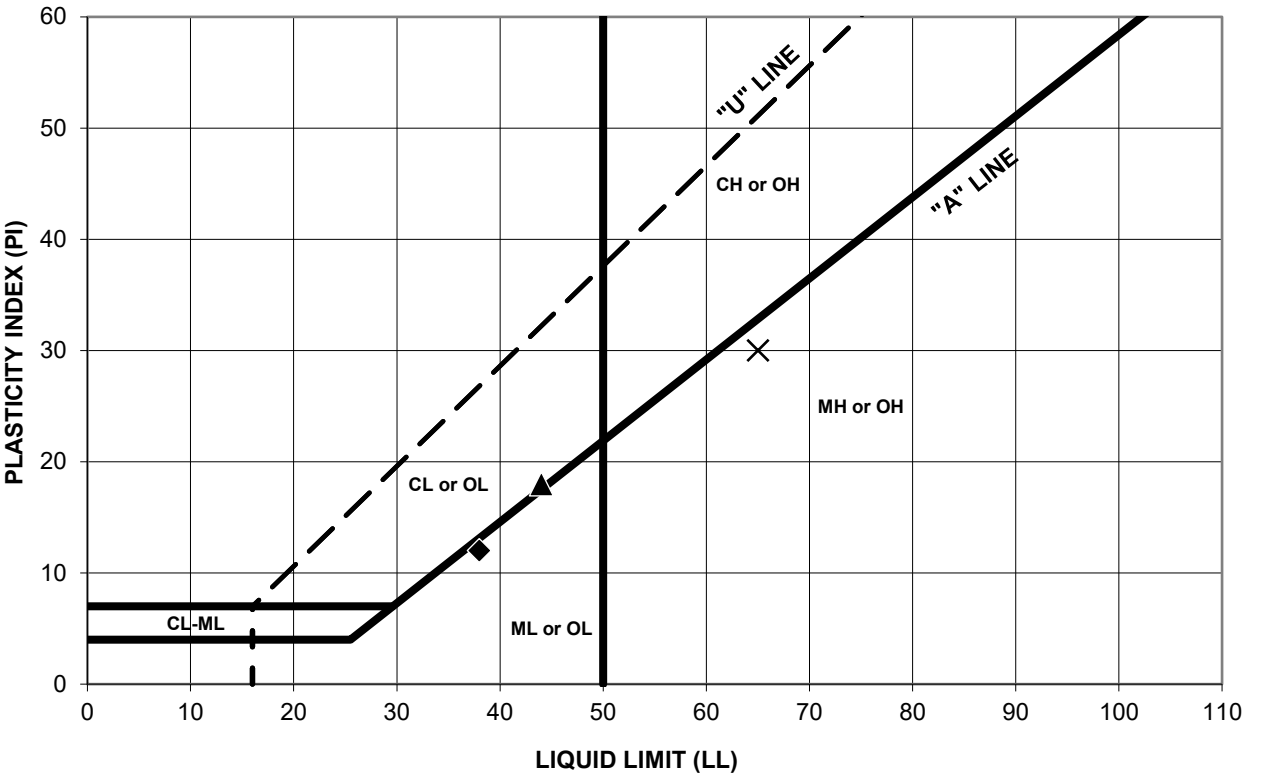
PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	11/1/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

GRAIN SIZE DISTRIBUTION

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	B-1	6	20	38	26	12	Silt (ML)
●	B-1	8	30	NP	NP	NP	Silt with Sand (ML)
▲	B-1	12	50	44	26	18	Clayey Sand (SC)
×	B-2	7	25	65	35	30	Sandy Elastic Silt (MH)
■	B-2	9	35	NP	NP	NP	Silty Sand (SM)

*NP= Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
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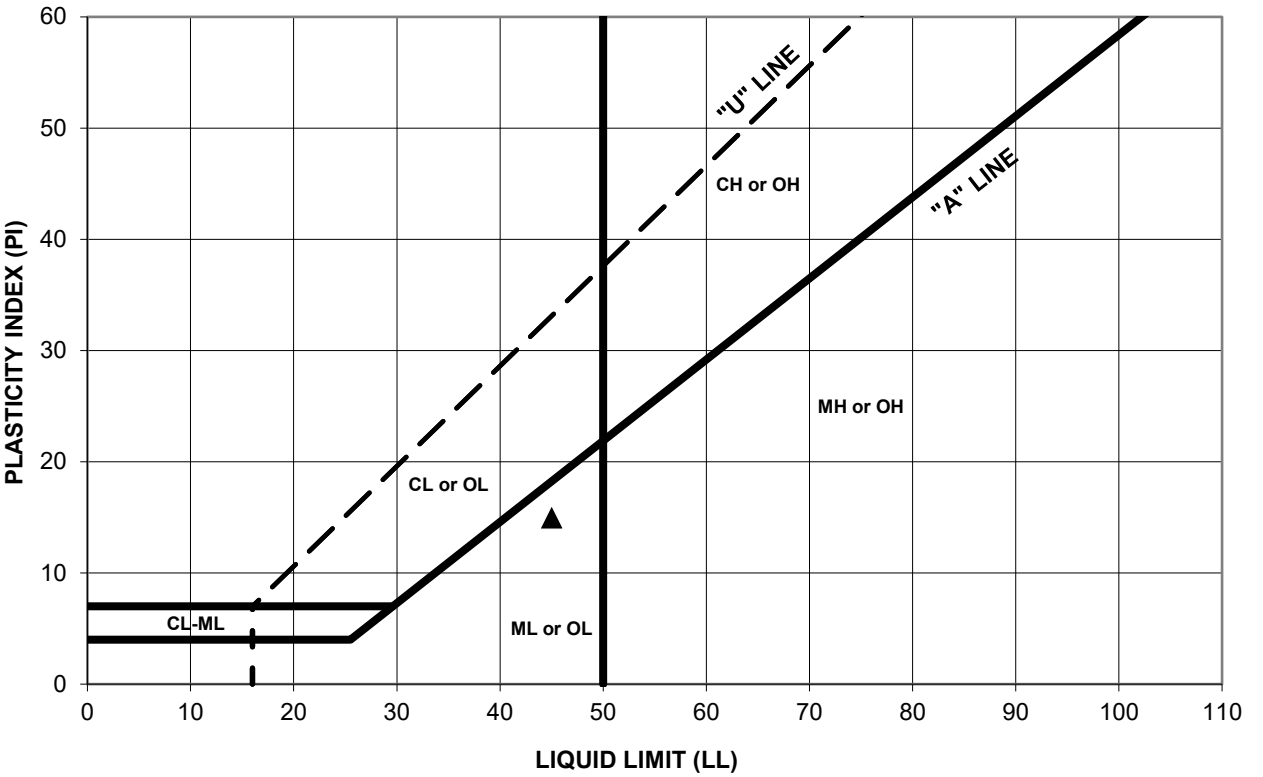
PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/26/2023
CHECKED BY:	M.Magaña
DATE:	11/2/2023

PLASTICITY TESTING

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI	
◆	B-2	11	45	NP	NP	NP	Silty Sand (SM)
●	B-4	2	5	NP	NP	NP	Silty Sand (SM)
▲	B-4	5	15	45	30	15	Sandy Silt (ML)
×	B-4	8	30	NP	NP	NP	Silty Sand (SM)

*NP= Non Plastic

Testing performed in general accordance with ASTM D4318

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/26/2023
CHECKED BY:	M.Magaña
DATE:	11/2/2023

PLASTICITY TESTING

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE

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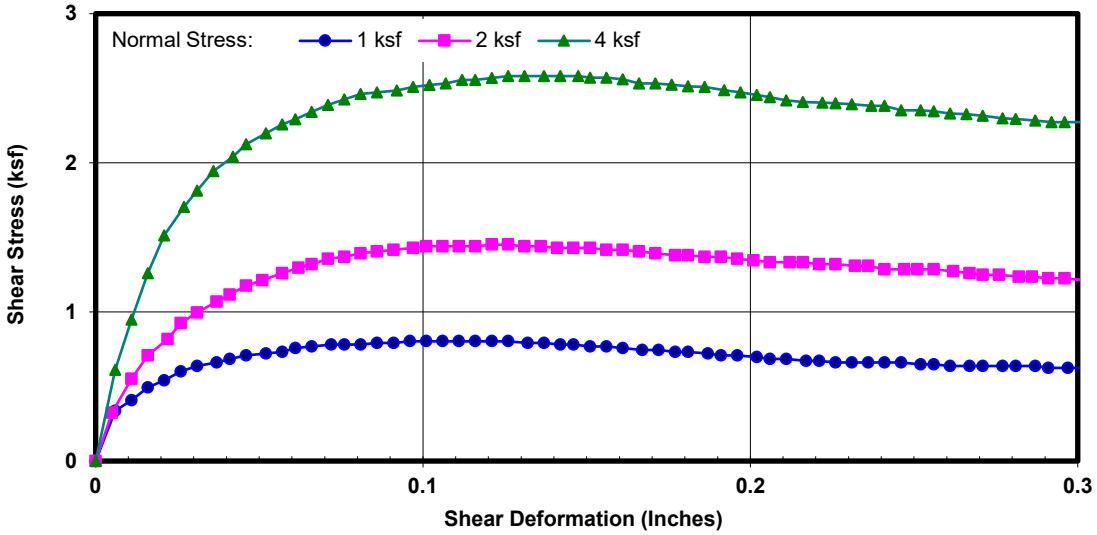
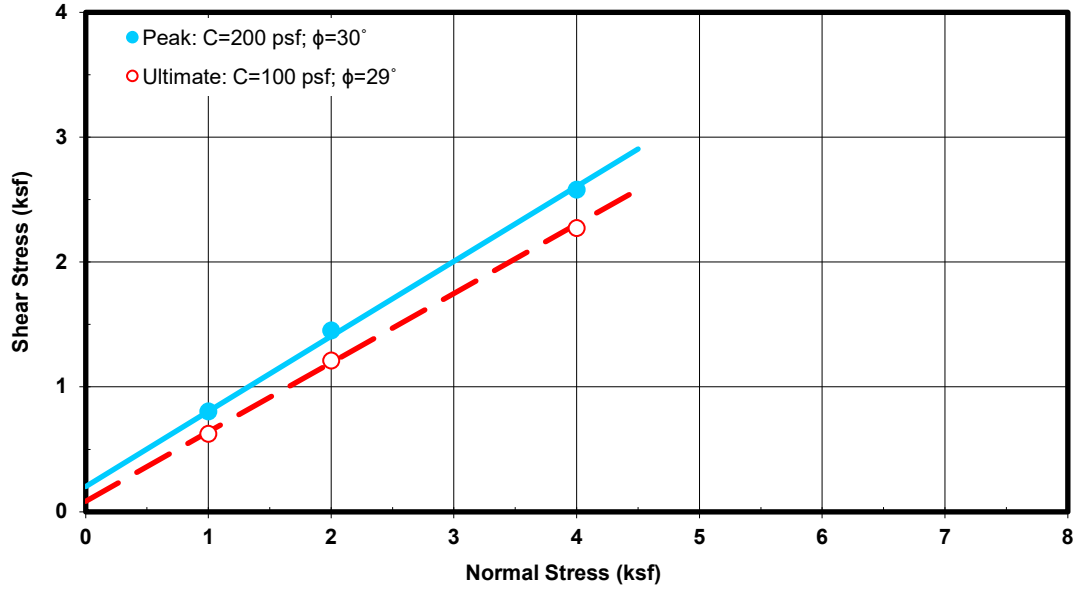
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-1		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	3	**Depth (ft):** 7.5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
114.0	90.2	26.4	29.8	82	93	1	0.804	0.624
						2	1.452	1.212
						4	2.580	2.272





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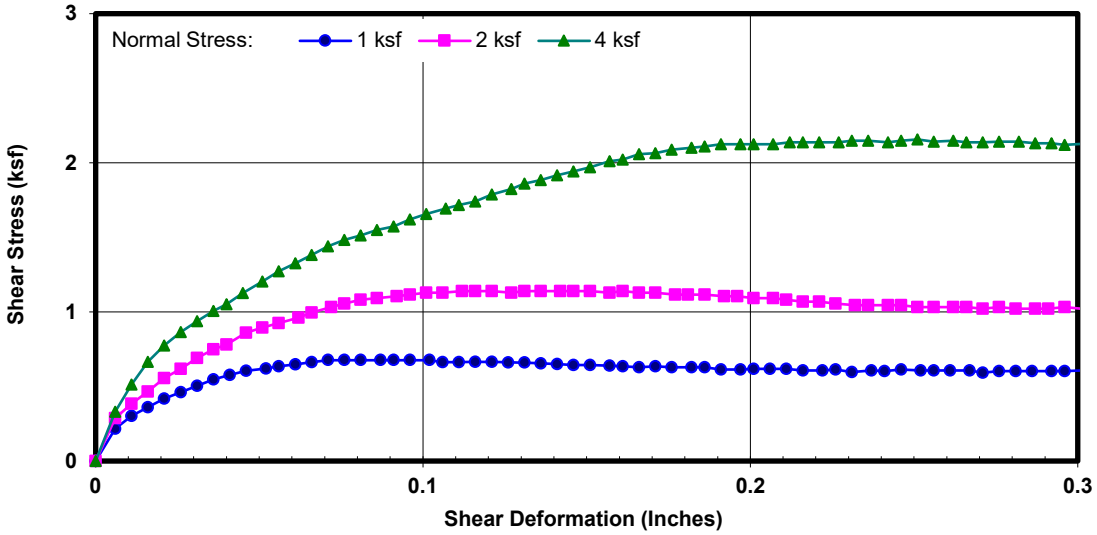
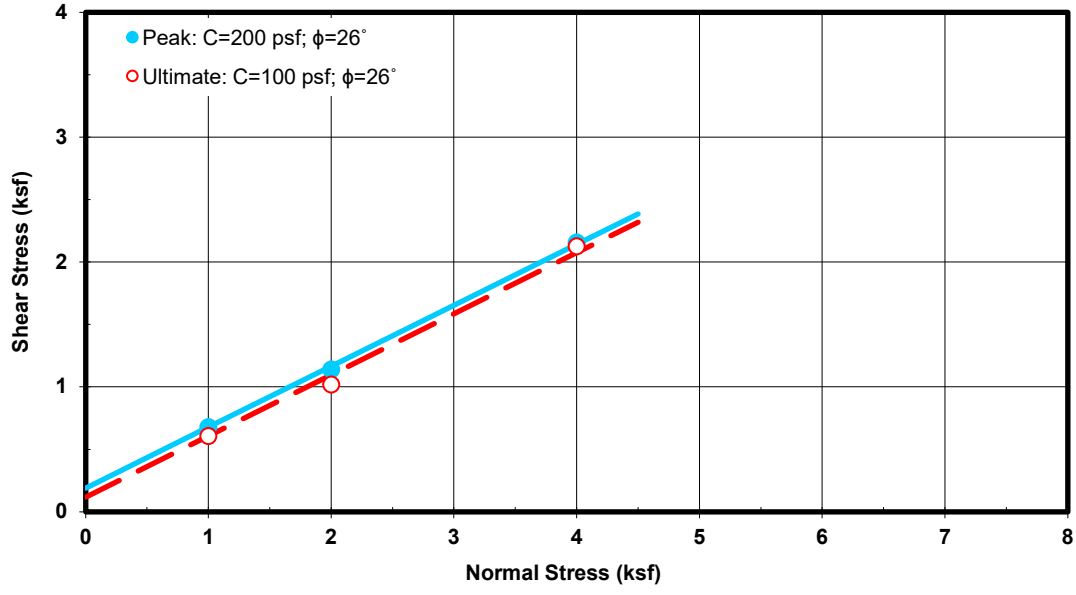
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-1		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	7	**Depth (ft):** 25			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
115.1	84.2	36.8	37.3	99	100	1	0.677	0.607
						2	1.140	1.020
						4	2.157	2.126





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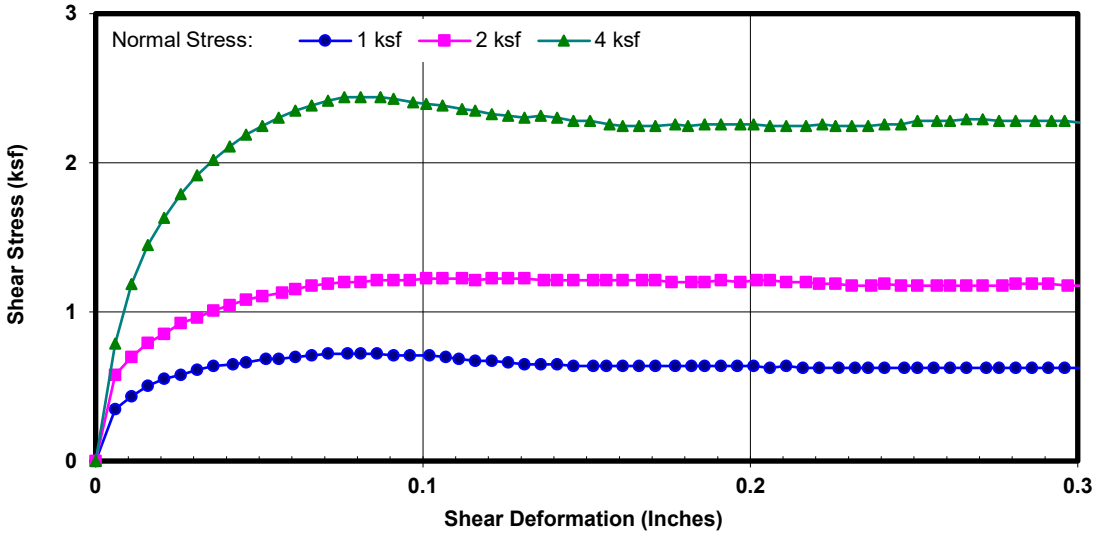
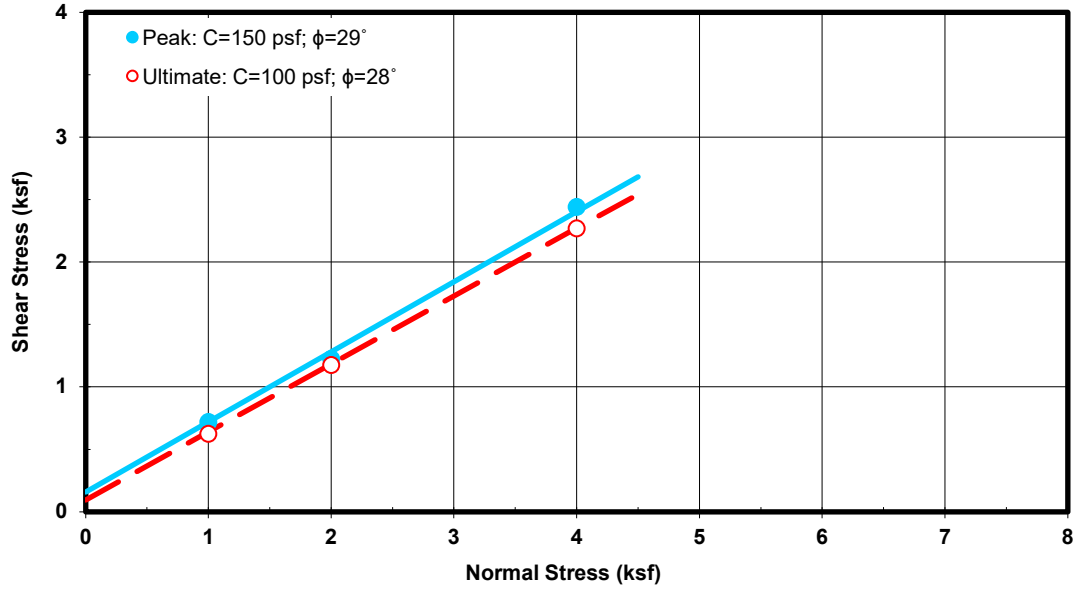
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-2		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	4	**Depth (ft):** 10			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
118.2	92.7	27.4	30.3	91	100	1	0.720	0.624
						2	1.224	1.176
						4	2.440	2.270





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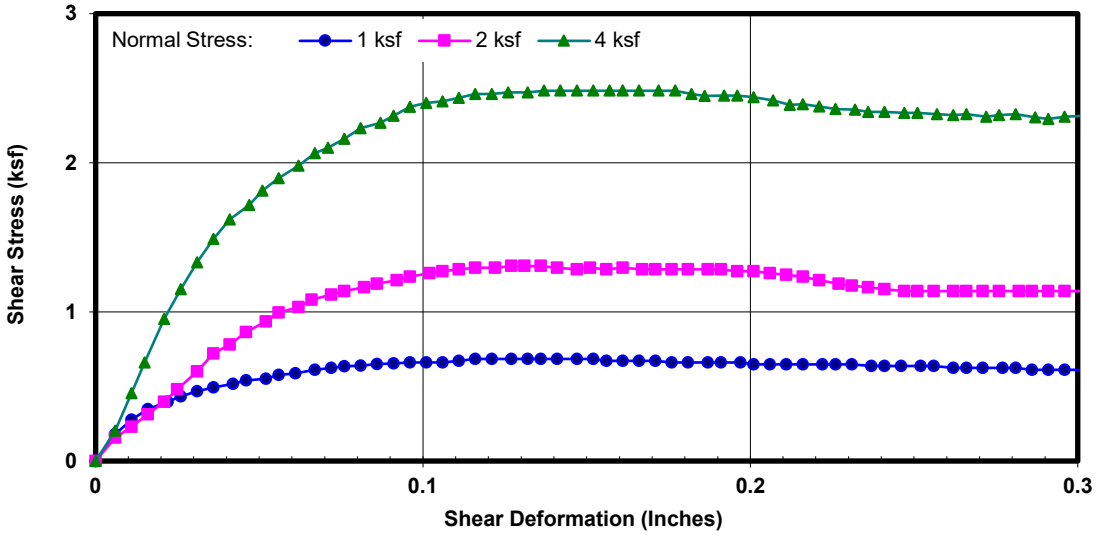
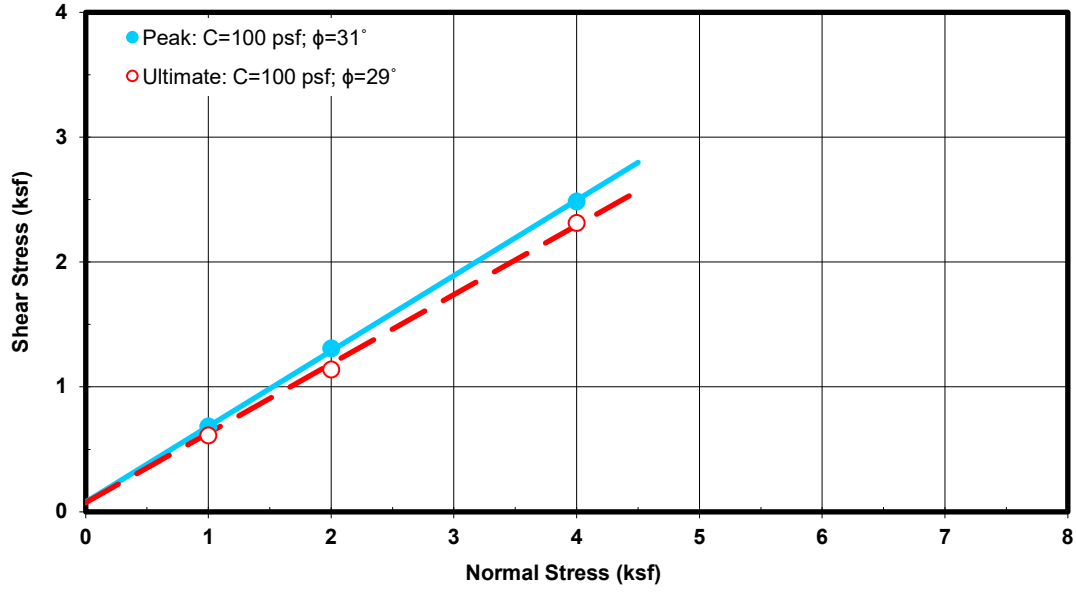
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-2		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	8	**Depth (ft):** 30			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
115.1	85.1	35.3	36.1	97	99	1	0.684	0.612
						2	1.308	1.140
						4	2.484	2.314





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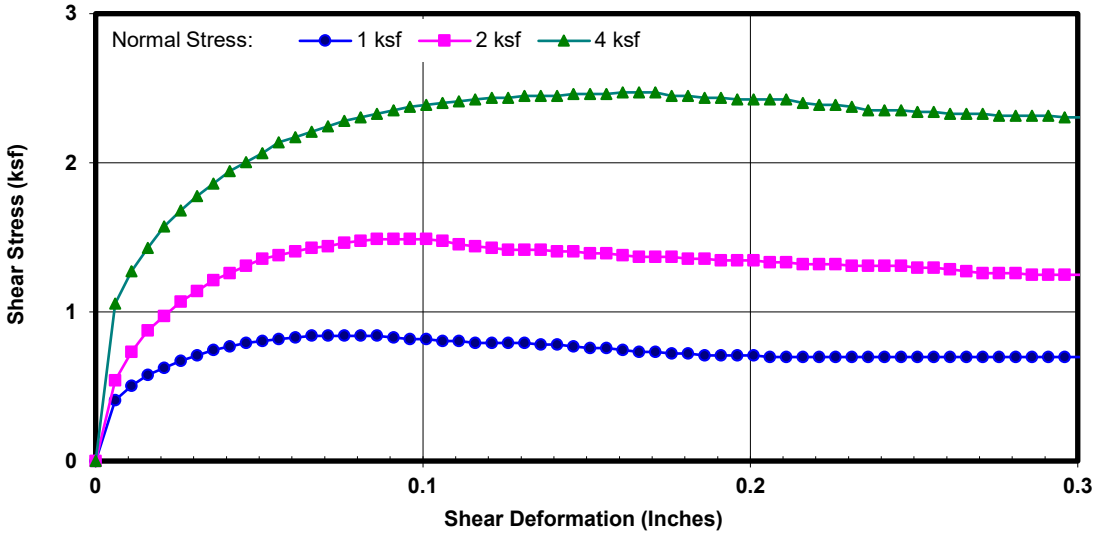
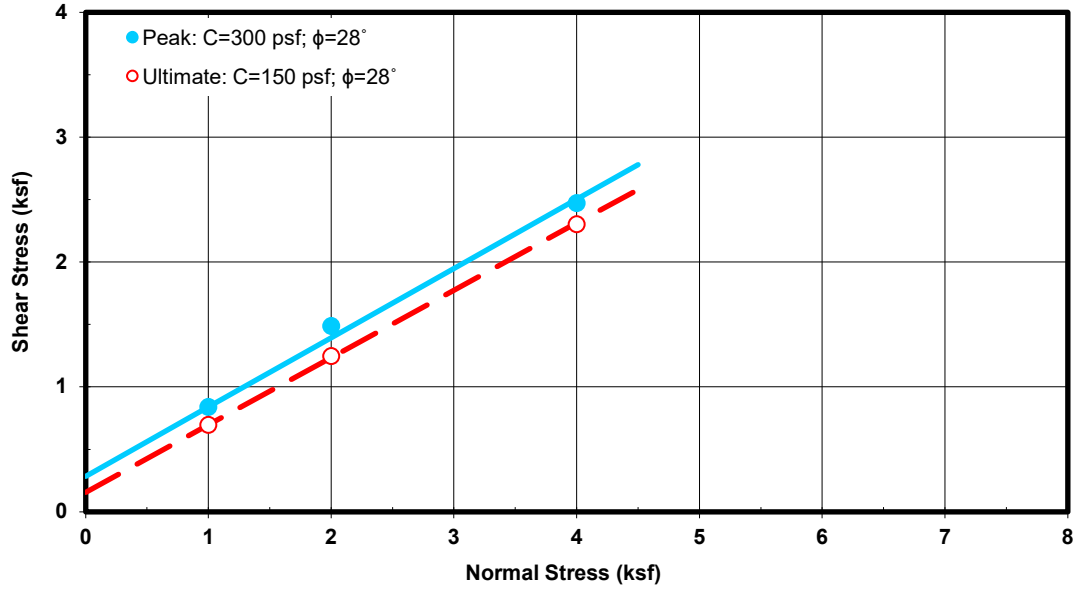
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-6		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
117.0	91.8	27.5	29.5	89	95	1	0.840	0.696
						2	1.488	1.248
						4	2.472	2.304





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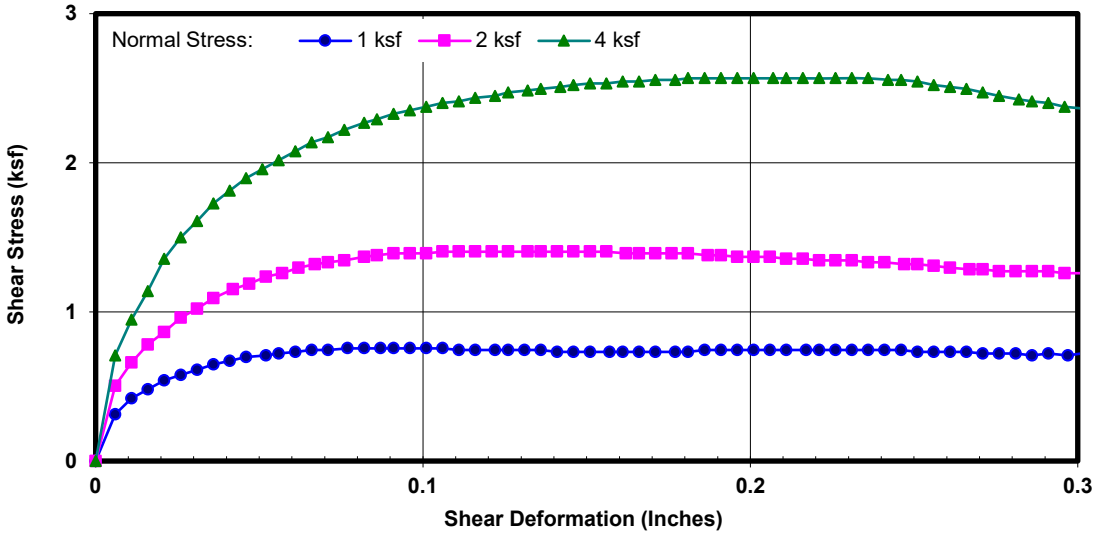
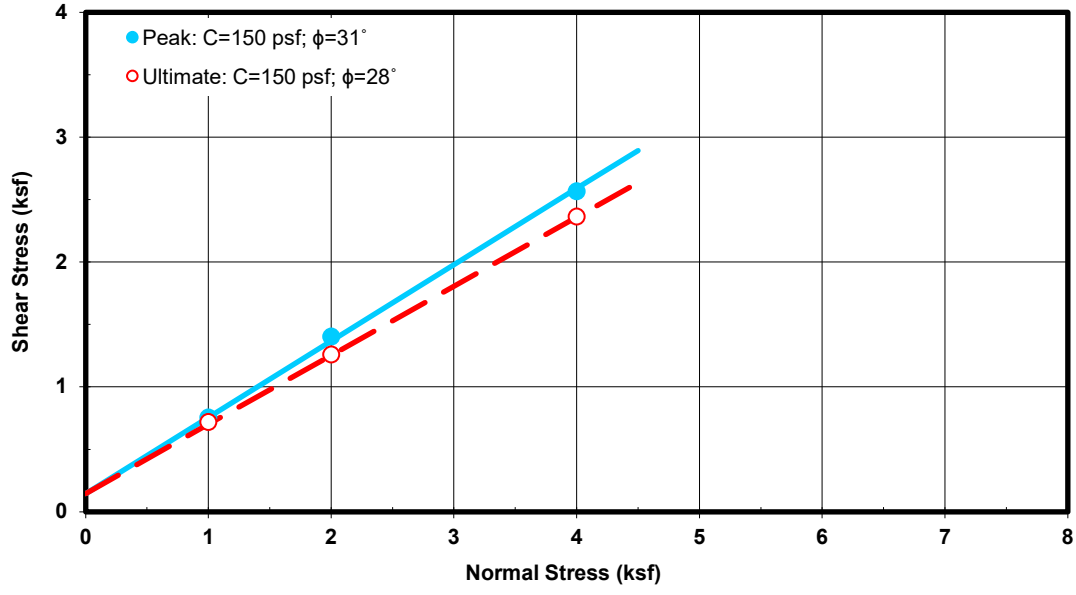
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	ST	**Date:** 10/27/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-11		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
88.5	80.0	10.7	37.6	26	92	1	0.756	0.720
						2	1.404	1.260
						4	2.568	2.364





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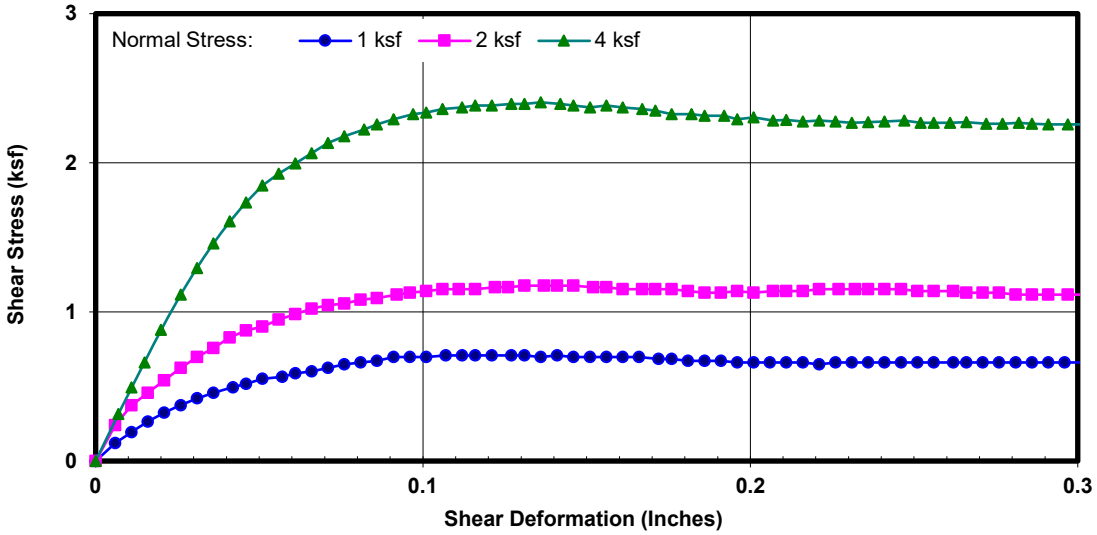
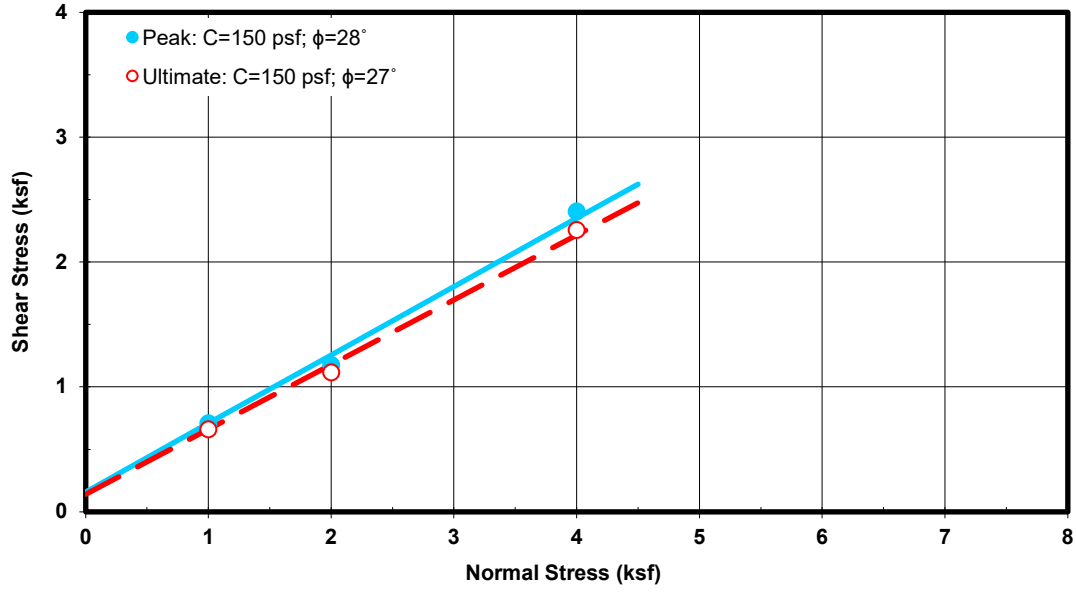
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-15		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Sandy Silt				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
111.1	86.1	29.1	33.3	82	94	1	0.708	0.660
						2	1.176	1.116
						4	2.405	2.257





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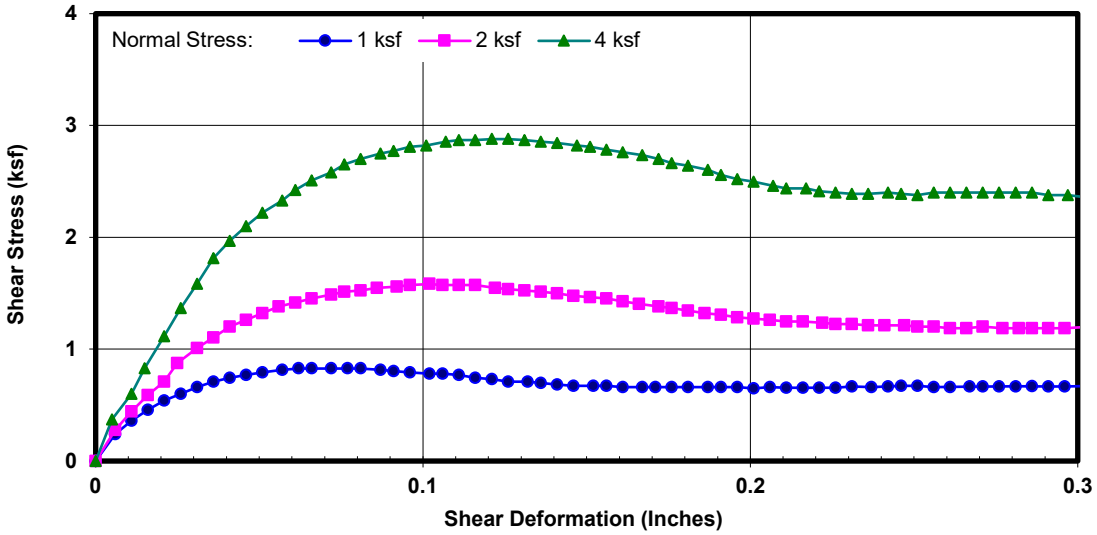
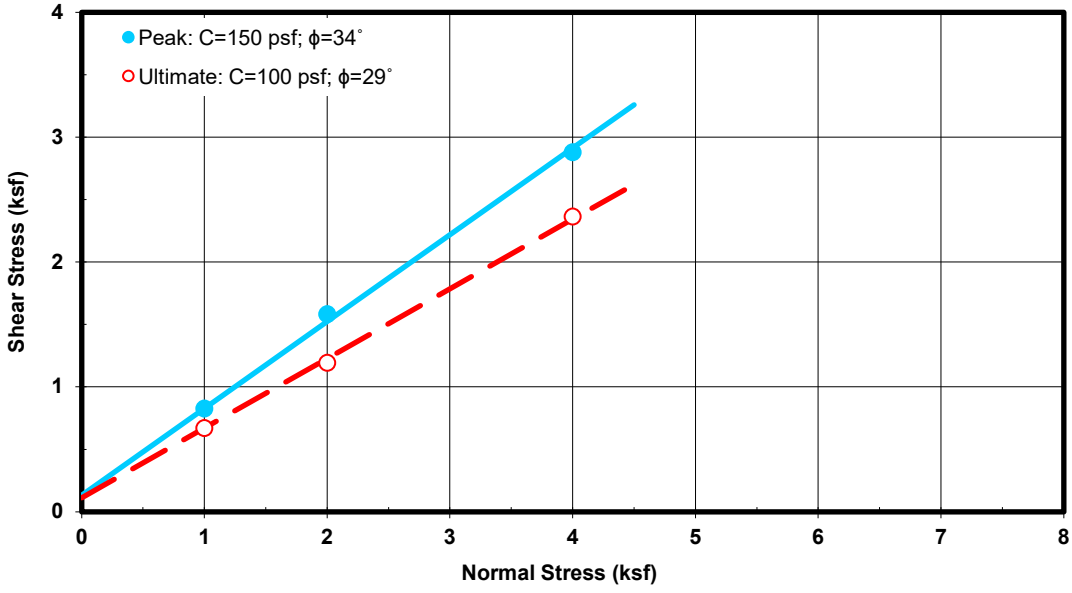
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name:	San Jacinto Line E Storm Drain		**Tested By:**	DK	**Date:** 10/30/23
Project No.:	24002328.001A		**Computed By:**	NR	**Date:** 11/01/23
Boring No.:	B-18		**Checked by:**	AP	**Date:** 11/01/23
Sample No.:	2	**Depth (ft):** 5			
Sample Type:	Mod. Cal.				
Soil Description:	Silty Sand				
Test Condition:	Inundated	**Shear Type:** Regular			

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
121.7	104.6	16.4	22.0	72	97	1	0.828	0.670
						2	1.584	1.194
						4	2.880	2.364





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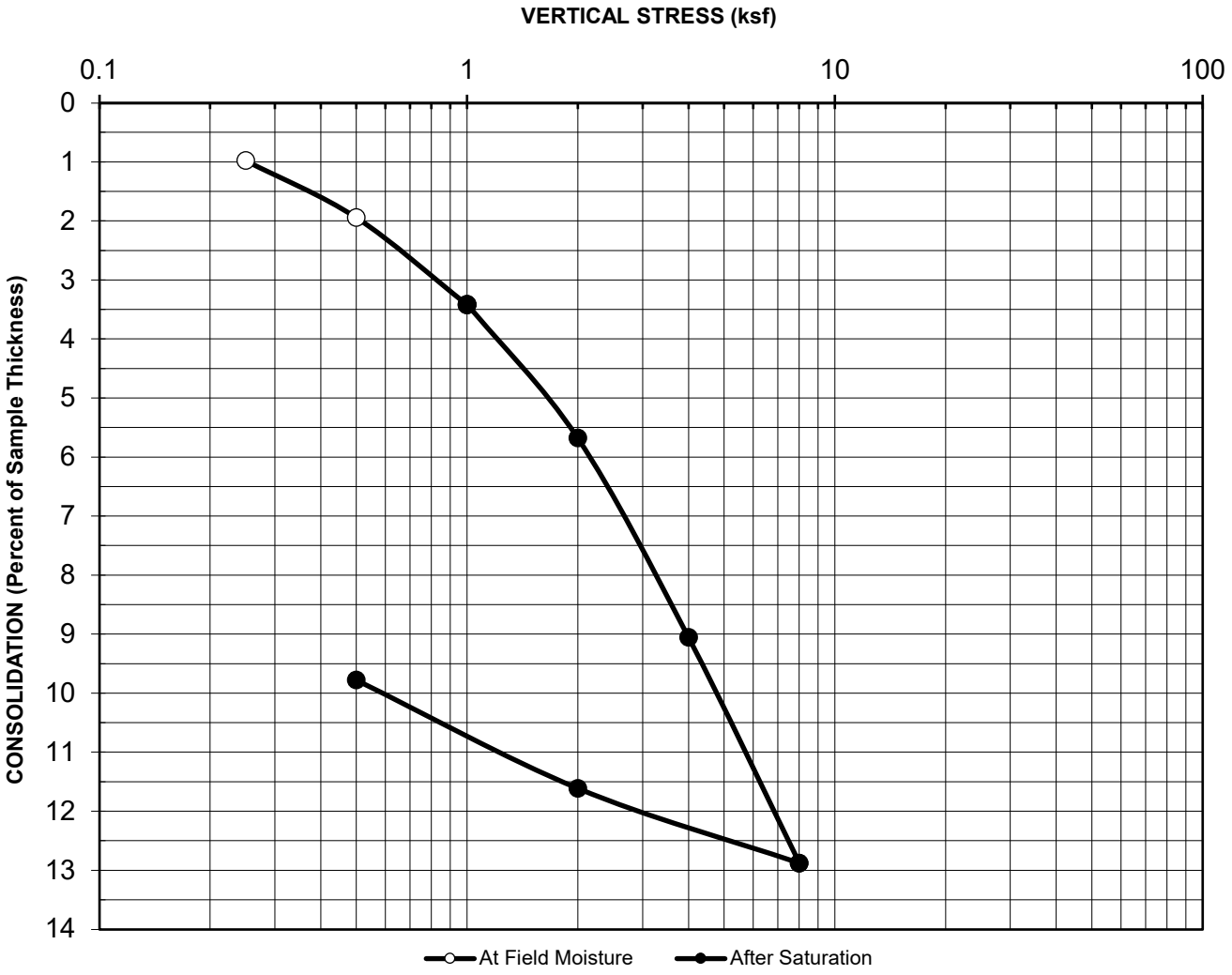

Boring No. :	B-1	Initial Dry Unit Weight (pcf):	83.7
Sample No.:	5	Initial Moisture Content (%):	36.7
Depth (feet):	15	Final Moisture Content (%):	36.6
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Sandy Silt	Initial Void Ratio:	1.01
Remarks:	Swell= 0.01% upon inundation		

CONSOLIDATION CURVE
ASTM D 2435

Project Name:	San Jacinto Line E Storm Drain
Project No.:	24002328.001A
Date:	10/26/2023
AP No:	23-1050 **Sheet No:** 1

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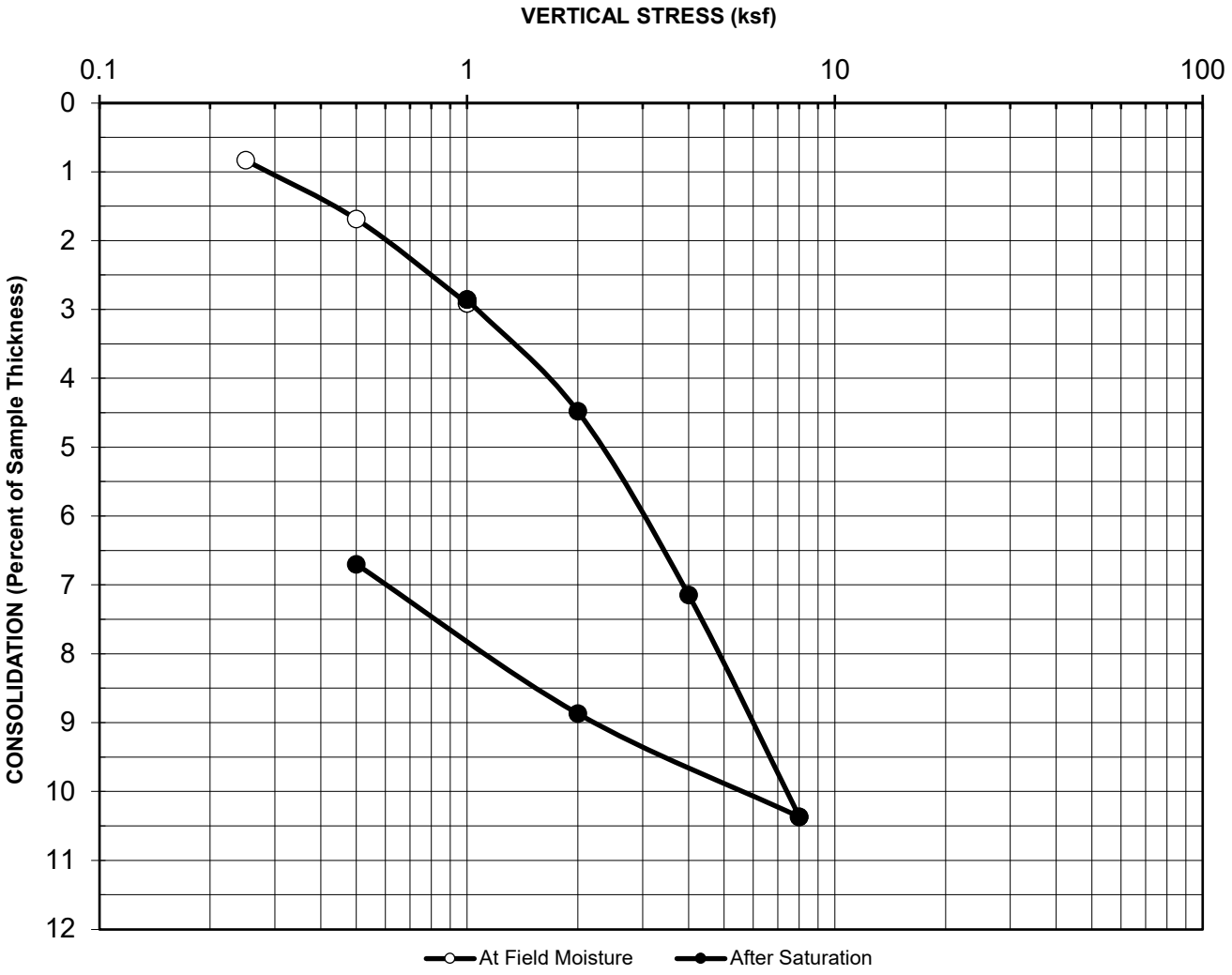

Boring No. :	B-2	Initial Dry Unit Weight (pcf):	81.3
Sample No.:	10	Initial Moisture Content (%):	39.3
Depth (feet):	40	Final Moisture Content (%):	39.4
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Sandy Silt	Initial Void Ratio:	1.07
Remarks:	Swell= 0.06% upon inundation		

CONSOLIDATION CURVE
ASTM D 2435

Project Name:	San Jacinto Line E Storm Drain
Project No.:	24002328.001A
Date:	10/26/2023
AP No:	23-1050 **Sheet No:** 1

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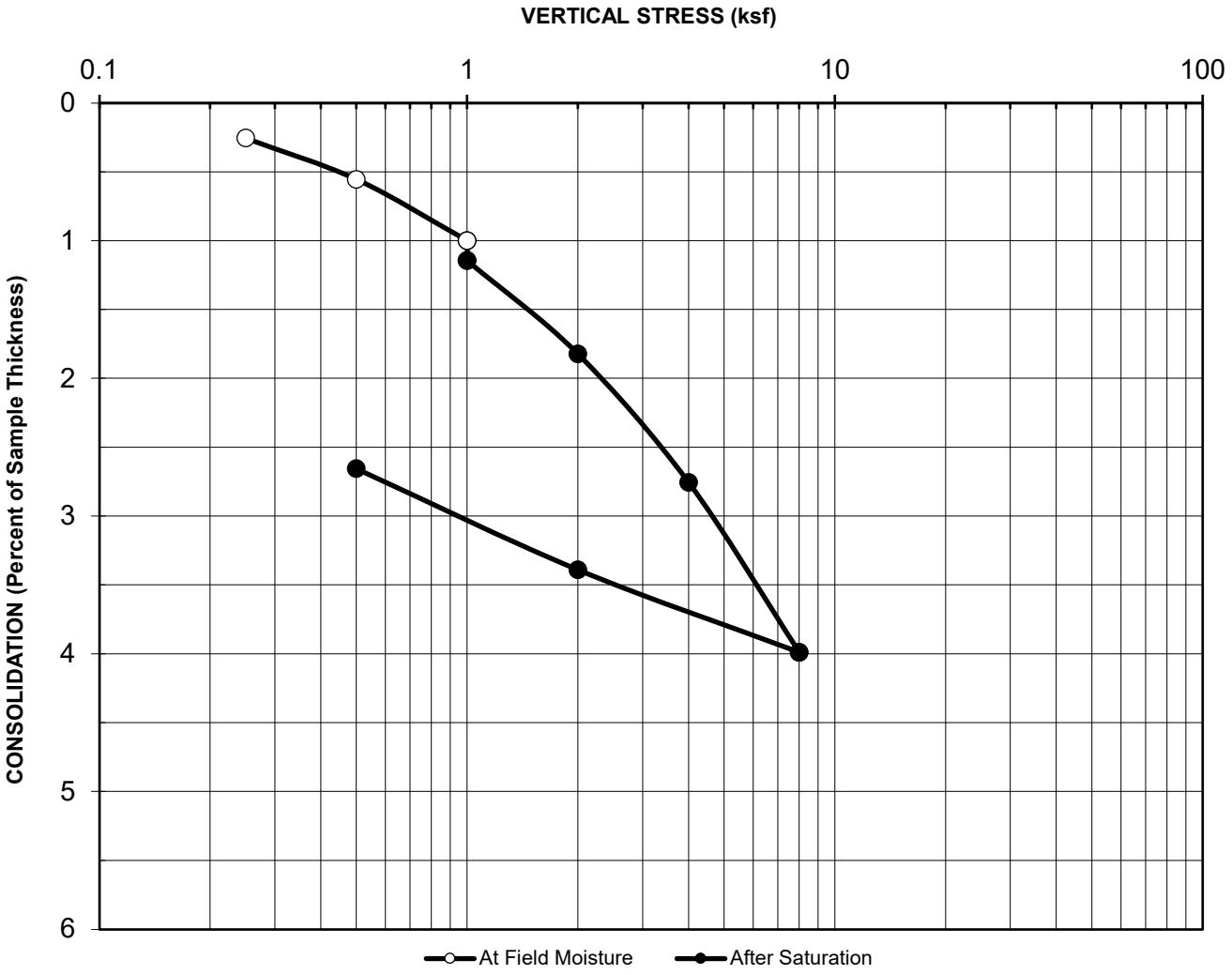


Boring No. :	B-4	Initial Dry Unit Weight (pcf):	108.0
Sample No.:	2	Initial Moisture Content (%):	8.3
Depth (feet):	5	Final Moisture Content (%):	19.4
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Silty Sand	Initial Void Ratio:	0.56
Remarks:	Collapse= 0.14% upon inundation		

CONSOLIDATION CURVE
ASTM D 2435

Project Name:	San Jacinto Line E Storm Drain
Project No.:	24002328.001A
Date:	10/26/2023
AP No:	23-1050 **Sheet No:** 1

EXPANSION INDEX TEST RESULTS

SAMPLE LOCATION	SAMPLE DEPTH (FT)	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (PCF)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (IN)	EXPANSION INDEX	EXPANSION POTENTIAL
B-2, #1	0-5	13.0%	100.2	30.9%	0.0342	34	Low
B-7, #1	0-5	10.0%	107.9	24.6%	0.0440	44	Low

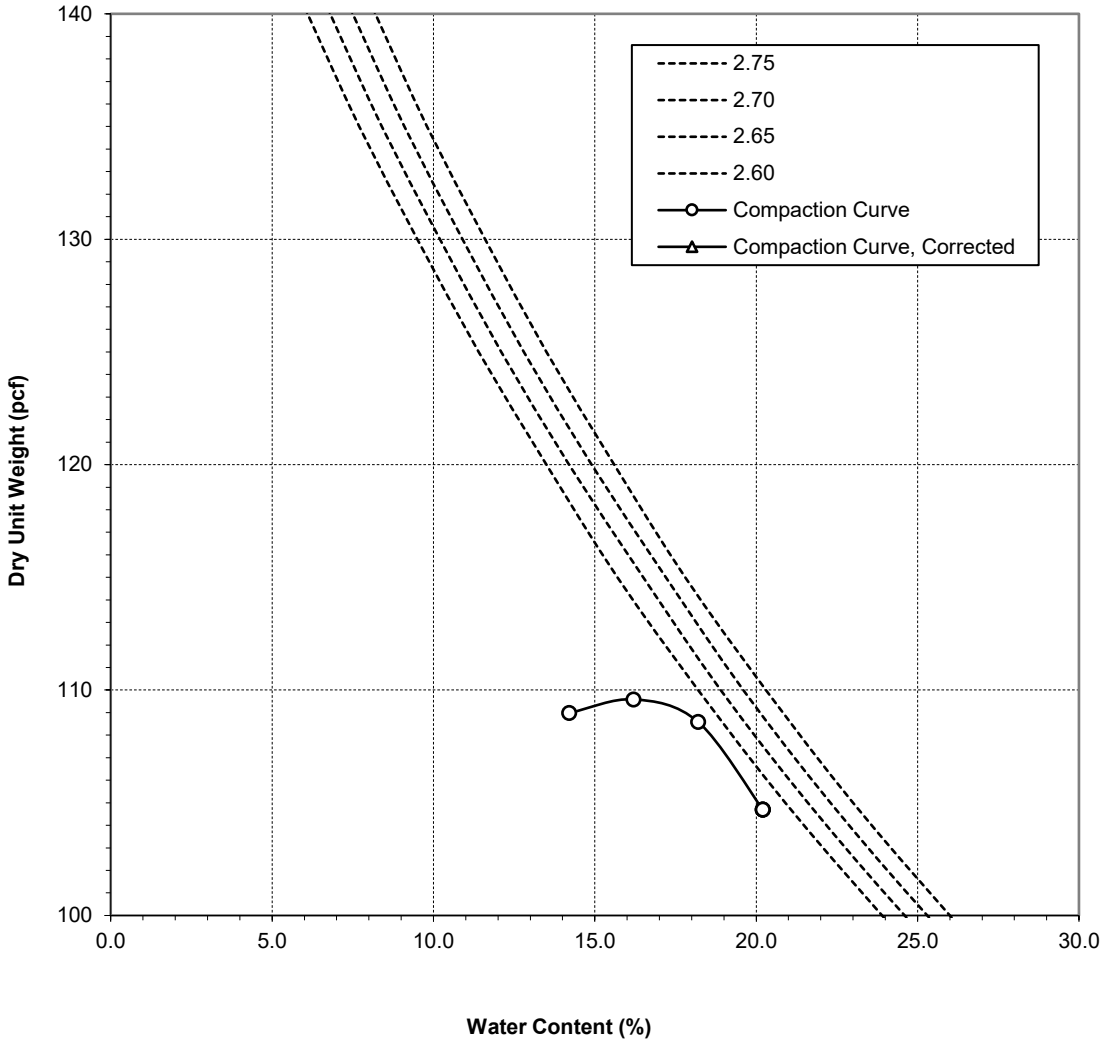
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4829

KLEINFELDER
Bright People. Right Solutions.

EXPANSION INDEX TEST RESULTS

San Jacinto Line E Storm Drain
San Jacinto, California

PROJECT NO.	DATE	FIGURE
24002328.001A	11/2/2023	



Boring No.: B-3

Sample No.: 1

Depth: 0-5

Material Description: Sandy Silt (ML)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**109.6**	**na**
Optimum Water Content (%)	**16.3**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

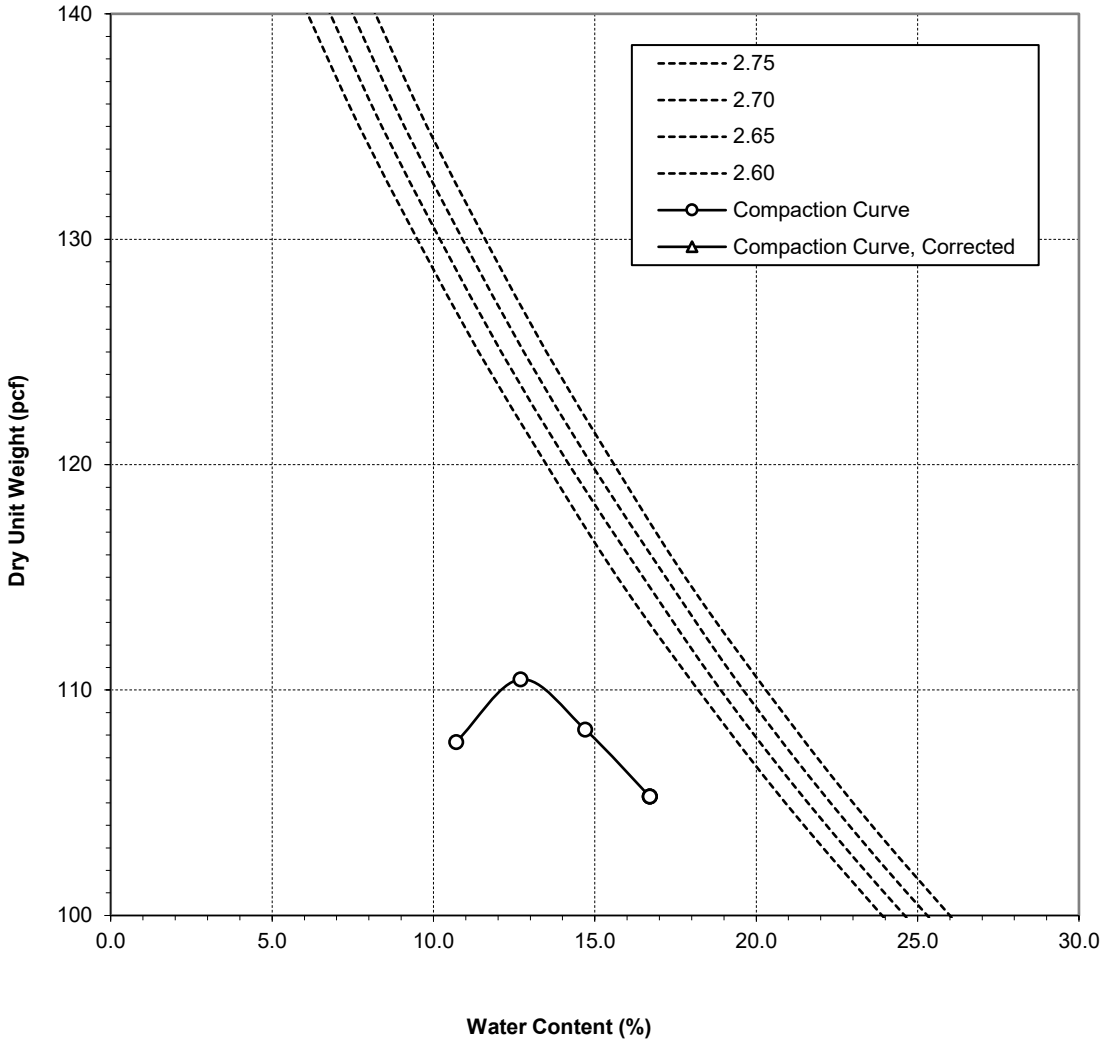
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	M.Magaña
DATE:	10/24/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

Compaction Curve

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



Boring No.: B-6

Sample No.: 1

Depth: 0-5

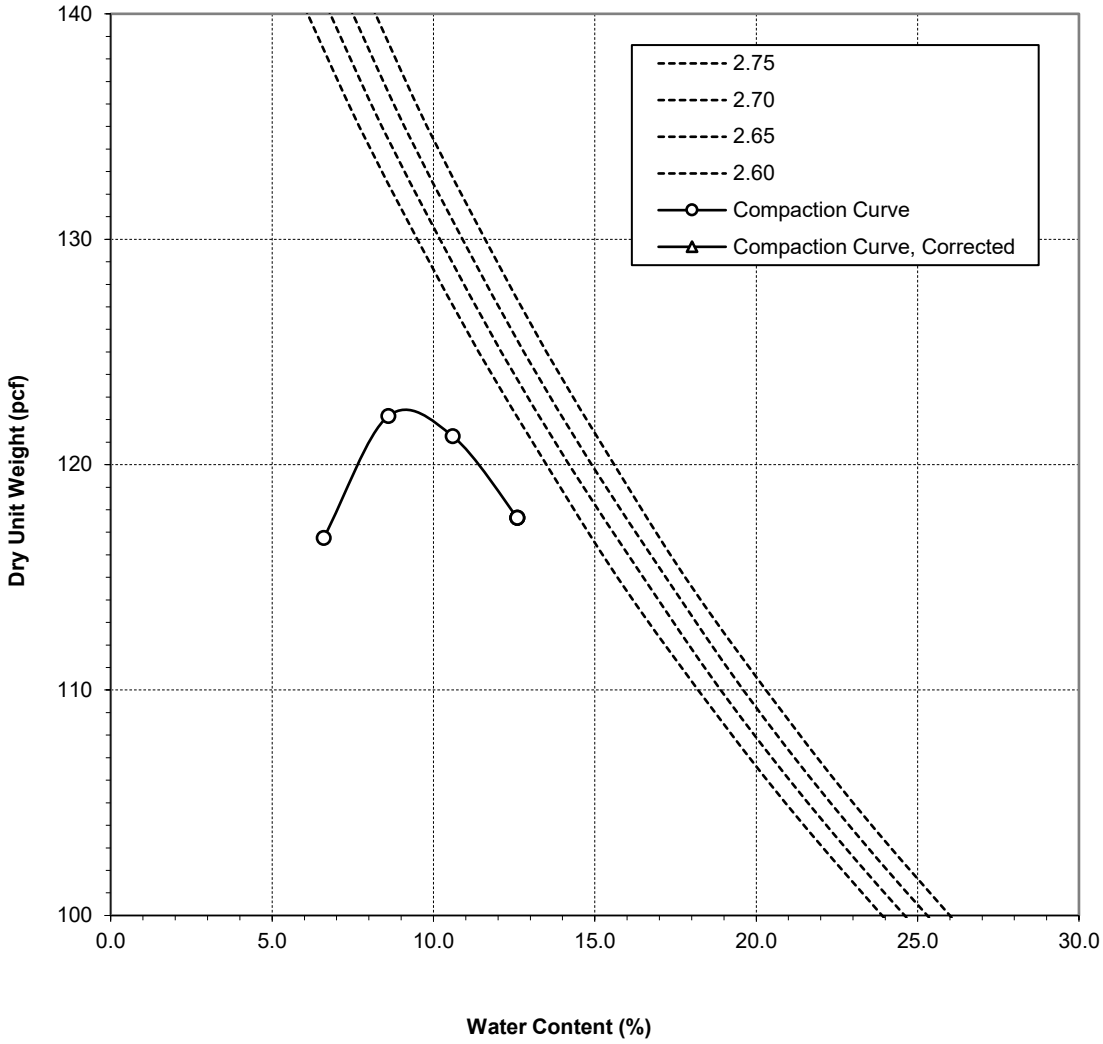
Material Description: Sandy Silt (ML)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**110.2**	**na**
Optimum Water Content (%)	**12.8**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 24002328.001A TESTED BY: M.Magaña DATE: 10/24/2023 CHECKED BY: M.Magaña DATE: 11/3/2023	Compaction Curve San Jacinto Line E Storm Drain San Jacinto, California	FIGURE



Boring No.: B-9

Sample No.: 1

Depth: 0-5

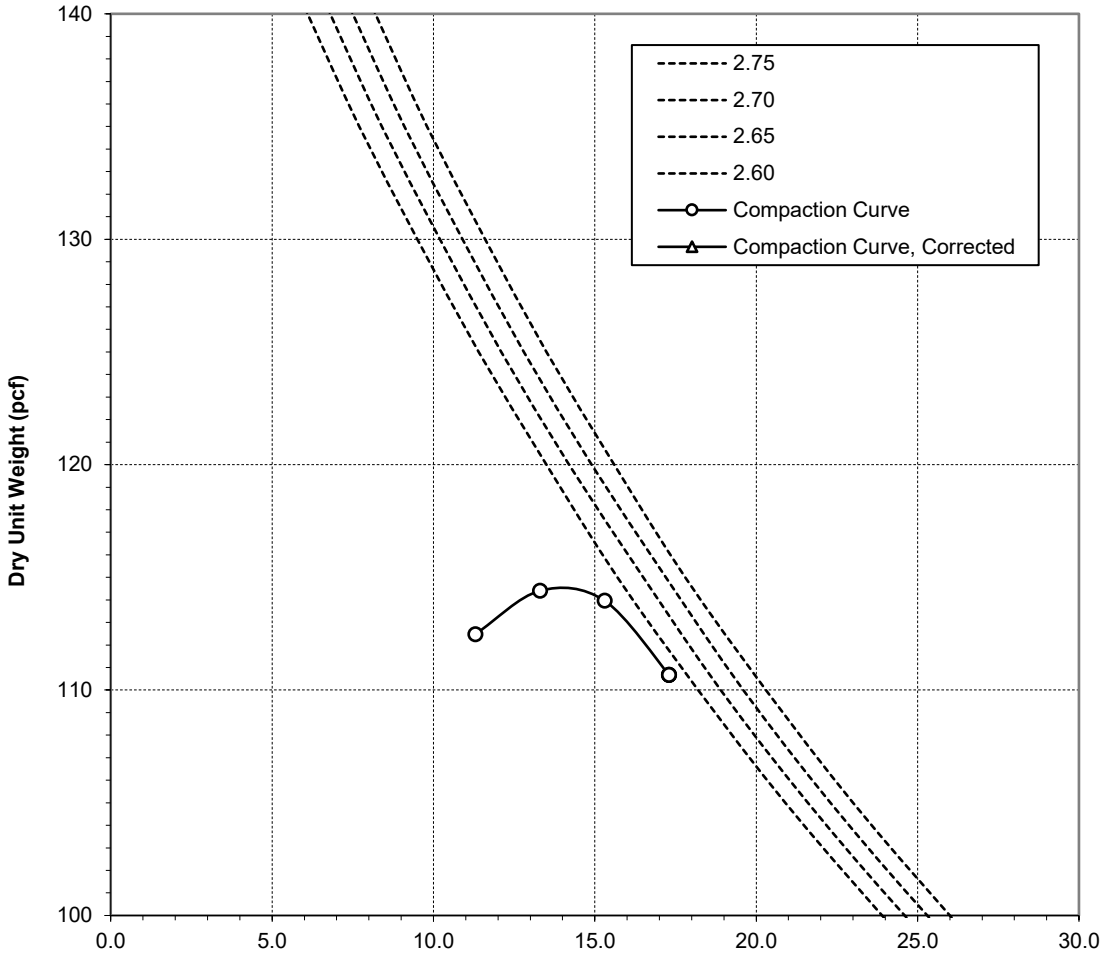
Material Description: Silty Sand (SM)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**122.3**	**na**
Optimum Water Content (%)	**9.1**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 24002328.001A TESTED BY: M.Magaña DATE: 10/24/2023 CHECKED BY: M.Magaña DATE: 11/3/2023	Compaction Curve San Jacinto Line E Storm Drain San Jacinto, California	FIGURE



Boring No.: B-12

Sample No.: 1

Depth: 0-5

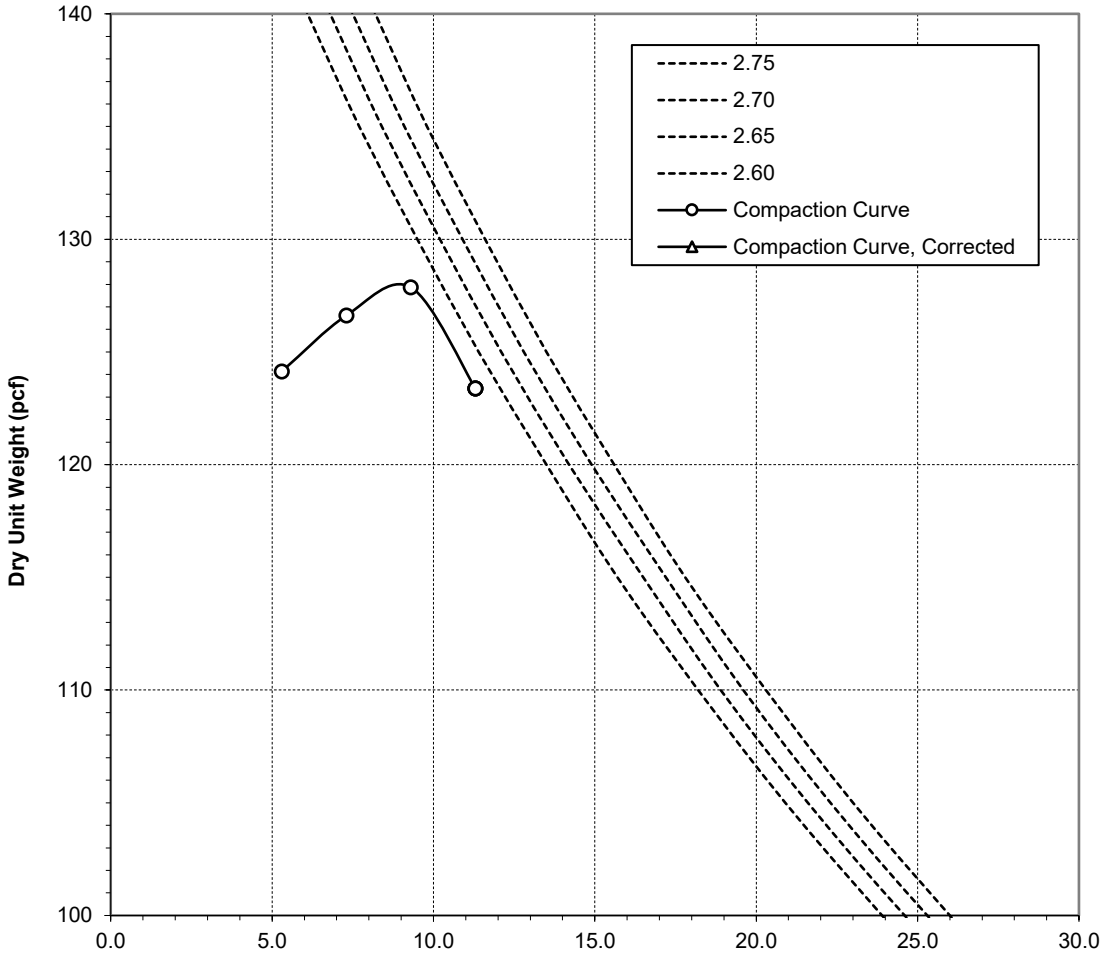
Material Description: Sandy Silt (ML)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**114.5**	**na**
Optimum Water Content (%)	**14.1**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 24002328.001A TESTED BY: M.Magaña DATE: 10/24/2023 CHECKED BY: M.Magaña DATE: 11/3/2023	Compaction Curve San Jacinto Line E Storm Drain San Jacinto, California	FIGURE



Boring No.: B-15

Sample No.: 1

Depth: 0-5

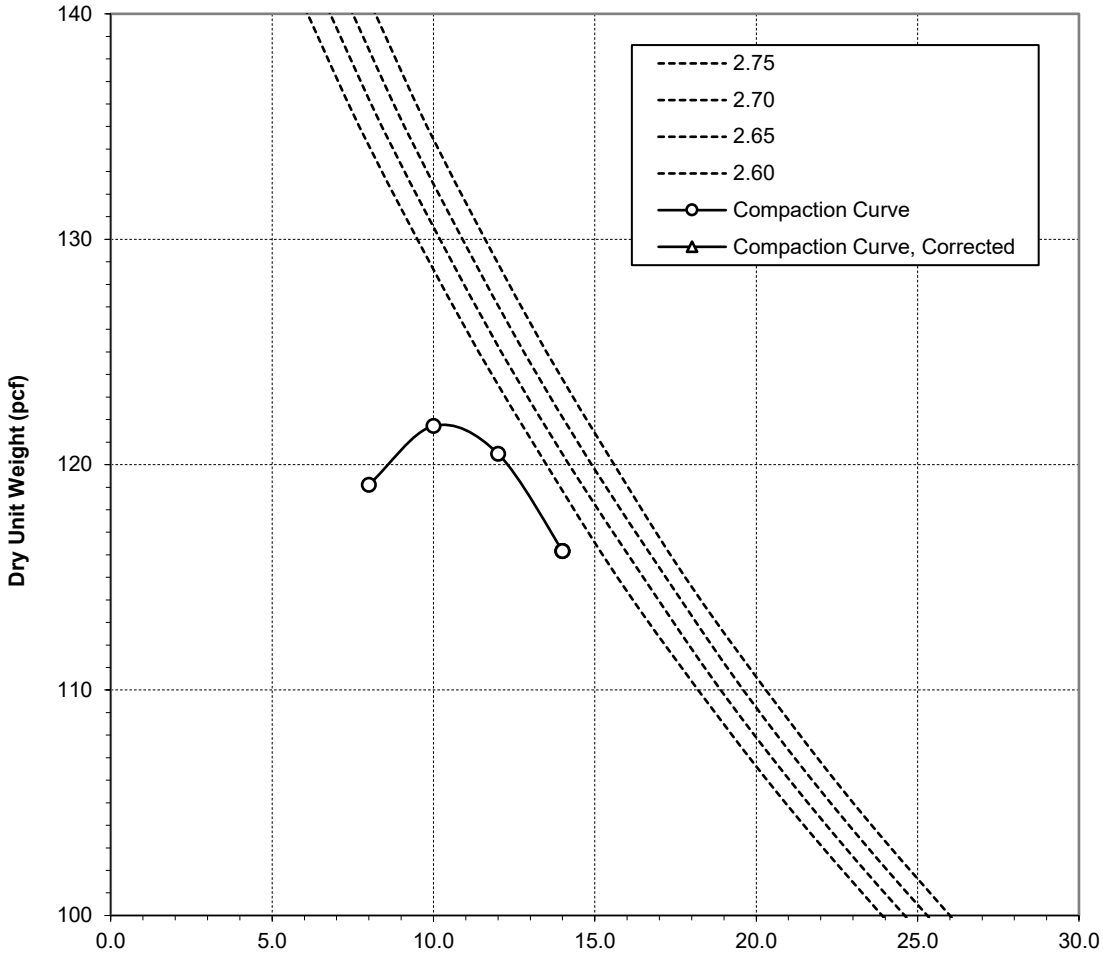
Material Description: Silty Sand (SM)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**128**	**na**
Optimum Water Content (%)	**8.8**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 24002328.001A TESTED BY: M.Magaña DATE: 10/24/2023 CHECKED BY: M.Magaña DATE: 11/3/2023	Compaction Curve San Jacinto Line E Storm Drain San Jacinto, California	FIGURE



Boring No.: B-19

Sample No.: 1

Depth: 0-5

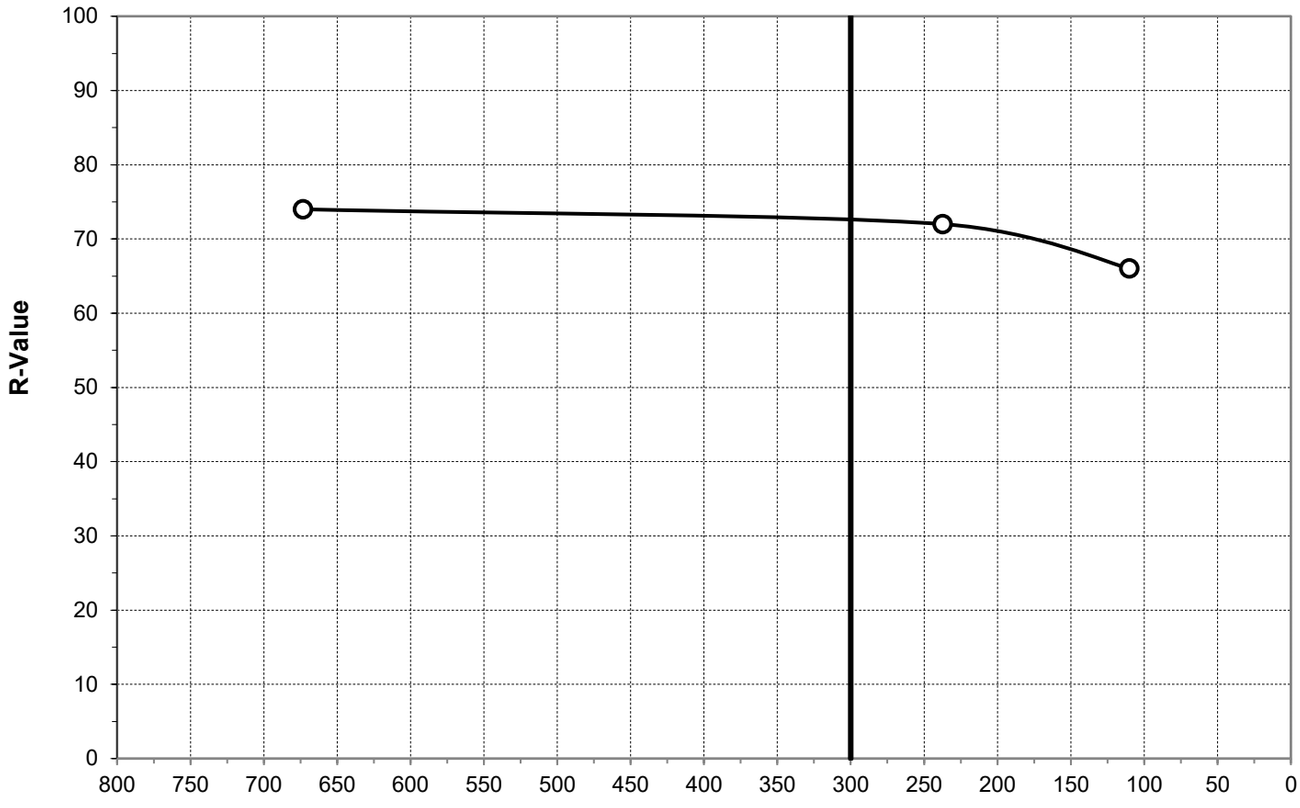
Material Description: Silty Sand (SM)

	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**121.7**	**na**
Optimum Water Content (%)	**10.4**	**na**
Oversize Fraction, retained on 3/8 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

na = not applicable

Tested in accordance with: ASTM D1557, Method B

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 24002328.001A TESTED BY: M.Magaña DATE: 10/24/2023 CHECKED BY: M.Magaña DATE: 11/3/2023	Compaction Curve San Jacinto Line E Storm Drain San Jacinto, California	FIGURE



Boring No.: B-4

Sample No.: 1

Depth: 0-5

Material Description: Silty Sand (SM)

Specimen No.	A	B	C
Moisture at Test (%)	12.6	13.5	14.4
Dry Unit Weight at Test (pcf)	112.0	112.1	113.2
Expansion Pressure (psf)	207.8	155.9	90.9
Exudation Pressure (psi)	673.2	237.2	110.0
Resistance Value	74	72	66
R - VALUE AT 300 PSI EXUDATION PRESSURE			**73**

Test Procedure: ASTM D2844

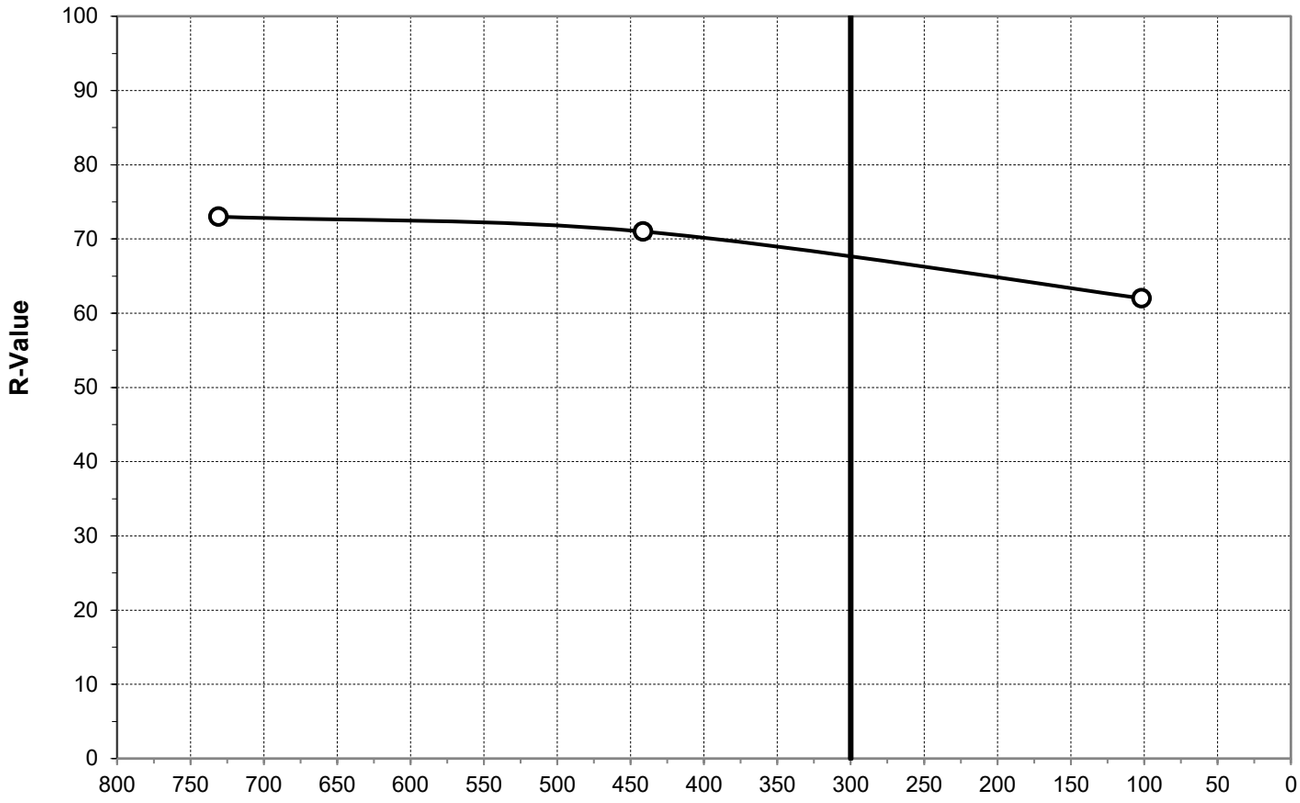
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/31/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

R-VALUE

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



Boring No.: B-13

Sample No.: 1

Depth: 0-5

Material Description: Silty Sand (SM)

Specimen No.	A	B	C
Moisture at Test (%)	11.6	12.4	13.3
Dry Unit Weight at Test (pcf)	113.7	113.6	112.2
Expansion Pressure (psf)	186.2	155.9	60.6
Exudation Pressure (psi)	730.8	441.6	101.6
Resistance Value	73	71	62
R - VALUE AT 300 PSI EXUDATION PRESSURE			**68**

Test Procedure: ASTM D2844

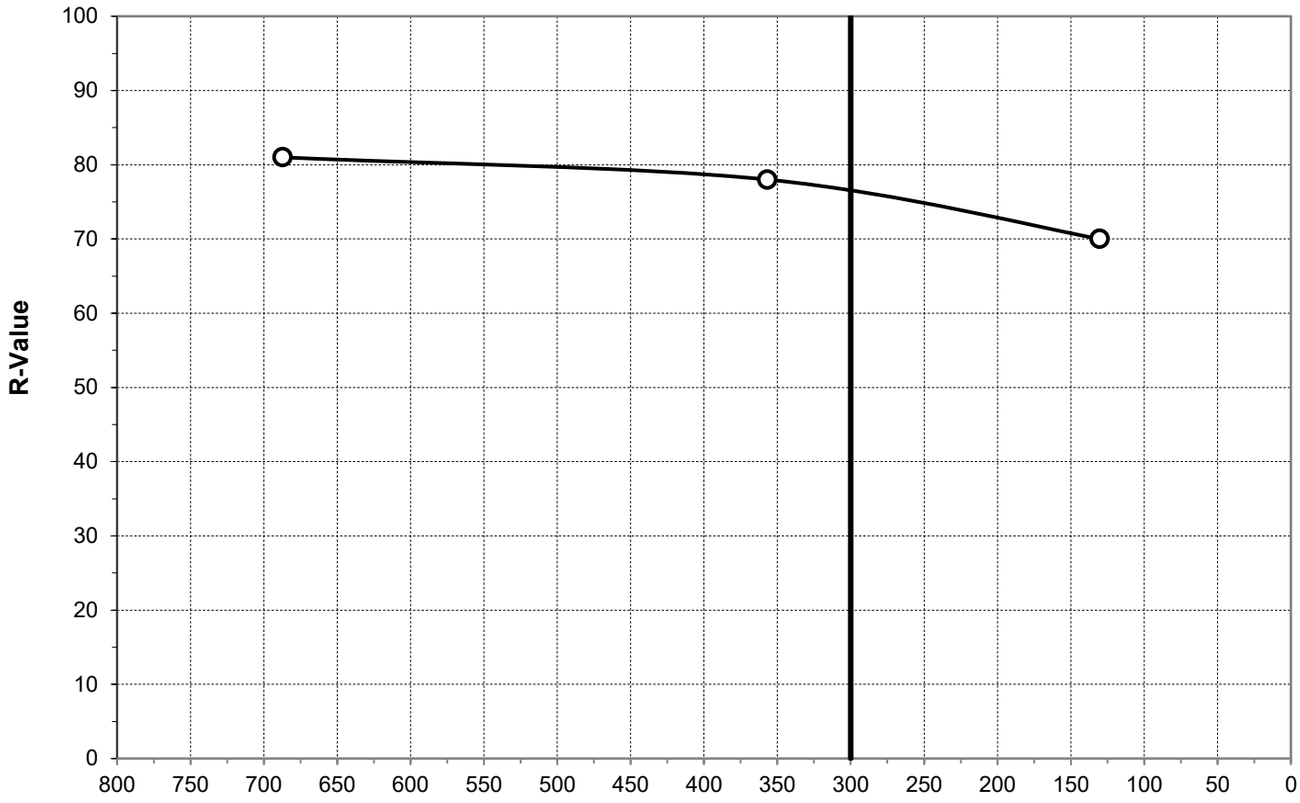
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/31/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

R-VALUE

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE



Boring No.: B-18

Sample No.: 1

Depth: 0-5

Material Description: Silty Sand (SM)

Specimen No.	A	B	C
Moisture at Test (%)	10.8	11.2	11.7
Dry Unit Weight at Test (pcf)	123.3	122.7	121.5
Expansion Pressure (psf)	186.2	155.9	60.6
Exudation Pressure (psi)	687.2	356.8	130.4
Resistance Value	81	78	70
R - VALUE AT 300 PSI EXUDATION PRESSURE			**77**

Test Procedure: ASTM D2844

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24002328.001A
TESTED BY:	J.Calderon
DATE:	10/31/2023
CHECKED BY:	M.Magaña
DATE:	11/3/2023

R-VALUE

San Jacinto Line E Storm Drain
San Jacinto, California

FIGURE

AP Engineering and Testing, Inc.
DBE|MBE|SBE
2607 Pomona Boulevard | Pomona, CA 91768
t. 909.869.6316 | f. 909.869.6318 | www.aplaboratory.com

CORROSION TEST RESULTS

Client Name: Kleinfelder
Project Name: San Jacinto Line E Storm Drain
Project No.: 24002328.001A

AP Job No.: 23-1050
Date: 10/30/23

Boring No.	Sample No.	Depth (feet)	Soil Description	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
B-1	1	0-5	Sandy Silt w/ trace clay	521	10.3	467	142
B-3	1	0-5	Sandy Silt	421	8.2	445	243
B-4	1	0-5	Silty Sand w/ trace clay	1,027	10.5	85	63
B-7	1	0-5	Sandy Silt w/ trace clay	299	8.2	563	758
B-11	1	0-5	Sandy Silt w/ trace clay	333	8.9	553	424
B-13	1	0-5	Sandy Silt	3,076	9.0	39	31
B-15	1	0-5	Silty Sand w/ gravel	1,763	9.7	79	69
B-17	1	0-5	Sandy Silt w/ trace clay	336	8.6	672	785

NOTES:
Resistivity Test and pH: California Test Method 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

APPENDIX C
SURFACE WAVE MEASUREMENTS REPORT

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REPORT

SURFACE WAVE MEASUREMENTS

SHEA PROPERTIES – LINE E
MWD CROSSING
SAN JACINTO, CA

GEO*Vision* Project No. 24356

Prepared for

Kleinfelder
849 West Leroy Drive, Suite 200
Salt Lake City, UT 84123-2964

Prepared by

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1124 Olympic Drive
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Report 24356-01

September 30, 2024

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1 INTRODUCTION

In-situ seismic measurements using active- and passive-source surface wave techniques were performed along two transects in San Jacinto, California. The purpose of this investigation was to provide a shear (S) wave velocity profile to a depth of 100 feet at 5 (or more) test locations per transect. The active-source surface wave technique utilized during this investigation consisted of the multi-channel analysis of surface waves (MASW) method. The passive-source surface wave technique consisted of the linear array microtremor method. The locations of the active- and passive-source surface wave arrays are shown on Figure 1 and Table 1.

At many sites, active surface wave techniques (MASW) with the utilization of portable energy sources, such as hammers and weight drops, are sufficient to obtain S-wave velocity soundings to 100 ft depths. At sites with high ambient noise levels and/or very soft soils, these energy sources may not be sufficient to image to this depth and a larger energy source, such as a bulldozer, is necessary. Alternatively, passive surface wave techniques, such as the array microtremor technique can be used to extend the depth of investigation at sites that have adequate ambient noise conditions.

This report contains the results of the active and passive surface wave measurements conducted at the site. An overview of the surface wave methods is given in Section 2. Field and data reduction procedures are discussed in Sections 3 and 4, respectively. Data modeling is presented in Section 5 and results are discussed in Section 6. References and our professional certification are provided in Sections 7 and 8, respectively.

2 Overview of Surface Wave Techniques

2.1 Introduction

Active- and passive-source (ambient vibration) surface wave techniques are routinely utilized for site characterization. Active surface wave techniques include the spectral analysis of surface waves (SASW) and multi-channel array surface wave (MASW) methods. Passive surface wave techniques include the horizontal over vertical spectral ratio (HVSR) technique and the array and refraction microtremor methods.

The basis of surface wave methods is the dispersive characteristic of Rayleigh and Love waves when propagating in a layered medium. Surface waves of different wavelengths (λ) or frequencies (f) sample different depth. As a result of the variance in the shear stiffness of the distinct layers, waves with different wavelengths propagate at different phase velocities; hence, dispersion. A surface wave dispersion curve is the variation of V_R or V_L with λ or f. The Rayleigh wave phase velocity (V_R) depends primarily on the material properties (V_S, mass density, and Poisson's ratio or compression wave velocity) over a depth of approximately one wavelength. The Love wave phase velocity (V_L) depends primarily on V_S and mass density. Rayleigh and Love wave propagation are also affected by damping or seismic quality factor (Q). Rayleigh wave techniques are utilized to measure vertically polarized S-waves (S_V-wave); whereas Love wave techniques are utilized to measure horizontally polarized S-waves (S_H-wave).

2.2 Surface Wave Techniques

The MASW and array microtremor techniques were utilized during this investigation and are discussed below.

2.2.1 MASW Technique

A description of the MASW method is given by Park, 1999a and 1999b and Foti, 2000. Ground motions are typically recorded by 24 or more geophones spaced 1 to 3 m apart along a linear array and connected to a seismograph. Energy sources for shallow investigations include various sized hammers and vehicle mounted weight drops. When applying the MASW technique to develop a one-dimensional (1-D) V_S model, it is preferable to use multiple-source offsets from both ends of the array. The most commonly applied MASW technique is the Rayleigh-wave based MASW method, which we refer to as MAS_RW to distinguish from Love-wave based MASW (MAS_LW). MAS_RW and MAS_LW acquisition can easily be combined with P- and S-wave seismic refraction acquisition, respectively. MAS_RW data are generally recorded using a vertical source and vertical geophone but may also be recorded using a horizontal geophone with radial (in-line) orientation. MAS_LW data are recorded using transversely orientated horizontal source and transverse horizontal geophone.

A wavefield transform is applied to the time-history data to convert the seismic record from time-offset space to frequency-wavenumber (f-k) space in which the fundamental or higher surface-wave modes can be easily identified as energy maxima and picked. Frequency and/or wavenumber can easily be mapped to phase velocity, slowness, or wavelength using the following properties: $k = 2\pi/\lambda$, $\lambda = v/f$. Common wave-field transforms include: the f-k transform, slant-stack transform, frequency domain beamformer, and phase-shift transform. The

minimum wavelength that can be recovered from MASW data set without spatial aliasing is equal to the minimum receiver spacing. Occasionally, SASW analysis procedures are used to extract surface wave dispersion data, from fixed receiver pairs, at smaller wavelengths than can be recovered by wavefield transformation. Multiple source offsets, and limiting minimum and maximum wavelengths, are required to construct a dispersion curve bandwidth necessary to develop a robust V_S model (Yoon and Rix, 2009; Li and Rosenblad, 2011).

Although the clear majority of MASW surveys record Rayleigh waves, it has been shown that Love wave techniques can be more effective in some environments, particularly shallow rock sites and sites with a highly attenuative, low velocity surface layer (Xia, et al., 2012; **GEO***Vision*, 2012). Rayleigh wave techniques, however, are generally more effective at sites where velocity gradually increases with depth because larger energy sources are readily available for the generation of Rayleigh waves. Rayleigh wave techniques are also more applicable to sites with high velocity layers and/or velocity inversions because the presence of such structures is more apparent in the Rayleigh wave dispersion curves than in Love wave dispersion curves. Rayleigh wave techniques are preferable at sites with a high velocity surface layer because Love waves do not theoretically exist in such environments. Joint inversion of Rayleigh and Love wave data may yield more accurate V_S models in anisotropic materials.

2.2.2 Array Microtremor Technique

A detailed discussion of the array microtremor method can be found in Okada, 2003. Unlike active source techniques, the array microtremor technique (also referred to as passive surface wave method) records ambient noise and ground motions emanating from ocean wave activity, wind noise, traffic, industrial activity, construction, etc. The technique uses 4 or more receivers aligned in a 2-dimensional array. Triangle, circle, semi-circle, and “L” shaped arrays are commonly used, although any 2-dimensional arrangement of receivers can be used. For investigations of the upper 100 m, receivers typically consist of 1 to 4.5 Hz geophones. For deeper investigations, 5 to 120 s seismometers are generally utilized.

The surface wave dispersion curve is typically estimated from array microtremor data using various f-k methods such as beamforming (Lacoss, et al., 1969), and maximum-likelihood (Capon, 1969), and the spatial-autocorrelation (SPAC) method. The SPAC method was originally based on work by Aki (1957) and has since been extended and modified (Ling and Okada, 1993 and Ohori *et al*., 2002) to permit the use of noncircular arrays, and is now collectively referred to as extended spatial autocorrelation (ESPAC or ESAC). SPAC methods are expected to perform better when noise sources are azimuthally well-distributed (e.g., in a large urban area). The minimum wavelength surface wave that can be extracted from an array microtremor dataset acquired utilizing a symmetric array is typically set equal to the minimum receiver spacing. The maximum wavelength is often set equal to twice the maximum receiver separation for SPAC analysis.

2.3 Surface Wave Dispersion Curve Modeling

The dispersion curves generated from the active and passive surface wave soundings are generally combined and modeled using iterative forward and inverse modeling routines. The final model profile is assumed to represent actual site conditions. The theoretical model used to interpret the dispersion curve assumes horizontally layered, laterally invariant, homogeneous-isotropic material. Although these conditions are seldom strictly met at a site, the results of active and/or passive surface wave testing provide a good "global" estimate of the material properties along the array. The results may be more representative of the site than a borehole "point" estimate.

MAS_RW and/or passive surface-wave modeling may involve modeling of the fundamental mode, some form of effective mode, or multiple individual modes (multi-mode). The fundamental mode assumption is generally applicable to modeling Rayleigh-wave dispersion data collected at normally dispersive sites, providing there are not abrupt increases in velocity or steep velocity gradients. Effective-mode or multi-mode approaches are often required for irregularly dispersive sites and sites with steep velocity gradients at shallow depth. If active and passive surface wave data are combined or MAS_RW data are combined from multiple seismic records with different source offsets and receiver gathers, then effective-mode computations are limited to algorithms that assume far-field plane Rayleigh wave propagation. Local search (e.g., linearized matrix inversion methods) or global search methods (neighborhood algorithm; Monte Carlo approaches such as simulated annealing, generic algorithms) are typically used to solve the inverse problem.

The maximum wavelength (λ_{max}) recovered from a surface wave data set is typically used to estimate depth of investigation although a sensitivity analysis of the V_S models would be a more robust means to estimate depth of investigation. For normally dispersive velocity profiles with a gradual increase in V_S with depth, the maximum depth of investigation is on the order of $\lambda_{max}/2$ for both Rayleigh and Love wave dispersion data. For velocity profiles with an abrupt increase in V_S at depth, the maximum depth of investigation is on the order of $\lambda_{max}/3$ for Rayleigh wave dispersion data but less than $\lambda_{max}/3$ for Love wave dispersion data. The depth of investigation can be highly variable for sites with complex velocity structure (including high velocity layers).

As with all surface geophysical methods, the inversion of surface wave dispersion data does not yield a unique V_S model and multiple possible solutions may equally fit the experimental data. Based on experience at other sites, the shear wave velocity models (V_S and layer thicknesses) determined by surface wave testing are within 20% of the velocities and layer thicknesses that would be determined by other seismic methods (Brown, 1998). The average velocity of the upper 30 m (V_{S30}), however, is much more accurate, often to better than 5%, because it is not sensitive to the layering in the model. V_{S30} does not appear to suffer from the non-uniqueness inherent in V_S models derived from surface wave dispersion curves (Martin et al., 2006, Comina et al., 2011). Therefore, V_{S30} is more accurately estimated from the inversion of surface wave dispersion data than the resulting V_S models.

3 FIELD PROCEDURES

Surface wave data were collected along two transects, whose locations were provided by Kleinfelder and confirmed by a company representative. The locations of the transects are shown in Figure 1 and coordinates of the array centers (corresponding to the modeled Vs profiles) and endpoints are provided in Table 1. Two types of surface wave data were acquired at each site: an active-source surface wave array to characterize near-surface velocity structure and a passive-source surface wave array to characterize deeper velocity structure.

The surface wave equipment consisted of four Geometrics Geode signal enhancement seismographs, 4.5 Hz vertical geophones, and seismic cables. The geophone array consisted of 96 live geophones with a nominal spacing of 10 feet, for a total array length of 950 feet. Active MASW sources included 4 lb. and 20 lb. sledgehammers, and a 240 lb. accelerated weight drop (AWD).

Shot points were located between 30 and 300 feet from the end geophone locations and at regular intervals in the interior of the array. At least twenty-four active source locations were occupied with the 4-lb hammer and either the AWD or the 20-lb sledgehammer. Data from the active source impacts were averaged in the field to improve the signal-to-noise ratio. In total this resulted in 48 source locations, and ~720 hammer blows for the project. Ambient noise measurements were made along the passive array for 60 minutes (Array 1) and 53 minutes (Array 2) with a 2 MS sample rate. The field geometry and associated files names were documented in field notes. All field data were saved to hard disk and backed up daily on a remote server.

4 DATA ANALYSIS AND RESULTS

The MASW data were reduced using the software Seismic Pro Surface V10 developed by Geogiga, SeisImager Pick win (Geometrics, Inc.), and multiple in-house utilities for various data extraction and formatting tasks. Because each transect was acquired in a "fully-live" configuration of 96 active receivers, common-midpoint cross-correlation gathers (CMPCC) were generated that organized the common receiver pairs for every shot gather. This allowed for 2-D smooth-model inversion modeling. The surface wave data were modeled using the fundamental mode routine in SeisImager Waves. Data inputs into the modeling software include layer thickness, S-wave velocity, P-wave velocity or Poisson's ratio, and mass density. P-wave velocity and mass density only have a very small influence (i.e., less than 10%) on the S-wave velocity model generated from a surface wave dispersion curve. However, realistic assumptions for P-wave velocity, which is significantly impacted by the location of the saturated zone, and mass density will slightly improve the accuracy of the S-wave velocity model.

During the modeling process an initial velocity model was generated based on provided preliminary CPT summaries. Kleinfelder provided estimates of water table depth (30 feet for Array 1; 16 feet for Array 2), wet and dry unit weights (85 and 115 lbs. per cubic foot, respectively), and Poisson's ratio (0.33). These inputs were used in the initial modeling phase. A first-pass inverse modeling routine was performed, and the results were compared to general characteristics of the dispersion curves. Layer thicknesses were adjusted, and the inversion process repeated until a V_S model was developed with low RMS error between the observed and calculated dispersion curves. Once an acceptable V_S model was developed, layer thicknesses were again adjusted, and the inversion process repeated to compare V_S models with similar RMS error to examine non-uniqueness.

Using the 2-D inversion routine in SeisImager WaveEQ, a 1-D shear-wave velocity profile was generated every 120-feet along each of the two transects shown in Figure 1. The modeled V_S profiles for each transect are presented as Figures 2-3. The resolution decreases gradually with depth due to the loss of sensitivity of the dispersion curve to changes in V_S at greater depth. The V_S profile used to match the field data is provided in tabular form in English units as Tables 2-15. The reported inferred values for P-wave velocity, Poisson's Ratio, and density were calculated based on the shear-wave velocity model results – not direct measurements or lab tests. The initial stage of the modeling process included input parameters provided by Kleinfelder, but these tabulated results show some variation, particularly with respect to density values. The "inferred density" values are based on the relationship between shear-wave velocity and density as described by Boore (2015).

5 REFERENCES

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6 CERTIFICATION

All geophysical data, analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a **GEO***Vision* California Professional Geophysicist.

Prepared by

JB Shawver



9/30/2024

JB Shawver
California Professional Geophysicist, P.Gp. 1058
GEO*Vision* Geophysical Services

Date

This geophysical investigation was conducted under the supervision of a California Professional Geophysicist using industry-standard methods and equipment. A high degree of professionalism was maintained during the project from the field investigation and data acquisition, through data processing interpretation and reporting. Original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review for a period of at least one year.

A professional geophysicist's certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations or ordinances.

TABLES

Feature	Easting	Northing
Manhole	6326353	2242976
Array 1 Start	6326100	2243098
Array 1 End	6327045	2243018
Array 1+120	6326220	2243088
Array 1+240	6326339	2243079
Array 1+360	6326459	2243070
Array 1+480	6326579	2243059
Array 1+600	6326698	2243050
Array 1+720	6326818	2243040
Array 1+840	6326937	2243028
Array 2 Start	6326109	2242956
Array 2 End	6327051	2242867
Array 2+120	6326228	2242946
Array 2+240	6326350	2242936
Array 2+360	6326467	2242927
Array 2+480	6326586	2242918
Array 2+600	6326705	2242907
Array 2+720	6326823	2242893
Array 2+840	6326944	2242879
Coordinates are NAD83, California State Plane Zone 6, US feet		

Table 1 Project Test Locations

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Inferred Poisson's Ratio	Inferred Density (lb./ft^3)
0.0	6.5	434	868	0.33	105
6.5	8.5	458	915	0.33	105
15.0	15.0	544	1089	0.33	110
30.0	6.5	600	4898	0.49	112
36.5	13.5	672	4978	0.49	114
50.0	15.0	771	5088	0.49	116
65.0	35.0	805	5126	0.49	118
100.0	15.0	927	5262	0.48	120
115.0	Half Space	1186	5548	0.48	122

Table 2 Vs Model for Array 1 Station 120

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	7.0	431	862	0.33	105
7.0	8.0	463	926	0.33	105
15.0	13.5	547	1094	0.33	110
28.5	6.5	601	1201	0.33	112
35.0	13.0	671	4977	0.49	114
48.0	15.0	767	5084	0.49	116
63.0	37.0	800	5120	0.49	118
100.0	20.0	923	5257	0.48	120
120.0	Half Space	1181	5543	0.48	122

Table 3 Vs Model for Array 1 Station 240

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	428	855	0.33	105
6.5	8.0	454	908	0.33	105
14.5	15.0	548	1096	0.33	110
29.5	6.5	608	1216	0.33	112
36.0	13.0	679	4986	0.49	115
49.0	15.0	768	5084	0.49	116
64.0	31.5	797	5117	0.49	118
95.5	44.5	922	5256	0.48	119
140.0	Half Space	1179	5541	0.48	122

Table 4 Vs Model for Array 1 Station 360

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	428	857	0.33	105
6.5	8.5	454	909	0.33	105
15.0	14.0	550	1100	0.33	110
29.0	7.5	616	1232	0.33	112
36.5	10.5	690	4998	0.49	115
47.0	18.0	771	5088	0.49	117
65.0	33.0	796	5116	0.49	118
98.0	42.0	924	5258	0.48	119
140.0	Half Space	1181	5543	0.48	122

Table 5 Vs Model for Array 1 Station 480

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.0	413	827	0.33	102
6.0	8.5	459	918	0.33	105
14.5	13.0	548	1096	0.33	110
27.5	10.5	628	1255	0.33	114
38.0	13.5	704	5014	0.49	115
51.5	15.5	778	5096	0.49	118
67.0	31.0	797	5117	0.49	118
98.0	42.0	925	5259	0.48	120
140.0	Half Space	1184	5546	0.48	122

Table 6 Vs Model for Array 1 Station 600

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	413	826	0.33	102
6.5	8.5	460	919	0.33	105
15.0	11.5	546	1092	0.33	110
26.5	13.5	633	1266	0.33	114
40.0	11.0	712	5022	0.49	115
51.0	15.0	784	5103	0.49	118
66.0	34.0	800	5120	0.49	118
100.0	20.0	928	5262	0.48	120
120.0	Half Space	1189	5552	0.48	122

Table 7 Vs Model for Array 1 Station 720

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	413	827	0.33	102
6.5	8.5	458	916	0.33	105
15.0	11.0	537	1074	0.33	110
26.0	11.0	619	1239	0.33	112
37.0	13.5	706	5016	0.49	115
50.5	15.0	779	5097	0.49	118
68.0	32.5	797	5117	0.49	118
100.5	20.0	927	5262	0.48	120
120.5	Half Space	1190	5554	0.48	122

Table 8 Vs Model for Array 1 Station 840

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	6.5	443	887	0.33	85
6.5	9.5	469	938	0.33	85
16.0	12.0	550	4843	0.49	110
28.0	11.0	599	4897	0.49	112
39.0	12.0	723	5035	0.49	115
51.0	13.5	811	5132	0.49	118
64.0	35.5	832	5156	0.49	119
99.5	26.0	960	5298	0.48	120
125.5	Half Space	1206	5571	0.48	122

Table 9 Vs Model for Array 2 Station 120

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	417	834	0.33	85
8.0	8.0	469	938	0.33	85
16.0	9.0	536	4828	0.49	110
25.0	13.0	586	4883	0.49	112
38.0	12.0	718	5029	0.49	115
50.0	15.0	806	5127	0.49	118
65.0	34.8	828	5151	0.49	119
99.8	35.2	959	5297	0.48	120
135.0	Half Space	1207	5572	0.48	122

Table 10 Vs Model for Array 2 Station 240

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	415	829	0.33	85
8.0	8.0	471	942	0.33	85
16.0	12.5	538	4829	0.49	110
28.5	8.5	583	4879	0.49	112
37.0	14.0	715	5026	0.49	115
51.0	14.0	802	5123	0.49	116
68.0	32.0	823	5146	0.49	118
100.0	40.0	957	5294	0.48	120
140.0	Half Space	1209	5574	0.48	122

Table 11 Vs Model for Array 2 Station 360

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.5	415	831	0.33	85
8.5	7.5	472	943	0.33	85
16.0	9.0	515	4804	0.49	108
25.0	11.5	560	4854	0.49	110
36.5	11.5	702	5012	0.49	115
48.0	17.5	798	5118	0.49	118
68.0	31.0	821	5143	0.49	118
99.0	41.0	958	5296	0.48	120
140.0	Half Space	1209	5575	0.48	122

Table 12 Vs Model for Array 2 Station 480

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	413	826	0.33	85
8.0	8.0	467	934	0.33	85
16.0	9.0	502	4789	0.49	108
25.0	11.5	565	4859	0.49	110
36.5	13.5	707	5017	0.49	115
50.0	15.0	803	5124	0.49	118
69.0	30.5	820	5143	0.49	118
99.5	40.5	958	5296	0.48	120
140.0	Half Space	1211	5577	0.48	122

Table 13 Vs Model for Array 2 Station 600

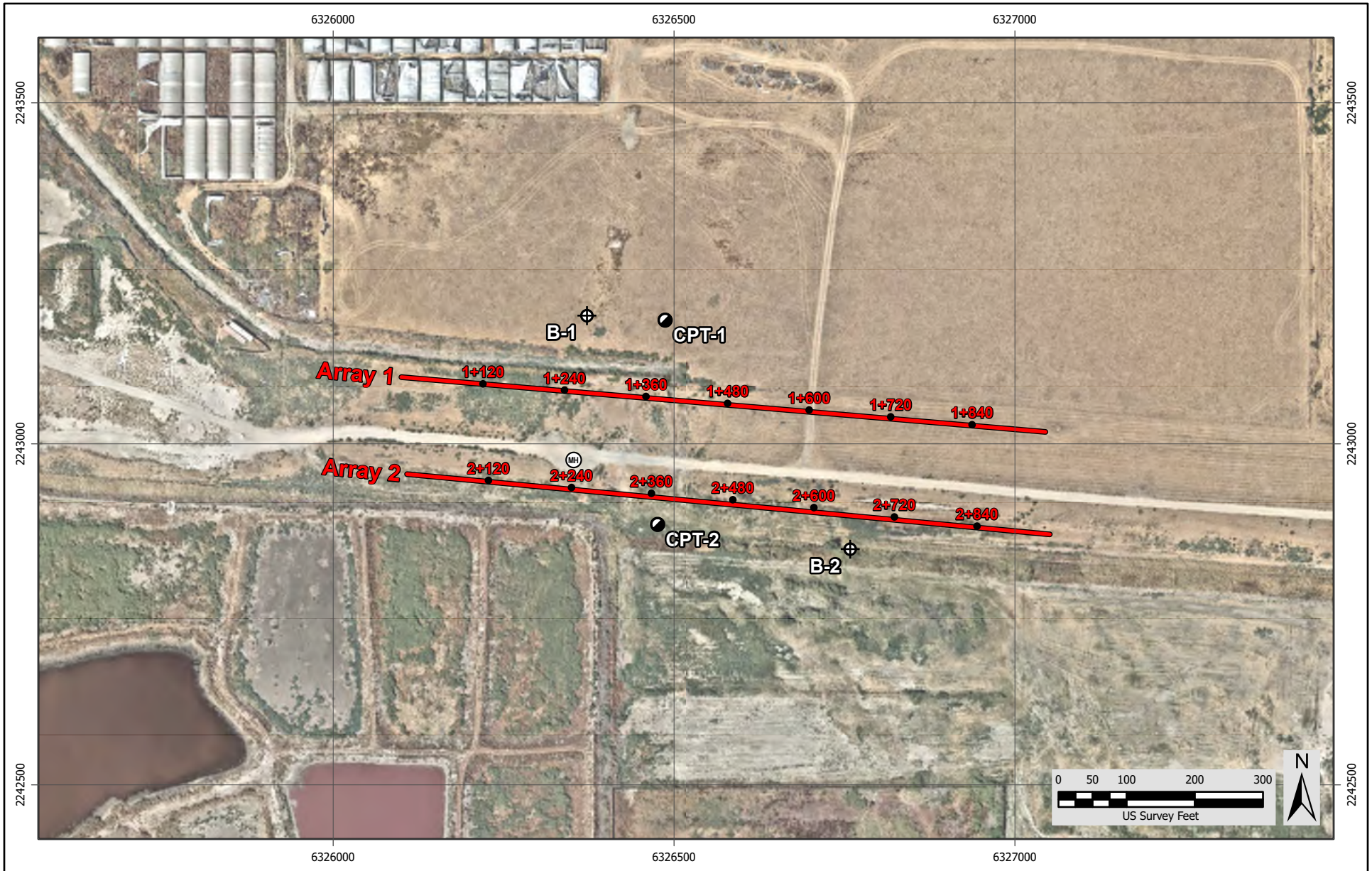
Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	7.0	405	811	0.33	85
7.0	9.0	466	931	0.33	85
16.0	9.0	489	4775	0.49	108
25.0	12.0	559	4853	0.49	110
37.0	13.5	701	5010	0.49	115
50.5	15.0	802	5123	0.49	118
69.0	31.5	819	5141	0.49	118
100.5	39.5	960	5298	0.48	120
140.0	Half Space	1210	5575	0.48	122

Table 14 Vs Model for Array 2 Station 720

Depth to Top of Layer (ft)	Layer Thickness (ft)	S-Wave Velocity (ft/s)	Inferred P-Wave Velocity (ft/s)	Assumed Poisson's Ratio	Assumed Density (lb./ft^3)
0.0	8.0	405	810	0.33	85
8.0	8.0	475	951	0.33	85
16.0	9.0	478	4763	0.49	108
25.0	9.5	544	4836	0.49	110
34.5	15.5	686	4994	0.49	115
50.0	16.5	796	5115	0.49	118
68.0	31.0	815	5137	0.49	118
99.0	36.0	960	5298	0.48	120
135.0	Half Space	1211	5576	0.48	122

Table 15 Vs Model for Array 2 Station 840

FIGURES



Seismic Surface Wave Array
Manhole
Sounding Location
Approximate Location of Client Borehole
Approximate Location of Client CPT

Notes:
Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet
Base map source: Nearmap (8-2024)

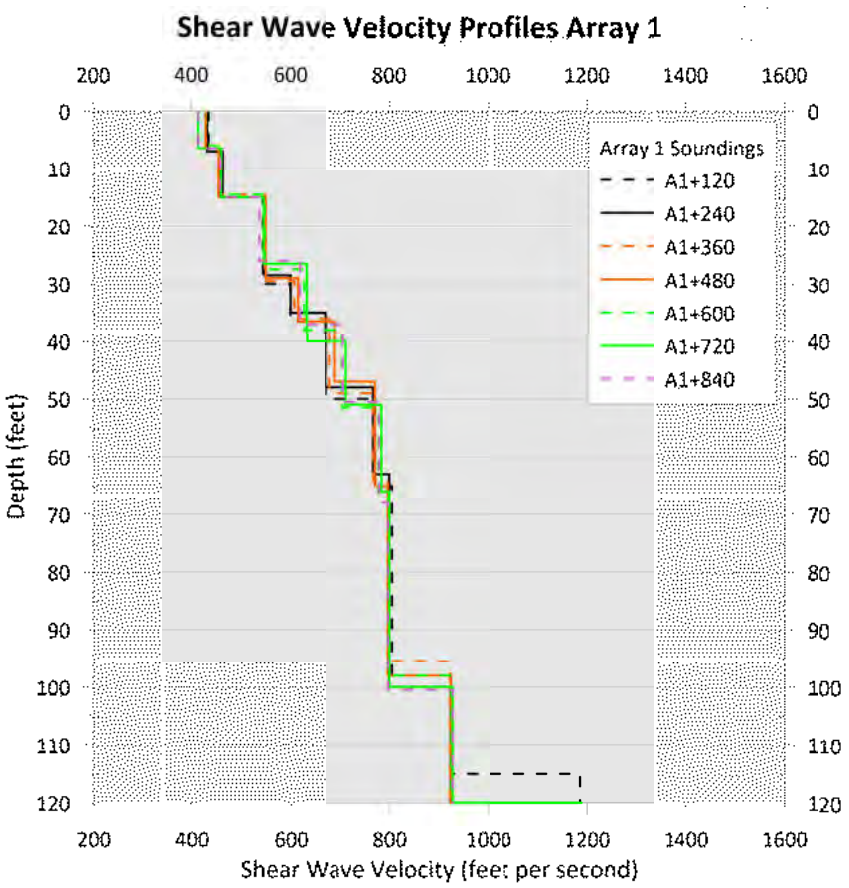
GEOVision geophysical services

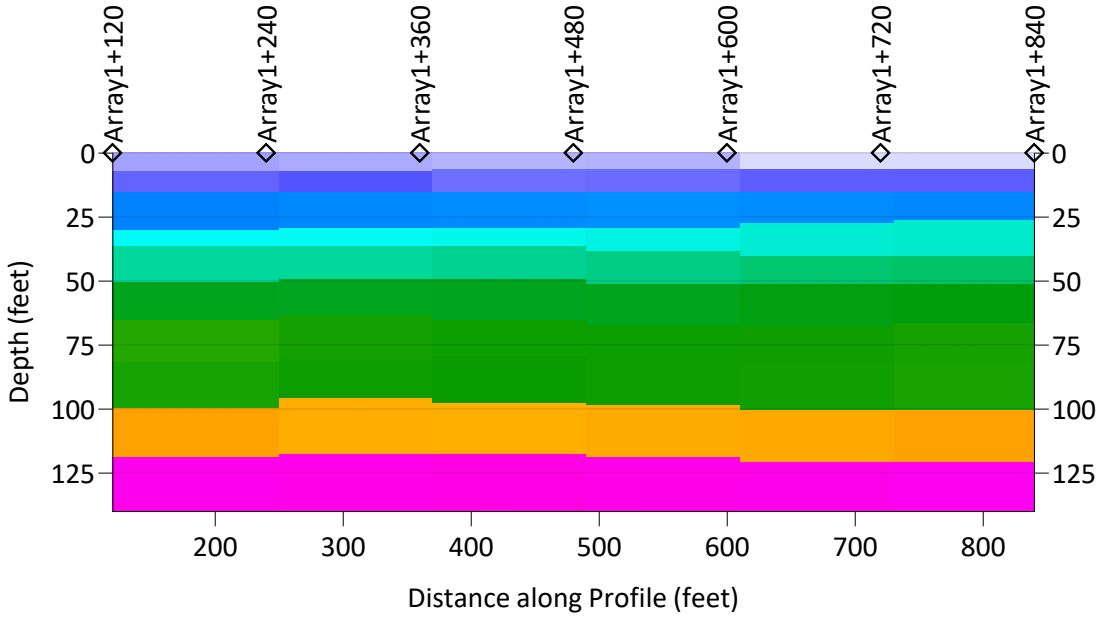
Date:	9/30/2024
GV Project:	24356
Developed by:	J Shawver
Drawn by:	T Rodriguez
Approved by:	J Shawver
File Name:	GV 24356

FIGURE 1
SITE MAP

SITE LOCATED NEAR MWD CROSSING
SAN JACINTO, CALIFORNIA

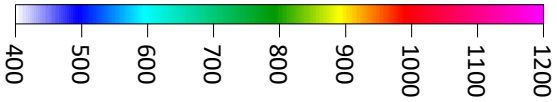
PREPARED FOR
KLEINFELDER, INC.





Note: 2x vertical exaggeration on cross-section

Shear Wave Velocity (feet per second)



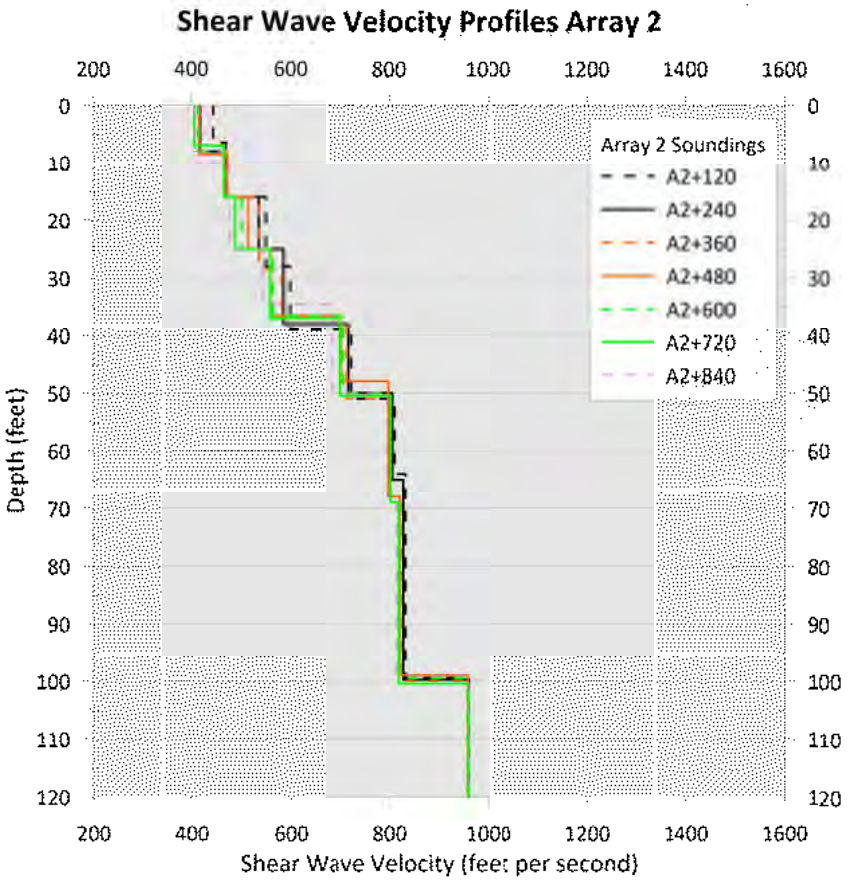
GEOVision geophysical services

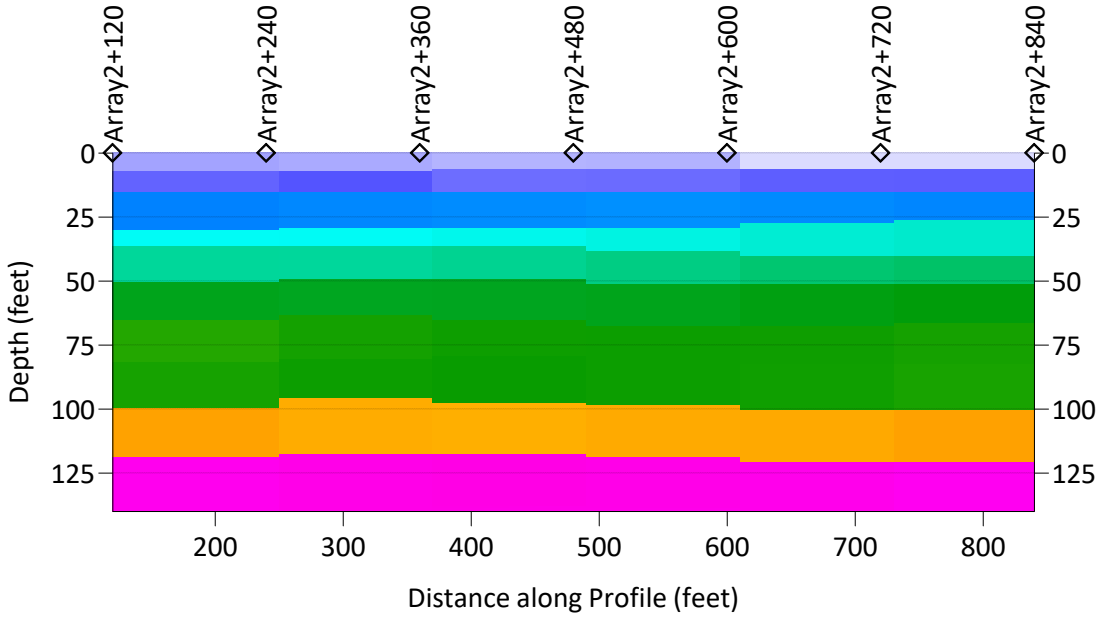
Date:	09/30/24
GV Project:	24356
Developed by:	JBS
Drawn by:	JBS
Approved by:	JBS
File Name:	24356_f2.srf

FIGURE 2
ARRAY 1 SHEAR WAVE VELOCITY PLOTS

SHEA MWD CROSSING
SAN JACINTO, CA

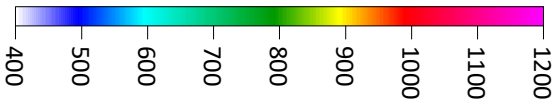
PREPARED FOR
KLEINFELDER





Note: 2x vertical exaggeration on cross-section

Shear Wave Velocity (feet per second)



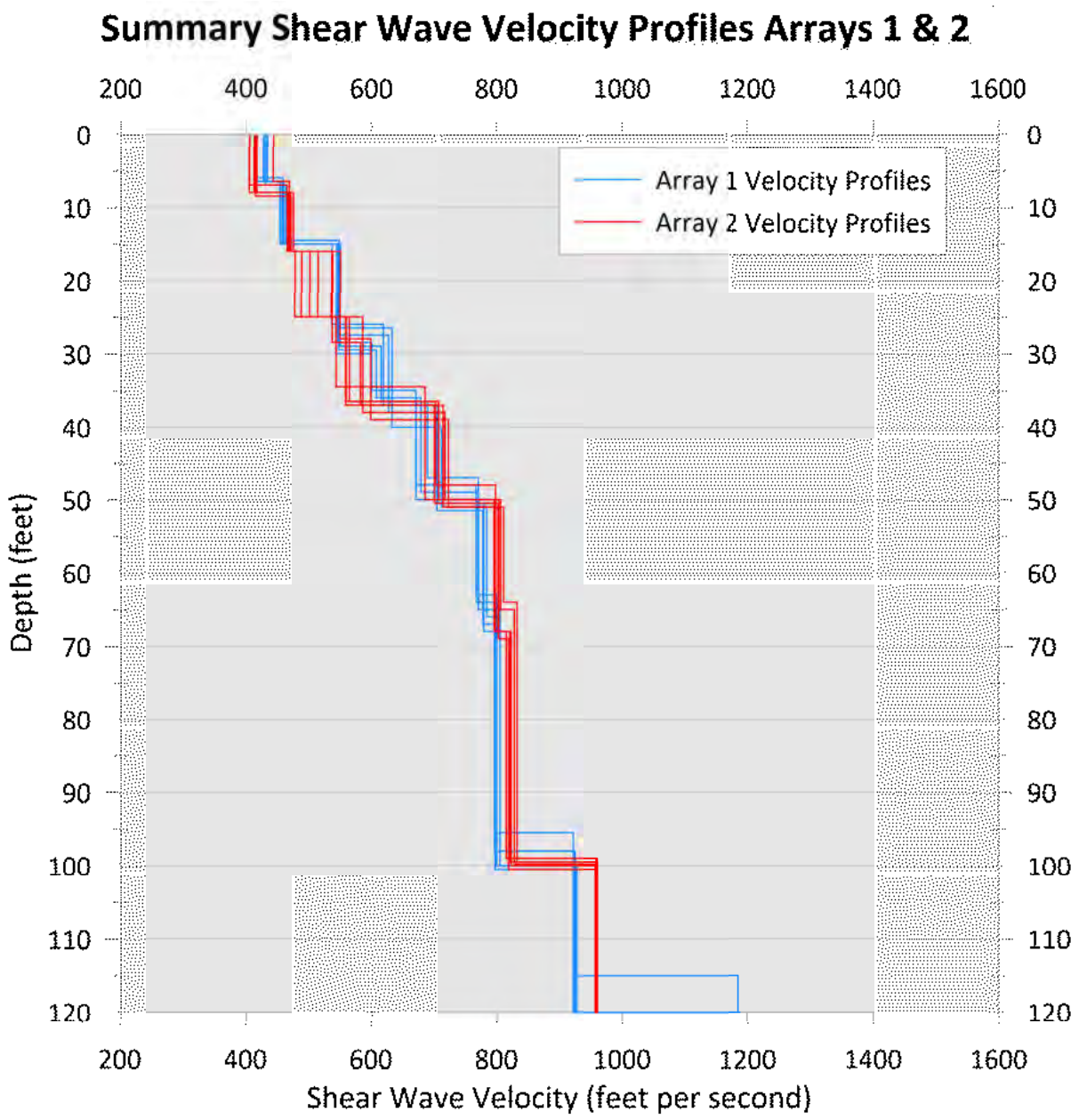
GEOVision geophysical services

Date:	09/30/24
GV Project:	24356
Developed by:	JBS
Drawn by:	JBS
Approved by:	JBS
File Name:	24356_f3.srf

FIGURE 3
ARRAY 2 SHEAR WAVE VELOCITY PLOTS

SHEA MWD CROSSING
SAN JACINTO, CA

PREPARED FOR
KLEINFELDER



GEOVision geophysical services	**FIGURE 4** **ARRAYS 1 & 2 SUMMARY VELOCITY**
Date: 09/27/24 GV Project: 24356 Developed by: JBS Drawn by: JBS Approved by: JBS File Name: 24356_f4.srf	**SHEA MWD CROSSING** **SAN JACINTO, CA** **PREPARED FOR** **KLEINFELDER**

APPENDIX D
LIQUEFACTION ANALYSIS

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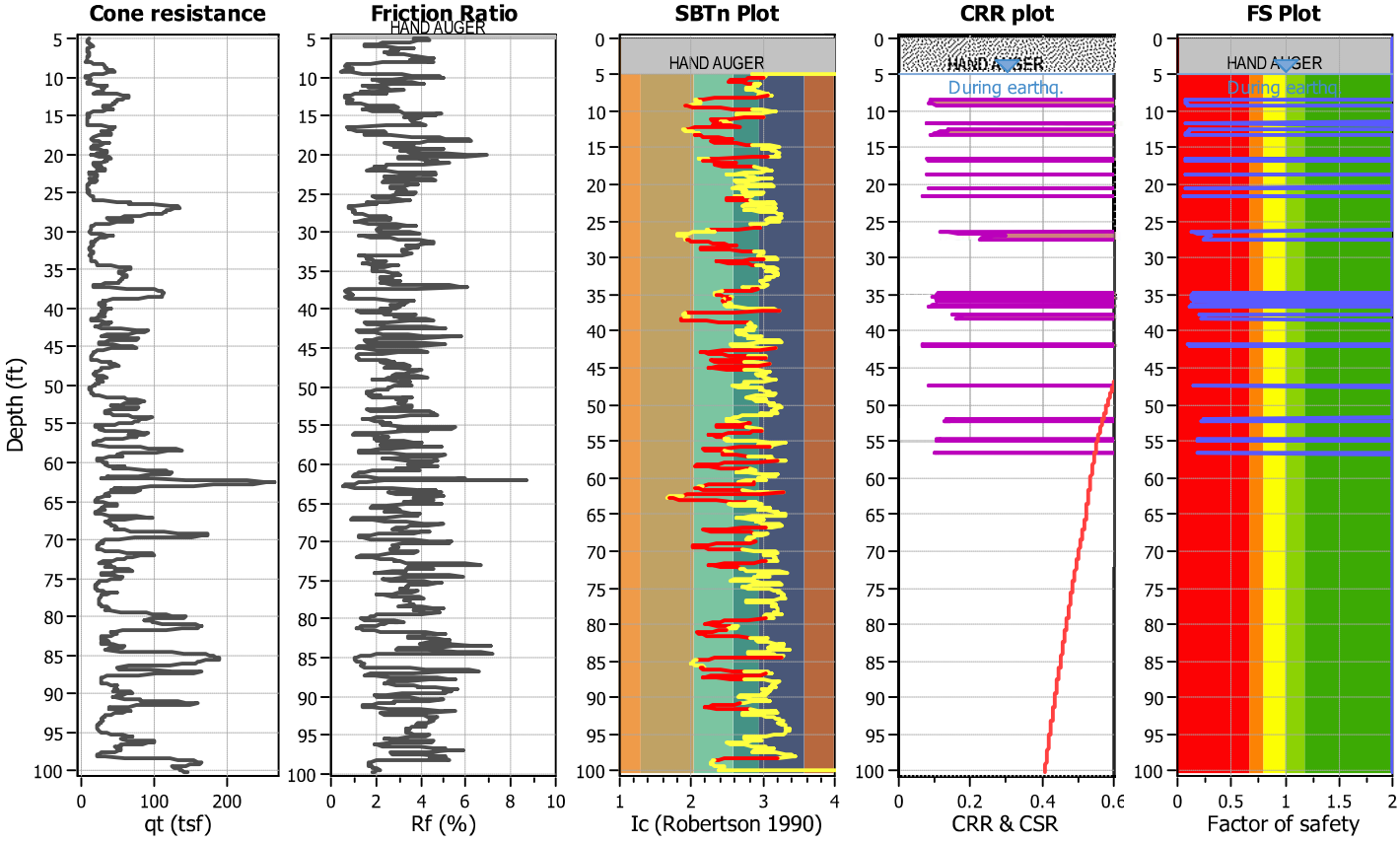
LIQUEFACTION ANALYSIS REPORT

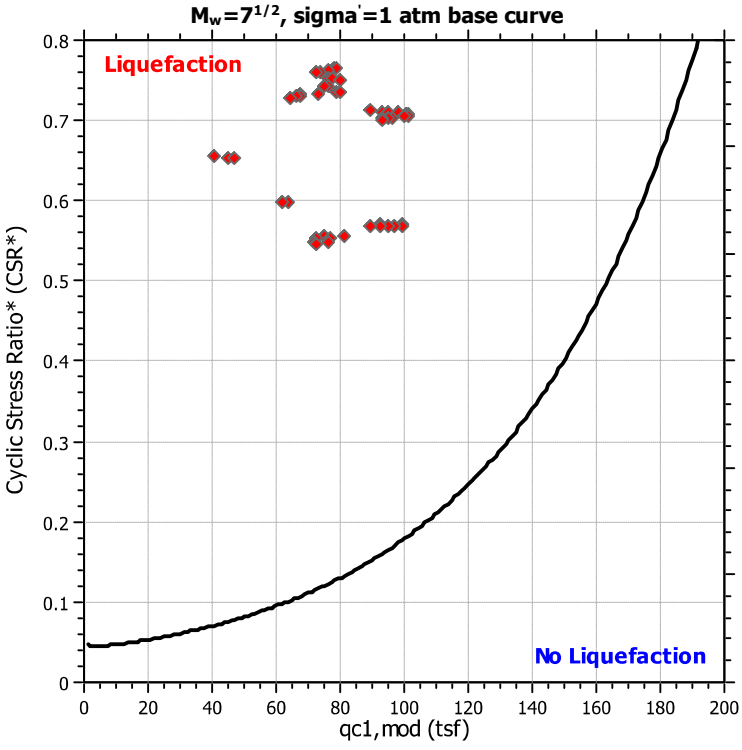
Project title : San Jacinto Line E Storm Drain **Location : San Jacinto, CA**

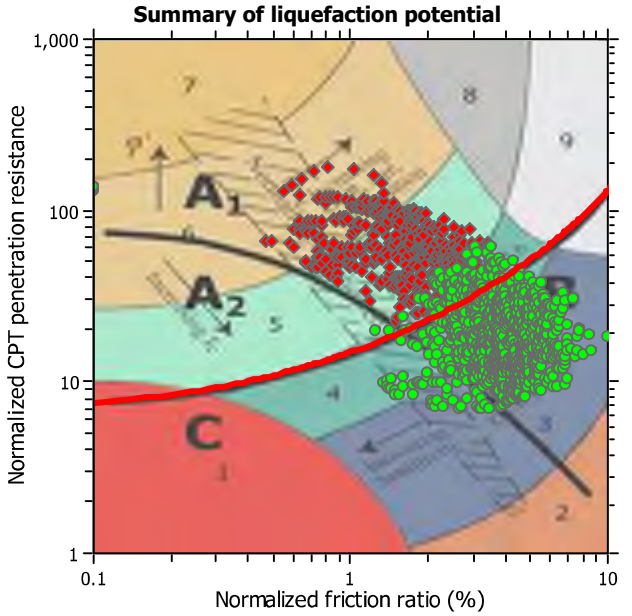
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	16.50 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	5.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	60.00 ft
Earthquake magnitude M_w:	8.10	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

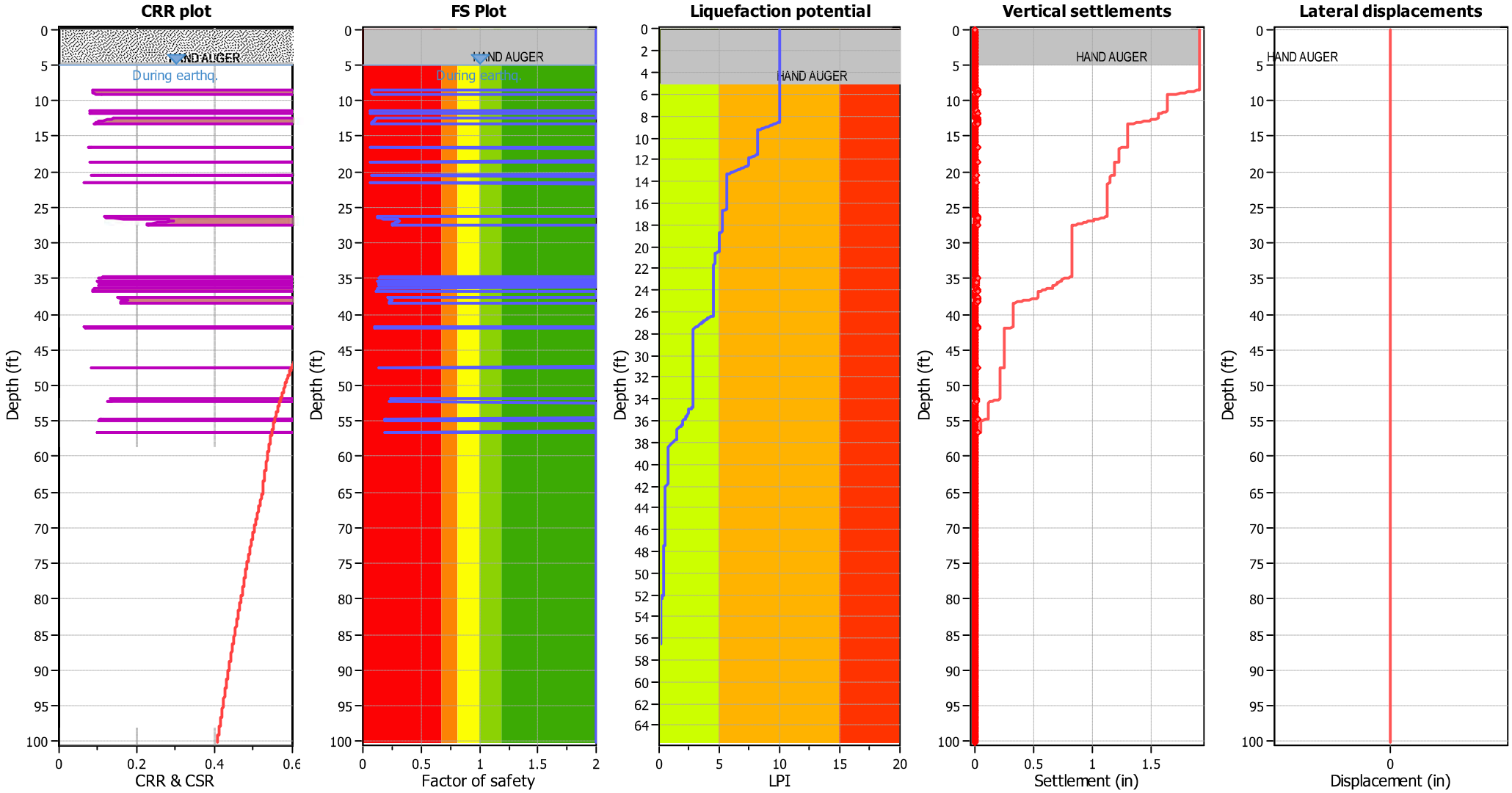






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	5.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	8.10	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	16.50 ft	Fill height:	N/A	Limit depth:	60.00 ft

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

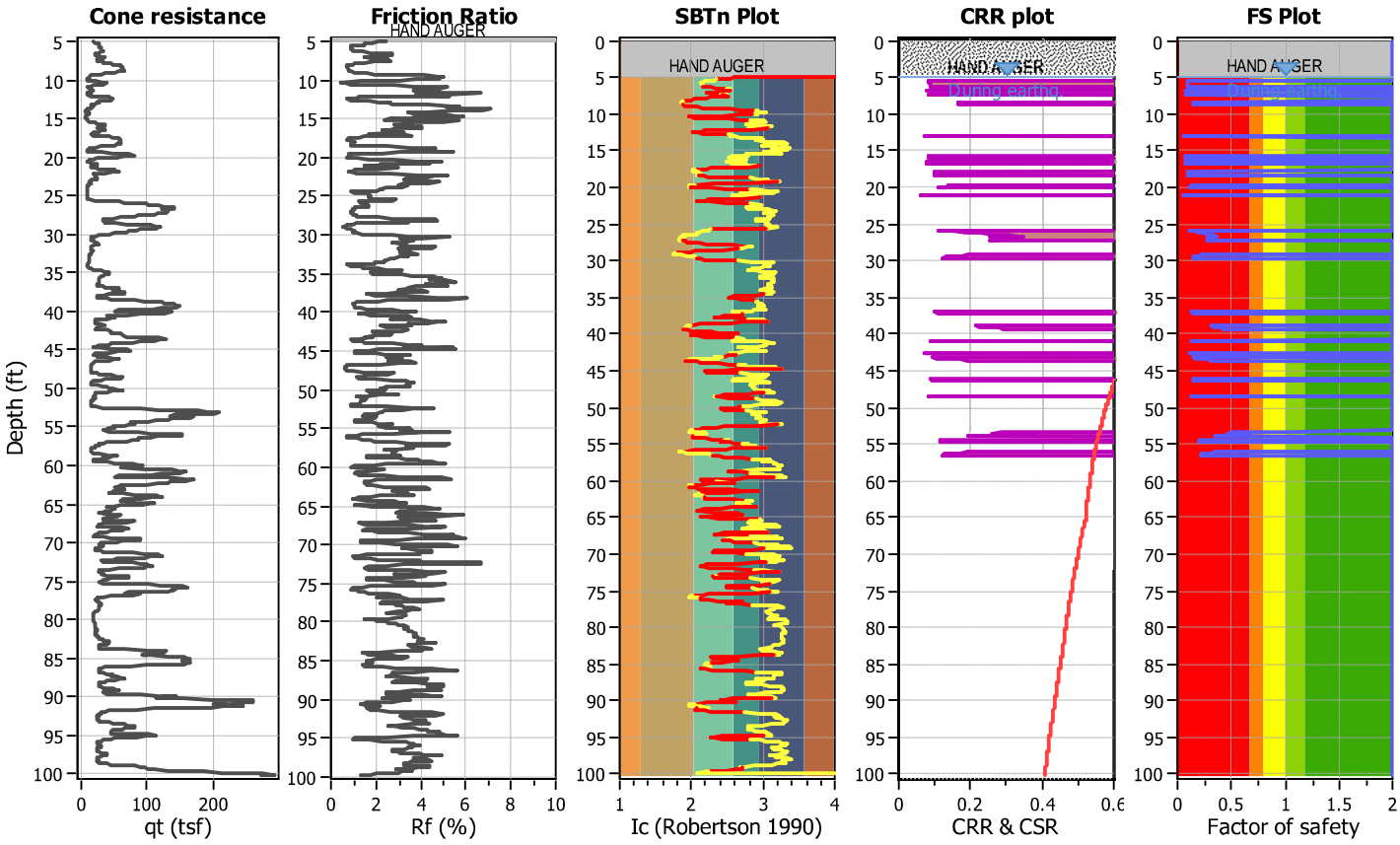
LIQUEFACTION ANALYSIS REPORT

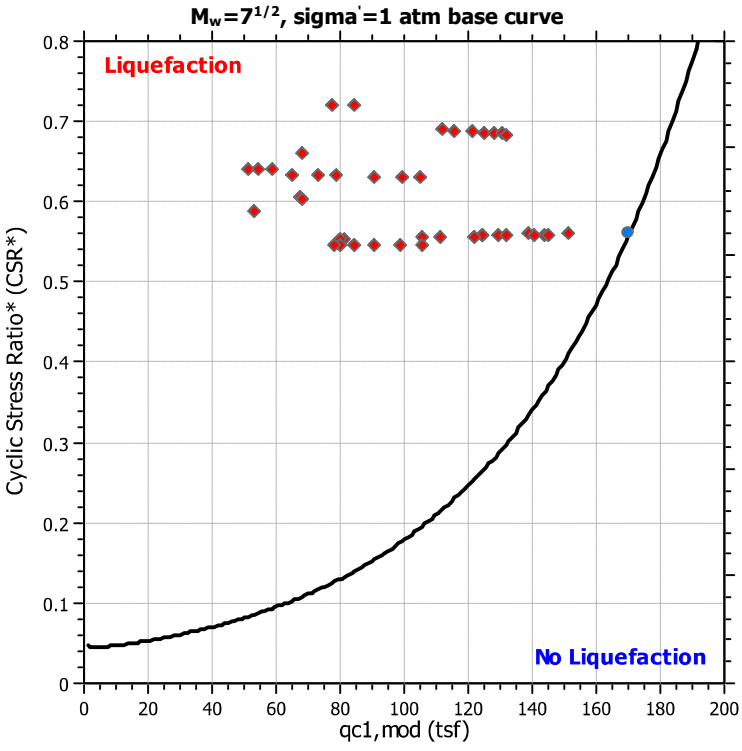
Project title : San Jacinto Line E Storm Drain **Location : San Jacinto, CA**

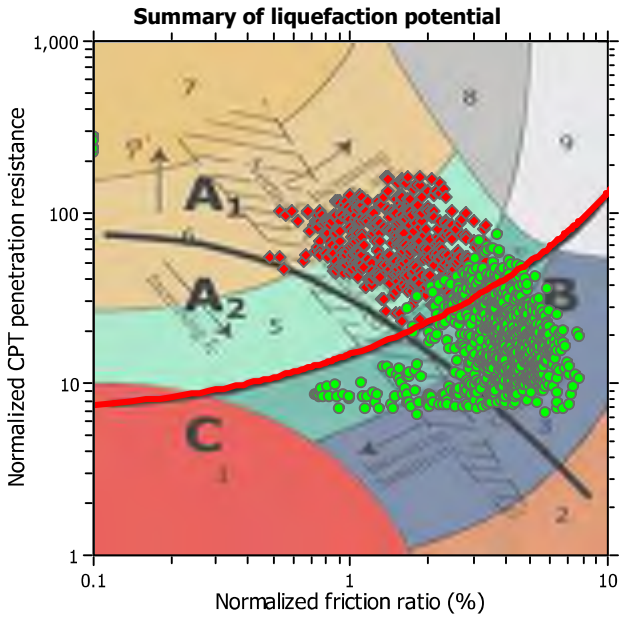
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	16.50 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	5.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	60.00 ft
Earthquake magnitude M_w:	8.10	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

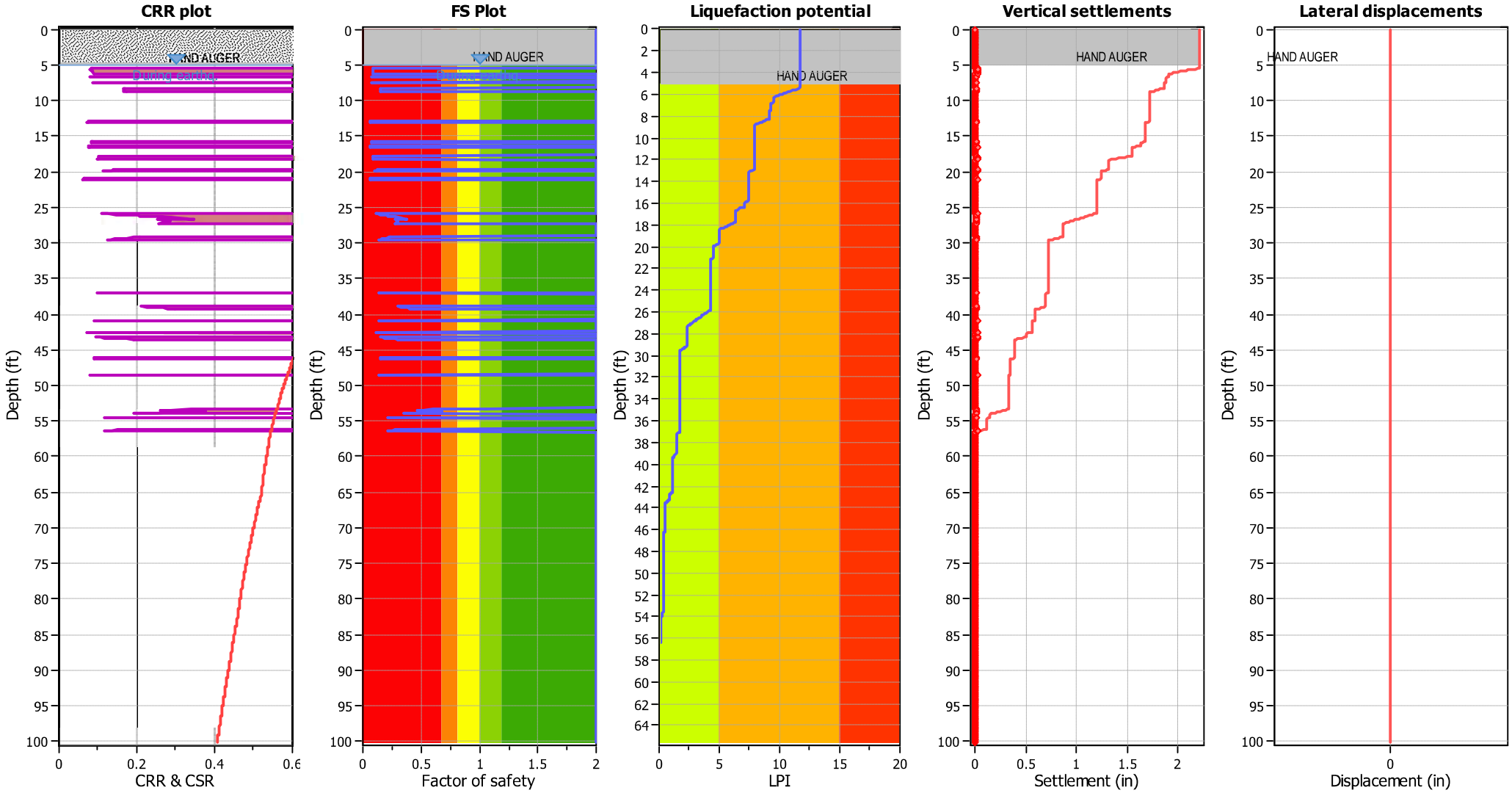






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	5.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	8.10	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	16.50 ft	Fill height:	N/A	Limit depth:	60.00 ft

F.S. color scheme

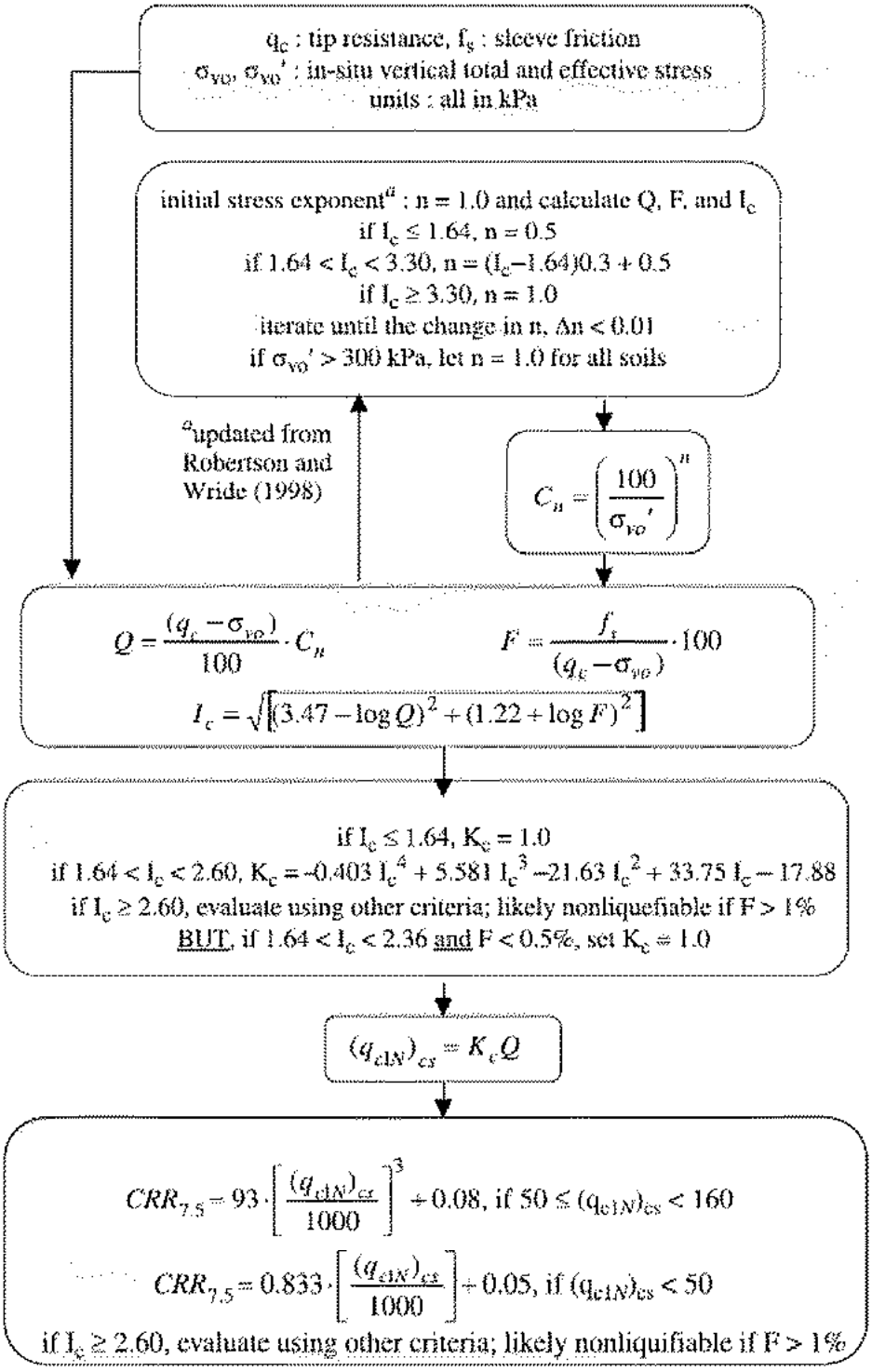
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

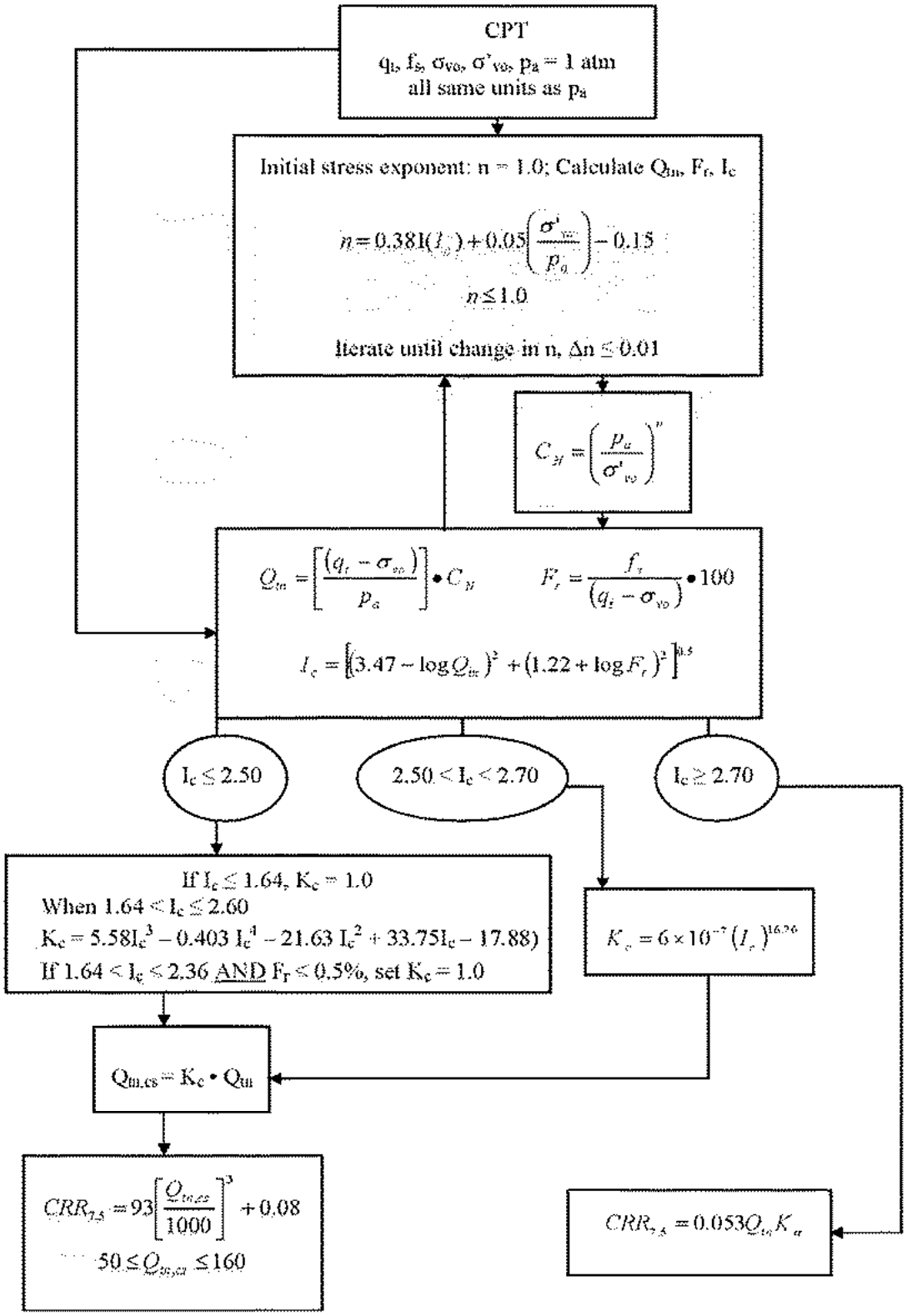
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

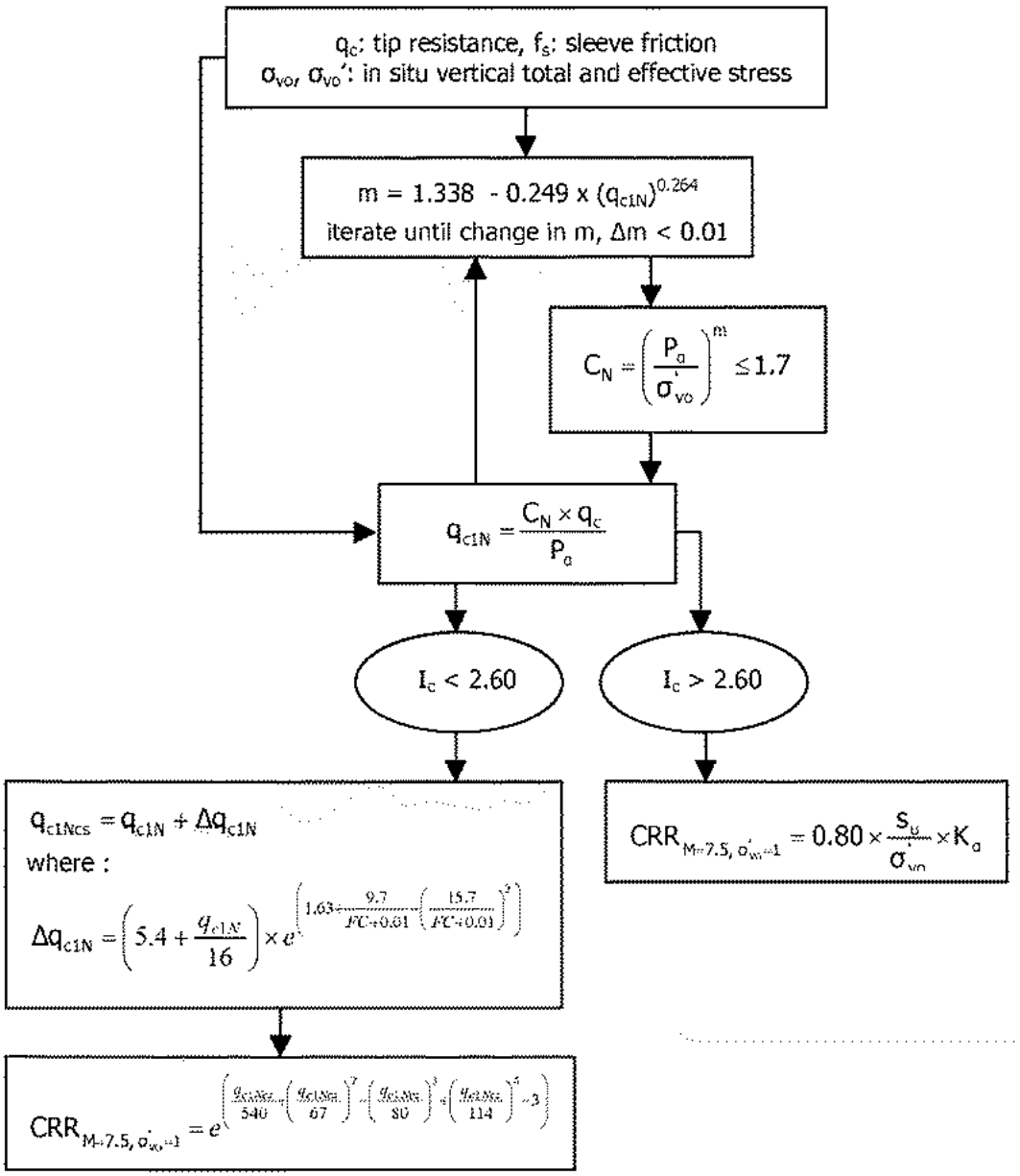
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

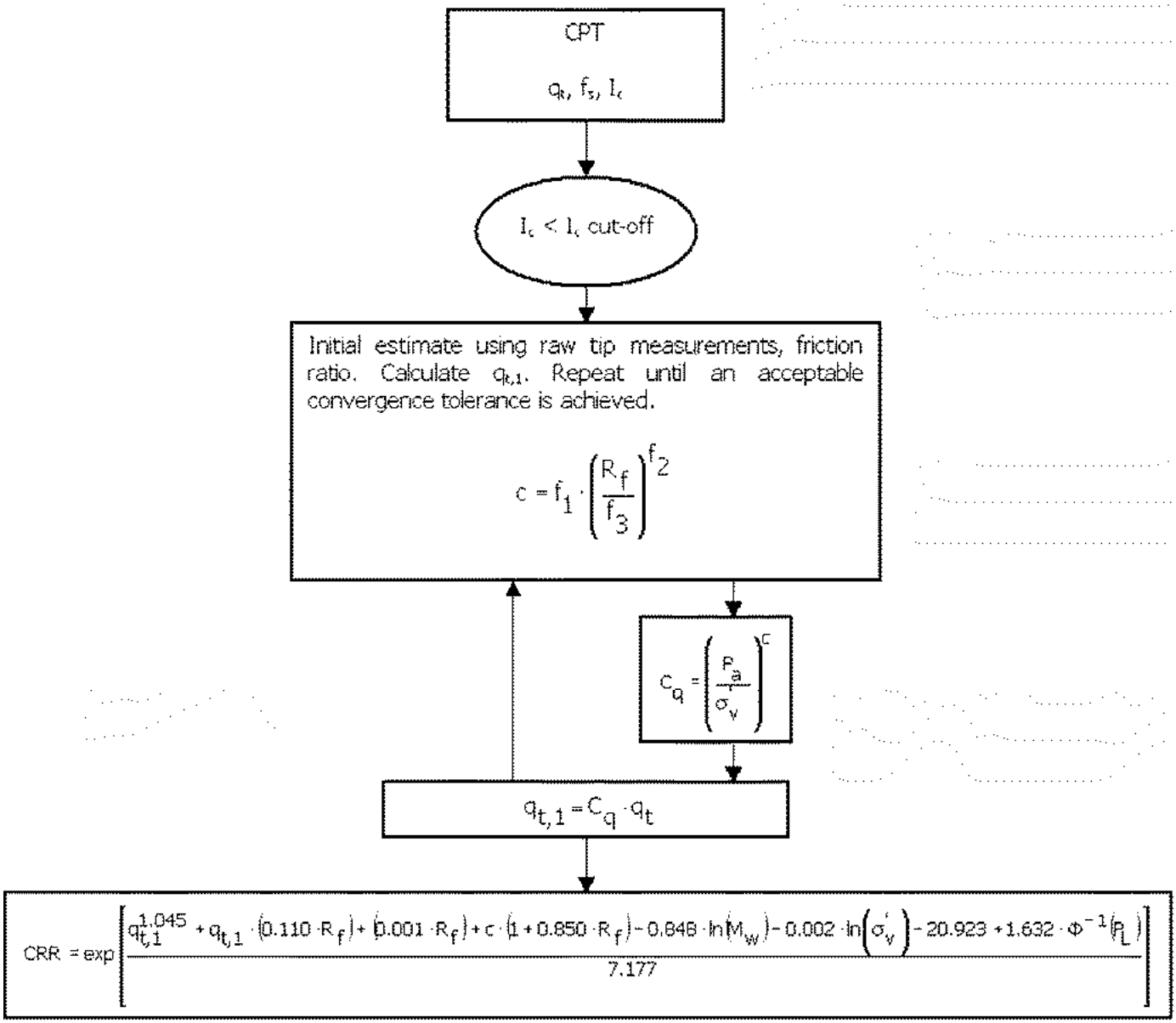


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

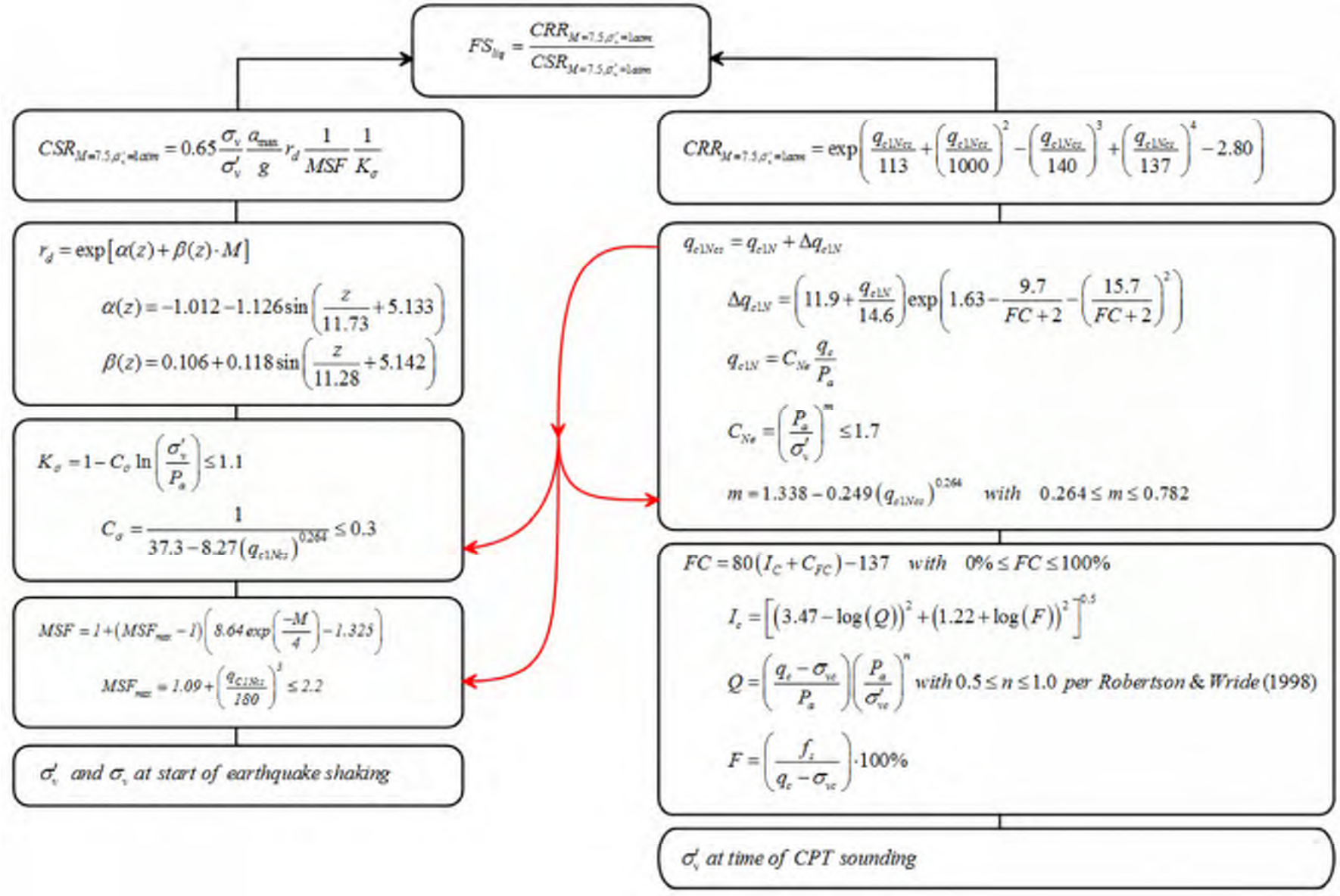
Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



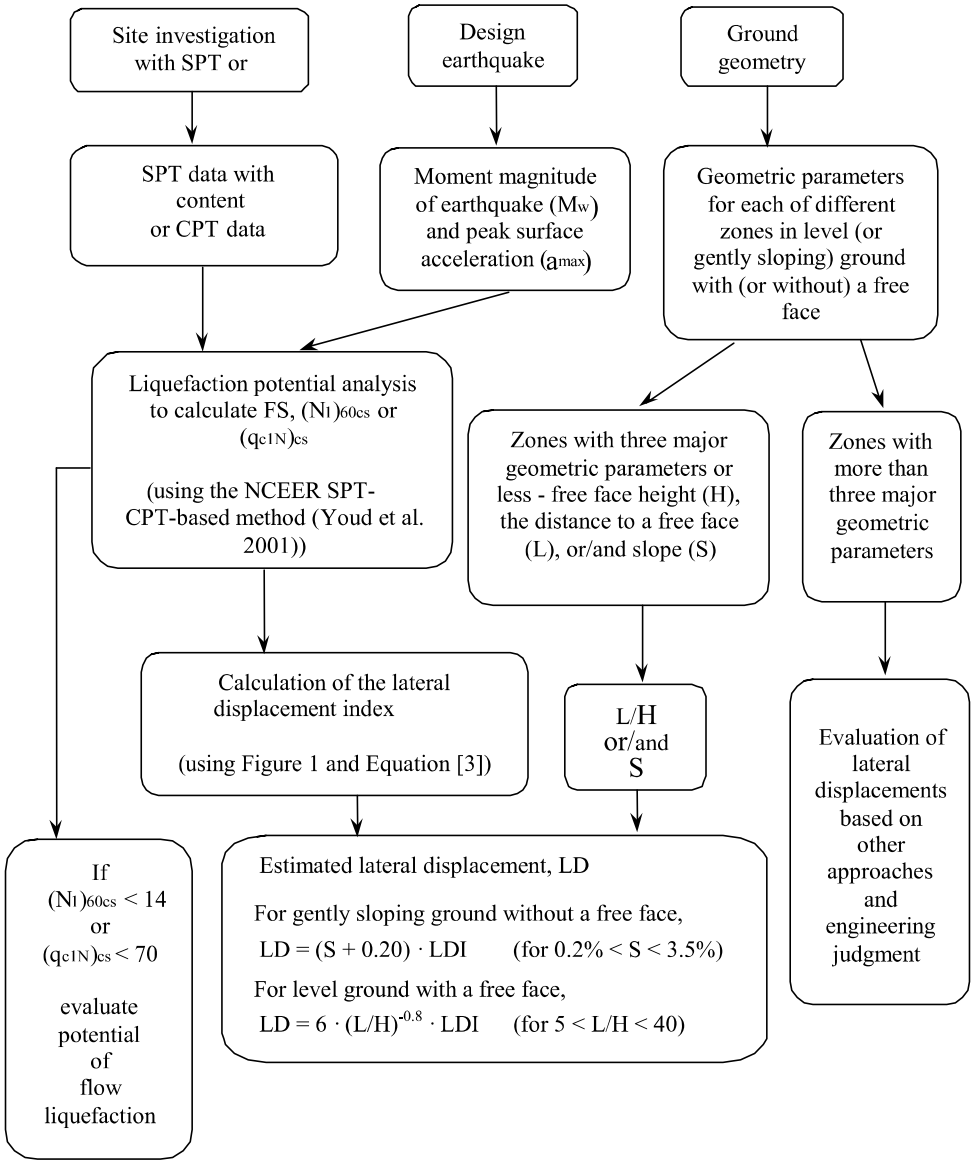
Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



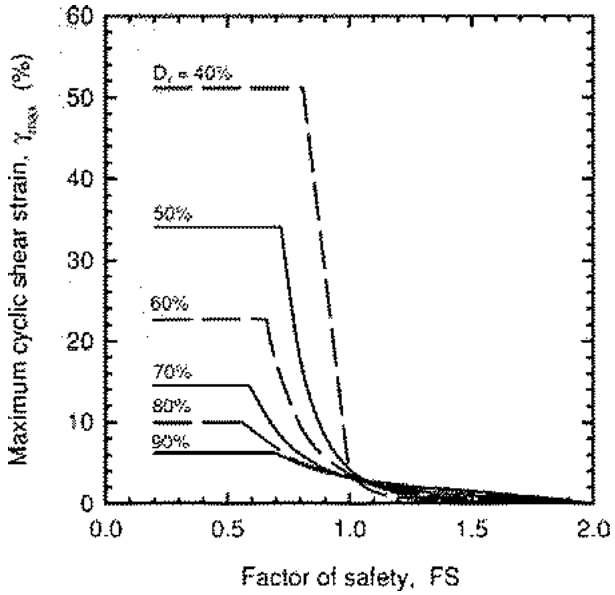
Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)



Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



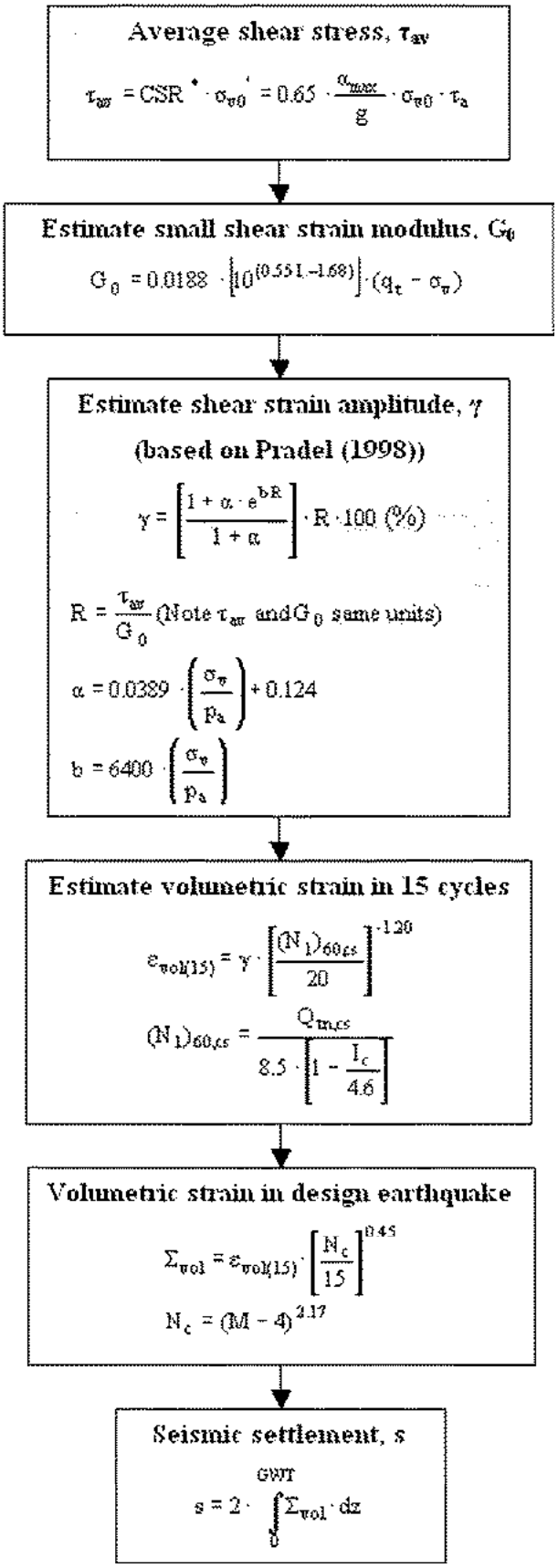
[1] Figure 1

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] Equation [3]

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

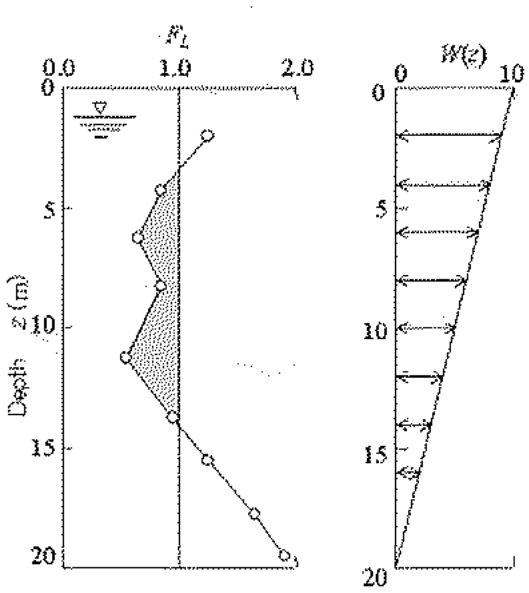
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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- R. E. S. Moss, R. B. Seed, R. E. Kayen, J. P. Stewart, A. Der Kiureghian, K. O. Cetin, CPT-Based Probabilistic and Deterministic Assessment of In Situ Seismic Soil Liquefaction Potential, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 132, No. 8, August 1, 2006
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- Jonathan D. Bray & Jorge Macedo, Department of Civil & Environmental Engineering, Univ. of California, Berkeley, CA, USA, Simplified procedure for estimating liquefaction-induced building settlement, *Proceedings of the 19th International Conference on Soil Mechanics and Geotechnical Engineering, Seoul 201*

APPENDIX E
NUMERICAL ANALYSIS OF PROPOSED CROSSING

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APPENDIX E:
TECHNICAL MEMORANDUM

March 3, 2025
Kleinfelder Project No.: 24002328.001A

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

Subject: Technical Memorandum: Numerical Analysis of Proposed Crossing
San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

Dear Mr. Hays:

Kleinfelder is pleased to present this Technical Memorandum detailing the 3D Numerical Analysis for the proposed crossing of the San Jacinto Line E Storm Drain over the Metropolitan Water District's (MWD) Casa Loma Barrel No. 1. This memorandum is presented as an appendix to this geotechnical report for the subject project. The geotechnical report discusses Kleinfelder's field investigation, laboratory testing, geologic setting and hazards (including faulting and seismicity), ground water discussion, and engineering conclusions and recommendations for various aspects of the project.

We understand that MWD requirements for induced displacement of the Casa Loma Barrel No. 1 are very stringent at ¼-inch per 100 ft tolerances. Given the importance of the Casa Loma Barrel No. 1 and MWD requirements, Kleinfelder has completed numerical modeling of the subsurface conditions and structures using the 3-D finite element program PLAXIS 3D Version 20.04.00.790 published by Bentley. This memorandum includes the results of our calculations, results, and recommendations regarding the proposed MWD Casa Loma Barrel No. 1 crossing structure and associated embankments for the flood-control structures. Discussed in this memorandum are:

- Project Description
- Preliminary Crossing Structure
- Subsurface Conditions & Soil Parameters
- Soil Constitutive Models
- Structural Components & Other Materials
- Model Construction, Boundary Conditions & Meshing
- Loading Conditions
- Model Staging

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- Evaluation of Results
- Conclusions and Recommendations

This memorandum is subject to the limitations contained in our geotechnical report.

PROJECT DESCRIPTION

We understand the project involves the design of an approximate 3-mile storm drain channel to be constructed in the City of San Jacinto. The new storm drain channel will be constructed near the existing ground surface and the majority of the alignment consists of earth embankment channels and several reinforced concrete box culverts. Storm water flow is generally south to north and in the northern portion of the alignment the proposed channel terminates at a proposed confluence basin.

In the vicinity of the MWD pipeline (Casa Loma Barrel No. 1), the channel transitions to a concrete channel with an approximate 160-ft base width with side slopes inclined about 15 to 17:1 (H:V). At the proposed crossing, the proposed channel and embankment cross-section is approximately 560-ft wide. A preliminary plan including contours of the proposed embankments and channel and a cross-section at the MWD pipeline crossing, dated 10/15/24 were provided by Albert A Webb Associates (Webb), shown in in Attachment A as Figure E1. CAD files and data used to construct these plans were also provided by Webb and utilized to construct surfaces for the 3D modeling.

Due to the low cover present over the MWD pipeline, the proposed construction also includes a bridge structure to facilitate possible equipment and vehicle loads, using a transfer slab on supporting foundations to limit induced displacement and stresses in the MWD pipeline. Two preliminary options were considered for the crossing structure: Option 1 - Shallow Spread Footings, and Option 2 – Deep Foundations consisting of cast-in-drilled hole (CIDH) shafts. Kleinfelder is the structural engineer for this proposed crossing structure and provided the structural loading and was consulted in selection and modeling of the structural elements, as discussed in later sections of this memorandum.

PRELIMINARY CROSSING STRUCTURE

Two options were evaluated to support the proposed crossing structure: 1) a shallow foundation option and 2) a deep foundation option. Preliminary modeling of both solutions was conducted to evaluate the feasibility of the proposed construction. However, after preliminary modeling showed that the controlling induced displacement of the pipeline was primarily controlled by the embankment fills and flood loading, the pile option did not appear to be necessary for the crossing. In addition, difficult construction conditions, economic feasibility and other considerations have moved the preferred solution towards the shallow foundation option. As such, this memorandum focuses on the shallow foundation model development and results.

Additional discussion of the two options and selection considerations can be found in this geotechnical report and our separate structural report (Kleinfelder, 2025).

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SUBSURFACE CONDITIONS & SOIL PARAMETERS

We reviewed the geotechnical borings, laboratory test data, and other geotechnical analyses completed by Kleinfelder for the project for relevant information to define the mechanical behavior, including correlations to stiffness and strength characteristics. The various correlations and select laboratory test results were plotted in depth profiles to evaluate and select the relevant parameters for the proposed soil constitutive models. Plots of the profiles are provided in Figures E2 to E5. Based on elevation data provided by Webb, the approximate average ground surface in the vicinity is about EL. 1449.5 ft. For the purposes of plotting the soil parameters versus elevation, we have used a ground surface of EL. 1450 ft. Groundwater levels appear to vary significantly throughout the region with potential for different regimes due to faulting and other geologic conditions, see the discussion in our geotechnical report. In the area of the proposed crossing, the groundwater elevations noted in our borings range from approximately 34.5 ft to 16.5 ft below ground surface. For the purposes of our analyses, we have assumed that the groundwater depth of 16.5 ft or EL. 1433.5 ft.

The soils logged in the borings near the proposed crossing and indicated by the soil behavior type CPT soil behavior type are predominantly silty sand to sandy silt with some interbedded silt and clay soils. Due to the non-plastic to low plasticity and interbedded deposition we expect that the soils will exhibit drained behavior and that if excess pore-pressures are produced they will likely dissipate within the time frame of the expected loading conditions. As such the model behavior of the soils is defined as drained and the effects of excess pore-pressure neglected.

After discussions with MWD, additional geophysical testing was conducted to measure the shear-wave velocity (V_S) and therefore, the stiffness of the subsurface conditions. The report from GEOVision detailing the data collection and processing is Appendix C of this geotechnical report. The average V_S profiles of the two arrays, one conducted north and one south of the MWD pipeline are shown on the soil property figures. The elastic modulus (E) calculated from the shear-wave velocity data using the relationship $G_{max} = \rho V_S^2$, where G_{max} is the maximum or low-shear strain (< 10^{-4} to 10^{-3} %) shear modulus and ρ is the soil mass density and Poisson's ratio derived from the soil strength. Additionally, to adjusted G_{max} from low shear strains (< 10^{-4} to 10^{-3} %) to strain magnitudes expected in the modeling (~0.1 to 1%), the V_S was divided by a factor of either 2 or 3 to calculate an implied G and subsequent E moduli and provide a reference for the values used in the constitutive models. Plots of these implied elastic modulus are shown on Figures E4a and E4b.

SOIL CONSTITUTIVE MODELS

The constitutive models define the stress-strain behavior of the soil. The primary characteristics considered when selecting the soil constitutive model, included the ability of the constitutive model to:

1. provide a reasonable fit to the expected stress-strain behavior.
2. capture the depth/stress dependent stiffness characteristics evidenced by the in-situ and V_S data.
3. provide both unload and reload moduli.

Within PLAXIS, there are several constitutive models available. However, two were considered as part of this study: 1) the linear-elastic perfectly plastic (Mohr-Coulomb) model and 2) the hardening soil (Hardening) model. Each model requires several inputs that define the behavior, with the primary being

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the soil strength parameters (c = cohesion, ϕ = friction angle) and stiffness parameters (varies dependent on the model). Both models were considered for use in the 3D model.

The Mohr-Coulomb model presents the simpler model stiffness inputs with the stiffness behavior defined by the elastic modulus (E) and Poisson's Ratio (ν). As the elastic modulus does change with shear strain, care must be taken in selected this parameter for the appropriate stress/strain levels expected in the modeling. An option to vary the stiffness with depth/elevation is provided in PLAXIS and was utilized to better match the observed variation in stiffness with depth. One drawback of the Mohr-Coulomb model as implemented in PLAXIS, is that the definition of an unload/reload modulus is not allowed. The Mohr-Coulomb was utilized for the embankment fills, geofoam, and concrete volumes as discussed further below.

The Hardening model is also a Mohr-Coulomb model, in that the strength behavior is governed by Mohr-Coulomb strength envelope. However, the model is different in that it incorporates hardening plasticity (e.g. decreasing stiffness with plastic straining) (Shanz 1998). This allows for the modeling of non-linear stress-strain behavior that is observed in soil laboratory testing, often called "hyperbolic soil" behavior and implemented by Duncan and Chang (1970). Shanz et. al. (1998 and 1999) built on the Duncan and Chang (1970) framework to make the required input parameters more easily defined and related to conventional geotechnical engineering properties, as well as more technical aspects that we would refer the reader to either the PLAXIS, FLAC, or source papers for more information. Specific to this study, the hardening model allows for a stress dependent stiffness definition and the non-linear hyperbolic stress-strain behavior observed in the laboratory testing. The implementation of this model also allows for the definition of an unload/reload modulus making the model well suited for excavation analyses. The Hardening model is used for the naturally deposited Sandy SILT to Silty SAND soils observed in the geotechnical investigation.

As a summary of the similarities and differences between the Mohr-Coulomb and Hardening model:

Model Aspect	Mohr-Coulomb	Hardening
Strength Envelope	Mohr-Coulomb	Mohr-Coulomb
Stiffness Dependency	Yes, through depth.	Yes, through stress.
Stress-Strain Behavior	Perfectly Elastic, Perfectly Plastic	Hyperbolic, Perfectly Plastic
Unload/Reload Modulus	No	Yes

Table E1 shows the input various input parameters selected for the models. As the goal of this study is to evaluate the induced displacements in the MWD pipeline, particular care was taken when selecting the various input parameters related to the stiffness of the soil models. Figure E6 is included to help show how the Hardening model input stiffness parameters relate to the stress-strain behavior. The stress-dependent E_{50} stiffness computed per Eq. 151 of the PLAXIS manual is plotted on Figure E4a. The initial modulus (E_i) shown on Figure E6 is also plotted on Figure E4a for comparison purposes computation per Eq. 136 of the PLAXIS manual. The stress-dependent elastic unload/reload modulus (E_{ur}) is likewise computed per Eq. 139 of the PLAXIS manual and plotted on Figure E4b. For comparison with the V_S data, the E_{50} represents an approximate dividing factor of 3.5 to the measured V_S data. Likewise, the E_i and E_{ur} for comparison are an approximate dividing factor of 2.65 to the measured V_S data.

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Table E1: Soil Constitutive Model Parameters for Silty SAND to Sandy SILT Soils

Parameter	Description	Hardening
E_{50}^{ref} (ksf)	Reference Secant Elastic Modulus at 50% of Strength Failure	180
E_{oed}^{ref} (ksf)	Reference Oedometer Modulus at 50% of Strength Failure	200
E_{ur}^{ref} (ksf)	Reference Unload/Reload Modulus at 50% of Strength Failure	600
m	Power for Stress Dependency of Stiffness	0.8
P_{ref} (psf)	Reference Stress for Stiffness (Used Atmospheric Pressure)	2116
K_0^{nc}	At-Rest Earth Pressure Coefficient for Normal Consolidation (Based on the Design Friction Angle)	0.5
R_f	Failure Ratio (Ratio of q_a / q_f in Figure E6)	0.9
ν_{ur}	Poisson's Ratio for Unload/Reload Modulus	0.2
ν	Poisson's Ratio (Based on the Design Friction Angle)	0.33
γ_{unsat} (pcf)	Dry Unit Weight	85
γ_{sat} (pcf)	Saturated Unit Weight	115
c (psf)	Cohesion	50
ϕ (deg)	Friction Angle	30
ψ (deg)	Dilatancy Angle	0
σ_t (psf)	Tensile Strength	0

Laboratory testing conducted on select soil samples were digitized and imported into PLAXIS for use in the soil test module, which simulates common types of laboratory tests in the finite element framework, to assist with the calibration of the soil constitutive model parameters and stress-strain behavior. Figures E7 to E9 show the results of the laboratory direct simple shear tests with the Hardening model. For reference, the equivalent elastic modulus calculated from the V_S /2 data is included on the figures.

The final selected parameters were selected to present a reasonable match to the shape and behavior of the laboratory testing, but the soil stiffnesses relied upon the correlations and Vs measurements as the soil samples used for laboratory testing were taken from thick-walled SPT samplers and were likely subjected to sample disturbance than would particularly affect the small stiffness behavior during laboratory testing. Otherwise, the soil parameters selected present a reasonable match to the laboratory testing based on our professional experience and judgment.

STRUCTURAL COMPONENTS & OTHER MATERIALS

The structural components modeled included the MWD pipeline and proposed crossing structure shallow footings, both of which are concrete. In discussion with MWD and Kleinfelder's structural engineering team, we understand that the compressive strength of the concrete to be 3000 psi and 3600 psi for each component, respectively. The compressive strengths are not directly used as inputs to the selected linear-elastic constitutive models and instead used to calculate the elastic modulus (E_C) following Eq. 19.2.2.1.b of ACI 318-19. To account for possible cracking, a 50% reduction was applied to the calculated E_C. Other necessary inputs include, Poisson's ratio was taken as 0.2, and unit weight taken as 150 pcf. Sensitivity analyses were performed for the concrete constitutive model parameters and no significant effect on the model results were found, likely due to the much larger relative stiffness of the concrete compared to the soils.

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The thickness and dimensions of the MWD pipeline and proposed concrete footings were provided by information from Webb and Kleinfelder's structural team. The preliminary cross section of the MWD pipe and proposed shallow foundation concept used to construction the PLAXIS model are shown in Figure E10. The MWD pipeline was modeled as "plate" or shell elements with virtual thickness of 1 ft and necessary simplification to a circular section was made to model the pipeline. The MWD pipeline invert was placed at EL. 1432.85. The concrete footings were modeled using volume elements like the soil materials. The modeling including 1.5H:1V excavation extents anticipated during construction to install the footings. We understand that some minor revisions to the footing shape and possible excavation extents (i.e. using soil forming to reduce the excavation) will be incorporated into the final design to facilitate construction formwork and reduce the need for lateral bracing that may impact the MWD pipeline. Details and discussion of the structural analysis can be found in Kleinfelder's structural report (Kleinfelder, 2025). The proposed changes have been discussed with the project team and are not expected to impact the results of the PLAXIS modeling as 1) only small changes are expected to the footing loads and footing concrete volumes, and 2) the model results controlling the displacement are drive by the embankment fills and the 100-yr flood loads (discussed further in later sections).

Interface elements were included in the model to control the normal and shear behavior between the concrete footing and the adjacent soils, which allows for non-rigid connections between these elements. The interface parameters automatically derived based on the adjacent material with a manual input factor to reduce the shear strength of the soil, which should be determined based on the interfacing materials. Interface friction angles for fine sandy silt (non-plastic silt) presented in the NAVFAC (1982a) range from 17 to 19 degrees. Using an interface friction angle of 18 degrees and 30 degrees soil friction angle, this results in a reduction factor from the soil strength to soil-concrete interface strength of 0.56. This factor was applied for all soil materials.

In addition to the structural elements, the modeling utilized volume elements to represent the various embankment fills and other materials proposed materials needed to maintain the induced displacement criterion for the MWD pipeline. These consist of geofoam proposed to be placed below the crossing structure slab, lightweight flowable fill, consisting of lightweight cellular concrete, proposed as the primary fill material within the specified distance from the MWD pipeline alignment, and structural fill, consisting of soil material, for the remaining areas outside the crossing and assumed to consist of properly placed and compaction soils similar to the on-site soils. The Mohr-Coulomb constitutive model was selected for these materials as 1) significant unload/reload behavior is not expected (e.g. excavations) in these materials and 2) in-situ and laboratory testing was not available to confirm the stress-dependent behavior, nor that non-linear behavior exhibited by the Hardening model would be appropriate for these materials, and 3) the primary purpose of the fill volumes is to more accurately represent the added weight and resultant stresses on the model.

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The selected input parameters from available literature are presented in Table E2.

Table E2: Fill Material Constitutive Model Parameters

Parameter	Description	Structural Fill (Soil Material)	Lightweight Flowable Fill (LCC)[1]	EPS Geofoam (Underslab Fill)[2]
E (ksf)	Elastic Modulus	500	2140	216
v	Poisson's Ratio (Based on the Design Friction Angle)	0.33	0.3	0.15
γ_{unsat} (pcf)	Dry Unit Weight	127.5	30	2.4
γ_{sat} (pcf)	Saturated Unit Weight	127.5	30	2.4
c (psf)	Cohesion	50	5	1080
ϕ (deg)	Friction Angle	30	34	0
ψ (deg)	Dilatancy Angle	0		
σ_t (psf)	Tensile Strength	0		

1. LCC = Lightweight Cellular Concrete, parameters estimated from Legatski (1994) and Tiwari, et. al. (2017)
2. Parameters taken as EPS-39 Geofoam.

MODEL CONSTRUCTION, BOUNDARY CONDITIONS & MESHING

Model boundary conditions for static analyses were not altered from the default PLAXIS conditions, which consist of fixed displacements in all directions for the bottom of the model, fixed displacements normal to the lateral extents, and the surface of the model is free in all directions. The horizontal boundaries were set such that along the pipeline (the approximate model x-direction) the model extended about 55 ft beyond the extents of the proposed fills. Roughly perpendicular to the pipeline (the approximate model y-direction) the model was extended to about 70 ft from the closet distance to the centerline of the pipe alignment. Based on our review of the induced displacements and stresses due to the fills and loads, the model boundary conditions appear to be at a sufficient distance to have not significantly influenced the model results in the vicinity of the pipeline (the area of interest).

Geometric objects were constructed in PLAXIS to represent the embankment fills, pipeline, footings, and excavations. The embankment point cloud data was provided in AutoCAD files provided by Webb. The point cloud data was imported using the related feature in PLAXIS, which discretizes the data into a triangular irregular network (TIN) to provide an elevation surface. This surface was then laid on the average approximate ground surface within the model boundaries to generate the fill volumes for the embankments and channel alignment. The use of the average approximate ground surface was a necessary simplification because of issues with the merging of the existing and proposed surfaces caused by floating point precision of intersecting planes. Based on our review of the existing elevation data, we expect that this necessary simplification should have overall minor impact on the results of the modeling as the existing surface was relatively flat, particularly in the area around the pipeline, and by using the average, the relative ± elevation differences should be roughly offsetting. Other geometric objects were constructed in the model using the simpler polygonal tools in PLAXIS to match the proposed structural footing and excavation dimensions and elevations and existing pipeline alignment.

Meshing of the model was completed using PLAXIS's internal meshing routines and control parameters prescribed such that elements around areas of interest (e.g. the footings, excavations, and pipeline), were approximately 2 ft in size. Elements away from the areas of interest were gradually increased in size by the PLAXIS routines to allow for more efficient computations. Figure E11 shows a plan view of the model

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mesh. The meshed geometry was evaluated to ensure the meshing routines produced reasonably sized and shaped elements. Some small and elongated elements were generated but were deemed acceptable as they were generally located towards the model boundaries and edges of the fills and not expected to significantly impact the results.

LOADING CONDITIONS

Several loading conditions were considered during our evaluation and were provided by Kleinfelder's structural team, including:

- Water Load in the Pipe (Initializing Condition)
- Dead Loads of the Bridge Slab
- Water Load on the Bridge Slab & Modeled Channel
- Live Loads of Equipment on the Bridge Slab

We understand from discussion with MWD that this portion of the pipeline alignment the water inside the pipe is gravity flowing. Therefore, the water load was included in the model to better reflect the actual conditions. The water load was incorporated as a volume material with the parameters shown in Table E3 to better represent the weight and stress distribution to the model. An interface was included between the pipe and the elements to eliminate rigid connections between the water and pipe elements.

Table E3: Water Constitutive Model Parameters

Parameter	Description	Water
K (ksf)	Bulk Modulus	43,170
v	Poisson's Ratio (Based on the Design Friction Angle)	0.499
γ (pcf)	Unit Weight	62.4
Su (psf)	Shear Strength[1]	5
σ_t (psf)	Tensile Strength	0

1. A minimal amount of shear strength was given to the water material to allow the model to converge.

More detailed discussion of the loads applied by the proposed crossing structure can be found in Kleinfelder's structural report (Kleinfelder, 2025). We note that minor differences in the applied slab dead load (~3%) shown in our structural report due to the slight changes in the footing geometry, extending the crossing slab. However, we don't anticipate that these will present significant changes to the PLAXIS model results as the worst-case displacement conditions are controlled by the embankment placement and 100-yr flood loading. The 100-yr flood elevation has not changed and due to the inclusion of the surface load, the overall model loading in this condition would not change. Table E4 shows the loading conditions applied to the PLAXIS model. Based on the rough profile dimensions and elevations show on Figure E1, we anticipate that the anticipated 100-yr flood load and embankment loads using light weight fill will add stresses at the existing ground surface in the range 200 to 300 psf. These loading conditions were incorporated into our model staging discussed further below.

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Table E4: Footing Loads from Transfer Slab

Loading Condition	Description	Applied Load
Dead	Dead Load of Slab	2.65 k/ft
Water[1]	100-yr Flood Load on Slab	3.5 k/ft
Live Load	Excavator Transverse[2,3]	5.54 k/ft
	Excavator Longitudinal[2,4]	36.47 k

1. The 100-yr flood load was also included as surface load applied across the proposed channel formed by the embankments. The surface load utilized PLAXIS features to apply a 62.4 pcf vertical load increment from the reference elevation of 1453.47 ft (the provided 100-yr flood elevation) at the MWD alignment.
2. When the live loads were applied, they were only applied to the upstream crossing structure footing.
3. Transverse load was applied of a 13.17 ft length and placed in three locations along the bridge (left side, centered, and right side), as provided by the structural team.
4. Longitudinal load was applied as a point load at three locations along the bridge (left side, centered, and right side), as provided by the structural team.

MODEL STAGING

Once the constitutive models for the various components were defined and the geometries created, the model staging and sequencing were developed in PLAXIS. Construction staging was utilized in PLAXIS to initiate existing stresses and strains within the model, including the existing MWD pipeline. This was followed by staging of excavations, footing sequencing, backfilling, and various loading conditions. The construction staging followed these steps:

- Step 0: Initial Phase - This step is used to initiate stresses into the model and displacements/strains are reset following this step.
    - 0.a: PLAXIS K_0 Routine & Gravity Loading
    - 0.b: Activation of MWD Pipe – the MWD pipe is “wished” into place and external interface is activated.
    - 0.c: Add Water Inside the MWD Pipe – the water is “wished” into place and interface activated.
- Step 1: Excavate & Place Footings – This represents construction sequencing used to limit the uplift of the MWD pipe. The crossing structure is divided into 1/3 sections and excavation and placing of the footings is done on both side of the pipe simultaneously to limit lateral displacements of the MWD pipe. See the conclusions and recommendations section for more discussion.
    - 1.a: Excavate Center 1/3
    - 1.b: Construct Center 1/3 Footing
    - 1.c: Excavate Left 1/3
    - 1.d: Construct Left 1/3 Footing
    - 1.e: Excavate Right 1/3
    - 1.f: Construct Right 1/3 Footing
- Step 2: Backfill Footings – This represents the backfilling of the constructed footings. The crossing structure will be backfilled with medium weight flowable fill/LCC to limit induced vibrations that

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may impact the MWD pipeline. The structural design of the backfill requires that the LCC has similar unit weight and strengths to the existing soils for overturning and confinement. Therefore, the model sequencing backfills with the existing soil.

- Step 3: Place Channel Embankments – This represents the fill placement to construct the channel embankments.
- Step 4: Apply Dead Loads from Slab – This represents the construction of the transfer slab.
- Step 5: Apply Various Loads – This represents the various loading conditions applied to the footings by the loads on the transfer slab and the 100-yr flood load. We note that these loading conditions are not expected to occur at the same time and are therefore branches in the analysis tree.
    - 5.a: 100-yr Flood Load
        - 5.a.1: Remove 100-yr Flood Load
    - 5.b: Transverse Excavator on Left
    - 5.c: Transverse Excavator on Center
    - 5.d: Transverse Excavator on Right
    - 5.e: Longitudinal Excavator on Left
    - 5.f: Longitudinal Excavator on Center
    - 5.g: Longitudinal Excavator on Right

Figures E12 to E30 show a view of the model for each of these steps.

EVALUATION OF RESULTS

Based on discussions with MWD, we understand that the following results are desired to evaluate the impact of the proposed construction on the MWD pipeline:

- Vertical Displacement Profiles
- Lateral Displacements
- Longitudinal Stress Profiles (Extreme Fiber)
- Hoop Stress Profiles (Extreme Fiber)

The requested results are presented for select load cases in the figures outlined in Table E5.

Table E5: Summary of Profile Results

Modeling Stage	Results Shown	Figure #
Step 1: Full Length Excavation	Vertical Displacement (Crown & Invert)	E31
Step 1a-f: Staged Excavations	Vertical Displacement (Invert Comparison)	E32
	Vertical Displacement (Crown & Invert at Each Stage)	E33 to E38
	Lateral Displacement (Spring Lines at Each Stage)	E39

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Modeling Stage	Results Shown	Figure #
Step 3: Place Channel Embankments	Vertical Displacement – Full Weight vs Light Weight Comparison (Crown & Invert)	E40
	Lateral Displacement (Spring Lines)	E41
Step 4-5a.1: 100-yr Flood Loading	Vertical Displacement (Crown Comparison)	E42
	Vertical Displacement (Crown & Invert)	E43 to E45
	Lateral Displacement (Spring Lines)	E46
Step 5.b to 5.g: Various Equipment Load Cases	Vertical Displacement (Crown Comparison)	E47
PLAXIS Pipe Axis and Stress Derivation	N/A	E48
Step 1.e, 3, 5.a	Longitudinal Stress (Crown)	E49 to E51
	Longitudinal Stress (Invert)	E52 to E54
	Hoop Stress (Crown)	E55 to E57
	Hoop Stress (Invert)	E58 to E60
	Hoop Stress (Downstream Spring Line)	E61 to E63
	Hoop Stress (Upstream Spring Line)	E64 to E66

Excavations for Footings

Initial construction sequencing considered the potential that footing excavations may be made on one side of the pipe then the other. Modeling results of this scenario showed that the lateral induced displacement from excavating on one side then the other exceeded the allowed tolerances before combining with the potential uplift. Therefore, during conversations with the design team and contractors the limitation of simultaneous excavation was discussed and determined that simultaneous excavation would be possible and not overly burdensome to the construction effort and additional refinements and results for the "unbalance excavation" scenario are not included.

Figure E31 shows the vertical displacement results for the full-length excavation. The results indicate that the Hardening model exceeds the ¼ inch per 100-ft differential tolerance. As such, additional consideration was given to sequencing the excavation and construction of the footing into 1/3 lengths where a portion of the footing is excavated then constructed before additional excavation is completed. Figure E32 shows the results of the 1/3-staging sequence for the pipe invert, which shows the higher vertical displacements. The full-length excavation is shown for reference.

Figures E33 to E38 show the results of the vertical displacement results for the staged excavations (Step 1a to 1f, respectively). The results are shown for the crown and invert to evaluate the potential squashing

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of the pipe. Again, the full-length excavation is shown for reference. Vertical displacement results after backfilling of the footing show that the uplift of the pipe is reversed and the displacements nearly return to zero, showing some pipe settlement due to the added footing weight.

Figure E39 shows the resulting lateral displacement profiles at the pipe spring lines for each construction sequencing step. The results from the full-length excavation are shown for reference. We note that only minor changes were observed between the excavation and footing placement, so many of the profiles are overlapped. Maximum estimated lateral displacements are on the order of 0.07 inches.

Full Weight vs Light Weight Fill

Initial considerations for the proposed embankments revolved around the embankment material. Figure E40 shows the vertical displacement results using full weight fill, consisting of soil structural fill as defined in our geotechnical report, for the full extents of the model domain at both the pipe invert and crown. Maximum predicted displacements are on the order of 5/8 to 3/4 inches with differentials over a 100 ft span of up to about 5/8 inch, which exceed the acceptable tolerances. Therefore, lightweight flowable fill will be required in the proximity of the MWD pipeline.

Based on the induced displacements of the full weight fill, the lightweight material's unit weight was selected to be 30 pcf. We anticipate that the most readily available material is a lightweight cellular concrete (LCC) and developed the constitutive model parameters based on this material, as discussed previously. We selected a distance of 50 feet from the edge of the MWD pipe alignment as the area in which the LCC will be required. This was a combination of engineering judgement and to provide adequate distance such that vibratory compaction equipment needed to place and compact structural fill would present minimal impact to the pipe. Figure E40 also shows the vertical displacement results using the lightweight fill, which met the ¼-inch over 100 ft criteria.

Figure E41 shows the lateral displacement results at the pipe spring lines using the full weight and light weight fill.

Dead, Live & 100-yr Flood Loads

Figure E42 shows the progression from Step 3 with the lightweight fill to Step 5.a.1, which follows the possible loading sequence of a 100-yr flood load being applied after construction of the crossing structure. For clarity, these figures are shown just for the pipe crown, which shows more displacement (dashed lines in Figure E40). The peak displacement induced by the 100-yr flood load is about 0.4 inches. The unloading phase indicates that no permanent displacement of the pipe is expected after the 100-yr flood loading. This is likely due to the low stresses added stresses during the peak flood load, about 250 psf based on the bridge and flood elevations. This load added stress results in only small strain development in the soil constitutive models, where the loading modulus of the Hardening model is closer to the initial elastic modulus (Ei) in Figure E4a. Inspection of the Ei in Figure E4a and the unload/reload modulus (Eur) in Figure E4b indicates that these moduli are similar for most of the profile depth. Therefore, it appears that the results seen in Figure E42 are in-line with the expected model behavior.

Figures E43 to E45 show the results for both the invert and crown in Steps 4, 5.a, and 5.a.1, respectively, to evaluate the pipe squashing. Figure E46 shows the results lateral displacements for the various steps during the 100-yr flood sequence at the pipe spring lines.

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Figures E47 show the vertical displacement results for the remaining equipment load cases, including Steps 3 and 4 for reference at the pipe crown. We note that the induced vertical displacements from the equipment loads are very similar to the slab dead load and each other and are overlapping on the presented plots. Additionally, the displacements are much less than the peak displacement exhibited by the 100-yr flood load. Therefore, for simplicity we have not included the lateral displacement or pipe crown vs invert results.

The displacement results show that the ¼-inch over 100 ft criteria are met, provided the assumptions regarding the proposed materials, extents, and sequencing are met.

Stress Profiles

We understand that MWD wishes to evaluate the predicted stresses from the explicit modeling of the pipe. The results provided by PLAXIS for shell elements are the axial, shear, and bending moment forces per unit length along three local axes. The local axes of the pipe shell element correspond with Axis 1 – Longitudinal, Axis 2 – Hoop, Axis 3 – Perpendicular to the Shell. Figure E48a shows these local axes from the model. These results were used in conjunction with the element thickness to calculate the various requested stresses in the pipe following bending stress equations, shown in Figure E48b. Based on these calculations, at any given profile (e.g. the longitudinal stresses at the pipe crown) there are three possible stresses that can be reported:

- Axial Stress
- Combined Stress (Axial + Bending)
- Combined Stress (Axial - Bending)

As the MWD Casa Loma Barrel is constructed of concrete, we have focused the results on the "tension side" combined stress (axial + bending) as this will present the more positive or more tensile stresses in the pipe elements at the subject location.

To emphasize the model conditions expected to have the most significant impact on pipe stresses due to induced displacements, we present the stress results for Steps 1.e, 3, and 5.a. As the pipe stresses are initialized during Step 0.c, but not reset, each plot contains the initial stress after adding the water into the pipe to evaluate the induced changes at each stage.

Figures E49 to E54 show the longitudinal fiber stresses for each selected step at the invert and crown model results. Likewise, Figures E55 to E60 show the hoop fiber stresses at the invert and crown, and Figures E61 to E66 shows the hoop fiber stresses at the pipe spring lines. We note that some chattering is present in the stress data. Based on a response from PLAXIS support, they believe this is an artifact caused by the extrapolation of the stress/force data from the internal gaussian stress points to the points at which the data is extracted (generally at the nodes of the elements). PLAXIS stated that artifact would not affect the estimated pipe deflections. It is possible that reduction of the pipe element mesh may reduce this noise but would likely still be present to some degree due to the triangular elements. Based on the subsequent discussion with MWD, it was decided not to further refine the pipe mesh.

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CONCLUSIONS AND RECOMMENDATIONS

Based on the analyses completed, the proposed flood channel and associated embankments/crossing structure are expected to induce less than the required ¼" inch over 100 ft displacement tolerance required by MWD, provided the recommendations contained in this memorandum and geotechnical report, and Kleinfelder's structural engineering report are followed. The key recommendations and assumptions utilized in the modeling that must be implemented in the design and construction of the crossing are:

- Excavations will not be completed at a time when MWD has emptied the pipeline (i.e. it is not in-service).
- The crossing structure footings are constructed following the 1/3 sequence of excavation and footing placement.
    - Excavation of the subsequent 1/3 shall not progress until the footing for the previous 1/3 is in-place.
    - Excavation slopes and benches shall not be flatter than 1.5H:1V.
- Excavation and footing construction sequence shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean:
    - Elevations in excavations on either side shall not be more than 1 ft different.
    - The concrete footings shall be poured on both sides at the same time.
- Excavations shall not be backfilled until the full footing construction sequence is completed.
    - Backfill will consist of a flowable fill material (e.g. LCC) with a unit weight of approximately 85 pcf which does not require high vibration compactor equipment during placement.
    - Backfill shall be completed simultaneously on the upstream and downstream sides of the MWD pipeline. Simultaneously shall mean elevations of the backfill on each side shall not be more than 1 ft different.
- Lightweight flowable fill shall be used for embankments within 50 ft from the edge of the MWD pipe. Embankment fill shall consist of lightweight flowable fill material (e.g. LCC) not to exceed a unit weight of 30 pcf and does not require compaction to limit vibration impacts.
- Embankment fill shall be placed such that the elevation difference across (upstream to downstream sides) the MWD pipe is not greater than 1 ft at any time until final grades are established.
- The channel section shall limit the 100-yr flood event to a peak water elevation of 1453.47 ft.

Additional construction considerations, such as subgrade preparation for footings and fill placement are discussed in the geotechnical report.

LIMITATIONS

Kleinfelder has been provided information by and discussed the modeling evaluation with representatives of MWD, Webb, and Alabasi (the contractor), which were used in developing our model geometries, parameters, sequencing and assumptions. The results of this evaluations are in part reliant on provided

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information and feasibility of the construction limitations. Actual geometries and conditions will be different than those evaluated and engineering judgement is necessary to interpret and apply the analysis results to the realities of the project conditions. Kleinfelder should be notified of any changed conditions or plans that are in conflict with the assumptions and project understanding detailed in this analysis. Failure to notify Kleinfelder of changes and, therefore, inappropriately applying our conclusions and recommendations to the project are at the responsibility of those entities.

This technical memorandum is also subject to the limitations contained within our geotechnical report prepared for the project.

Respectfully submitted,

KLEINFELDER



W. Troy Covill, PE* (Licensed in UT)
Project Professional





Majid Talebi, Ph.D., PE, GE
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Attachments: References
Appendix A – Analysis Figures

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ATTACHMENT A
ANALYSIS FIGURES

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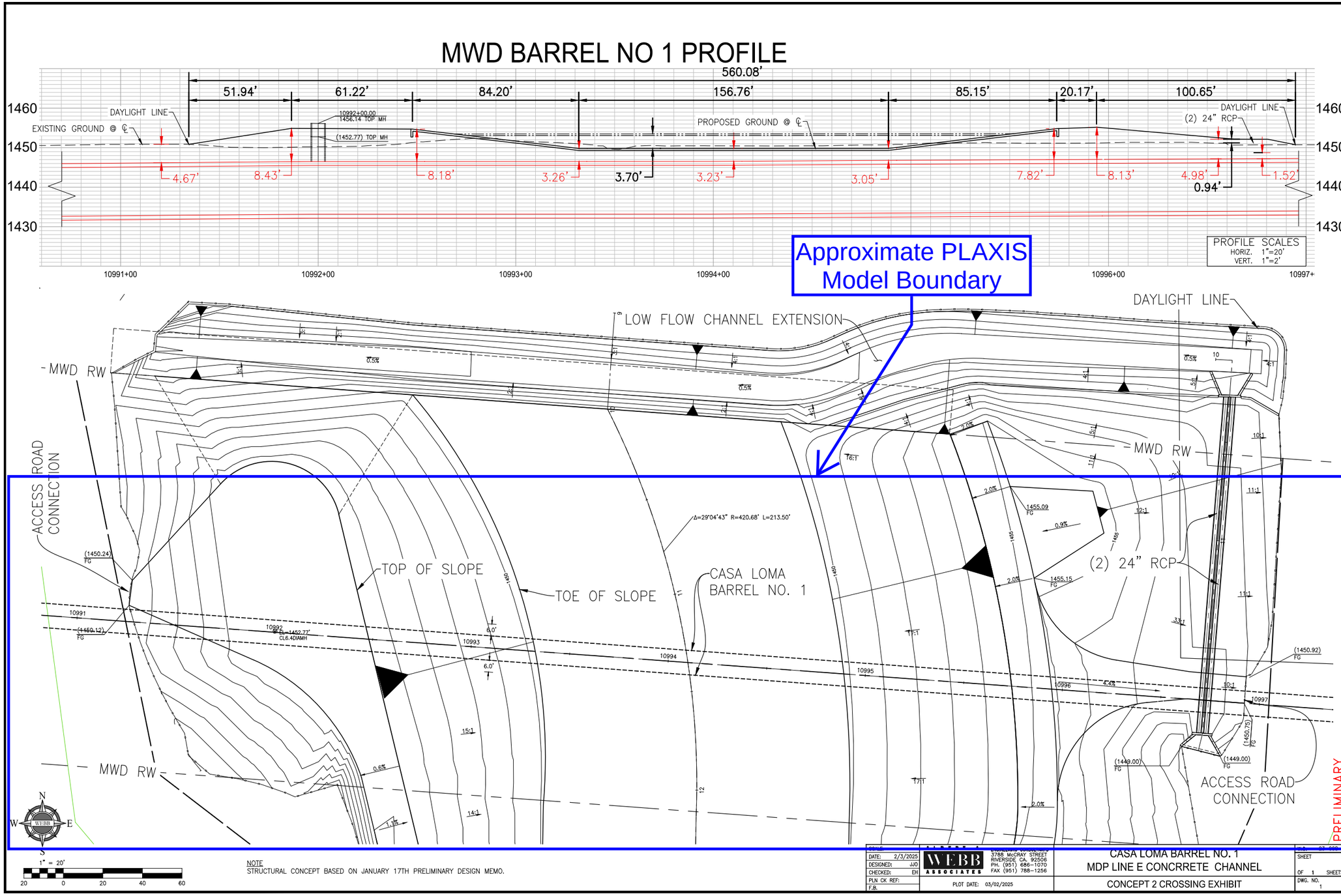

Notes:

1. Original plan provided by Albert A. Webb Associates (Webb), dated 2/3/2024.
2. The original plan is scaled to 40% of original to facilitate reporting, shown scale should be adjusted as required.

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PROJECT NO.	24002328.001A
DRAWN:	01/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Preliminary Embankment & Channel Contour Plan and cross-Section at MWD Barrel No. 1

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E1

Layer		Depth (ft)	Elevation (ft)	$(N_1)_{60}$	φ' (deg)	C' (psf)	Su (psf)	E_{50} (Vs/3) (ksf)	E_{50} (Vs/2) (ksf)	σ'_p (psf)	C_{ce}	C_{re}	C_V (ft^2/day)	γ (pcf)	Vs (ft/sec)
Layer Design Values															
andy SILT to SILT (Unsaturate	Top	0	1450	10	30	50	-	125	281.25	5000	-	-	-	85	400
	Bottom	16.5	1433.5	10	30	50	-	209.15	470.59	5000	-	-	-	85	500
Sandy SILT to SILT (Saturated	Top	16.5	1433.5	10	30	50	-	209.15	470.59	5000	-	-	-	115	500
	Bottom	100	1350	10	30	50	-	635	1428.75	16200	-	-	-	115	900
-	Top	100	1350	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
-	Top	200	1250	-	-	-	-	-	-	-	-	-	-	-	-
	Bottom	200	1250	-	-	-	-	-	-	-	-	-	-	-	-

Design Ground Water Depth = 16.5
Design Groundwater Elevation = 1433.5

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DRAWN:	1/31/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	

Design Stratigraphy and Soil Properties (1 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

E2

Figure E3a

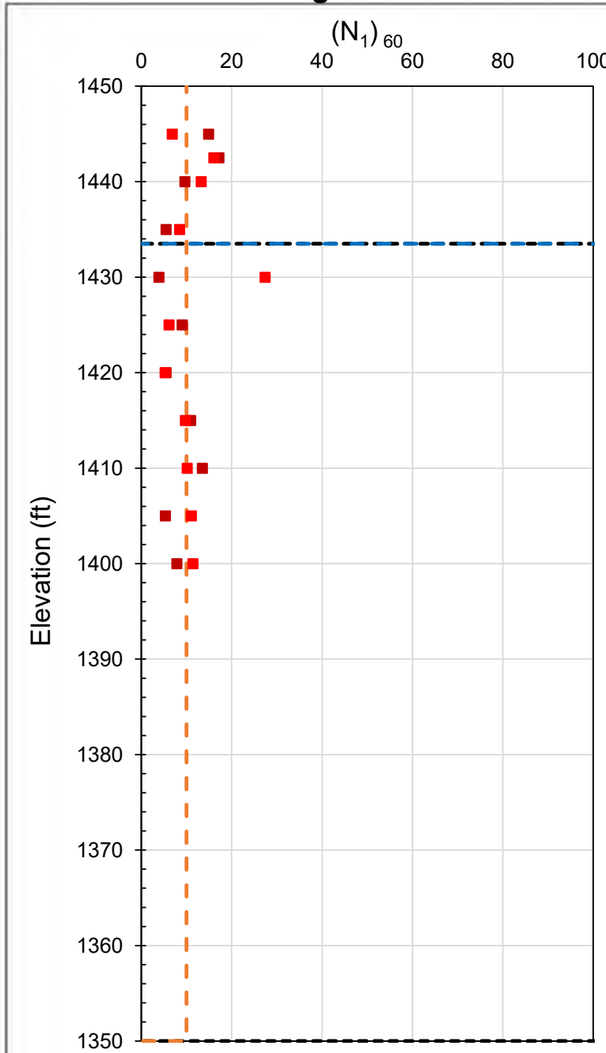


Figure E3b

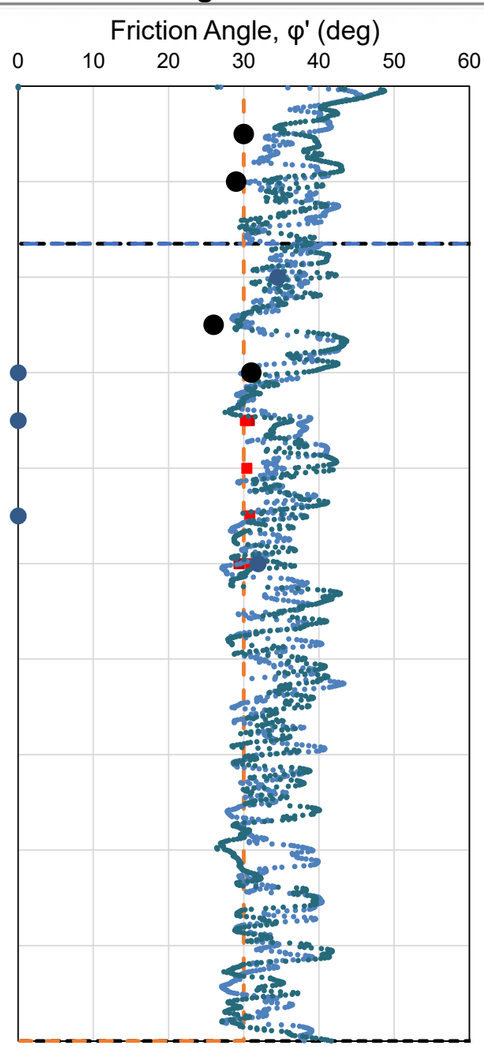


Figure E3c

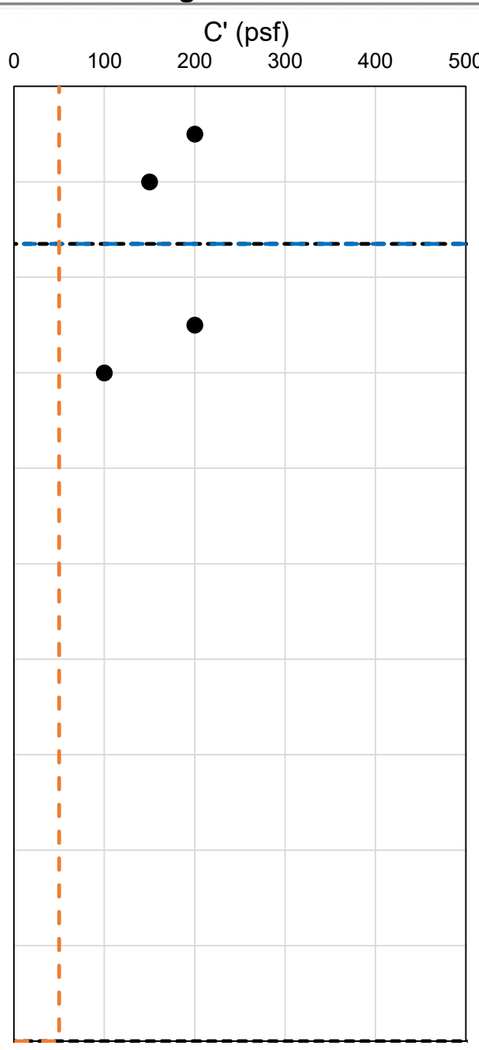
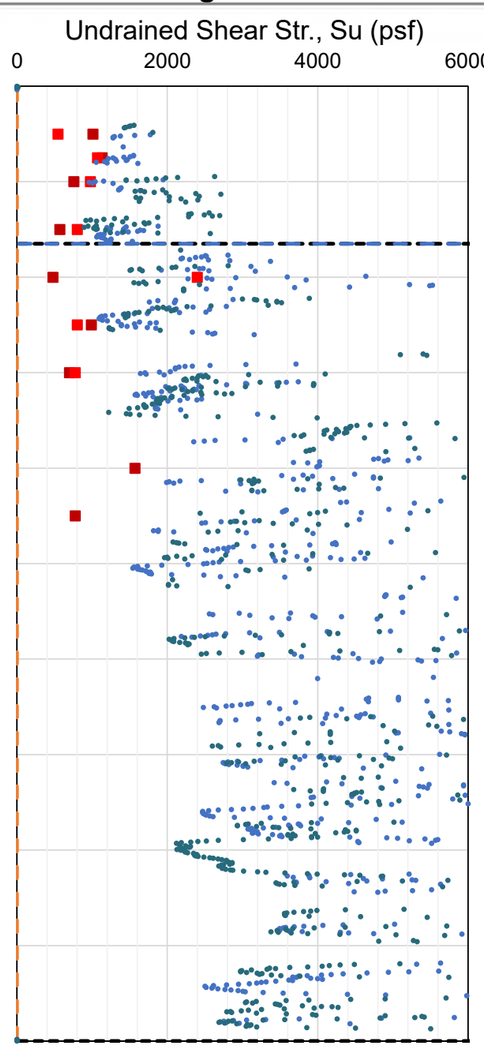


Figure E3d



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Design Stratigraphy and Soil Properties (2 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1
San Jacinto, California

APPENDIX
E3

361.6349 657.5181 632.4435

Figure E4a

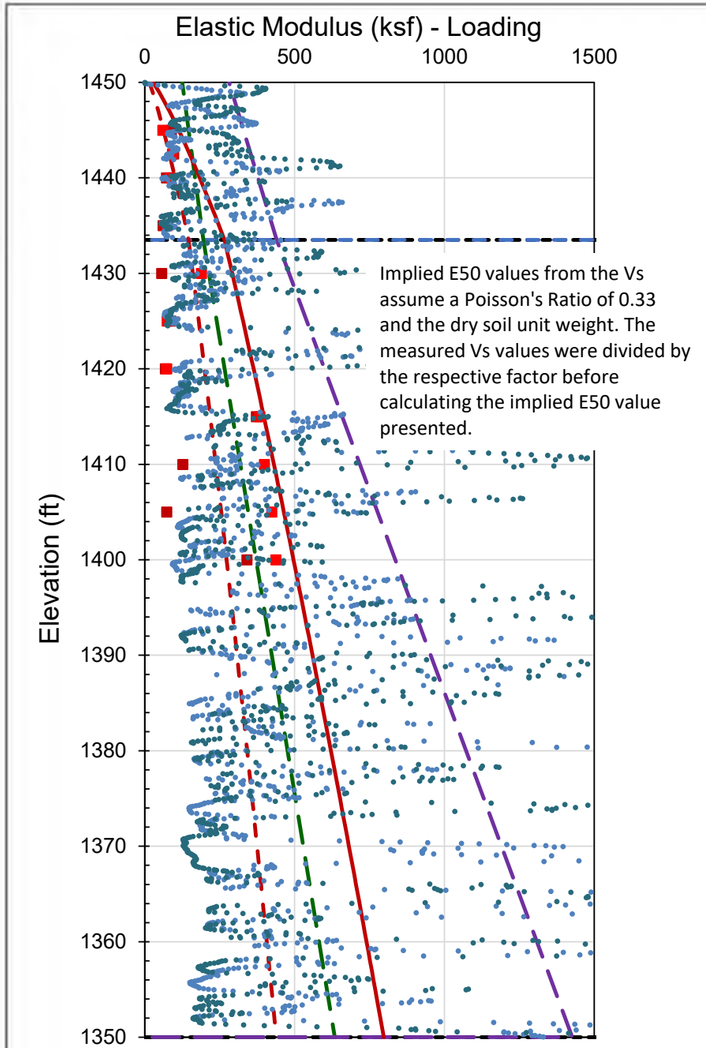

Figure E4b

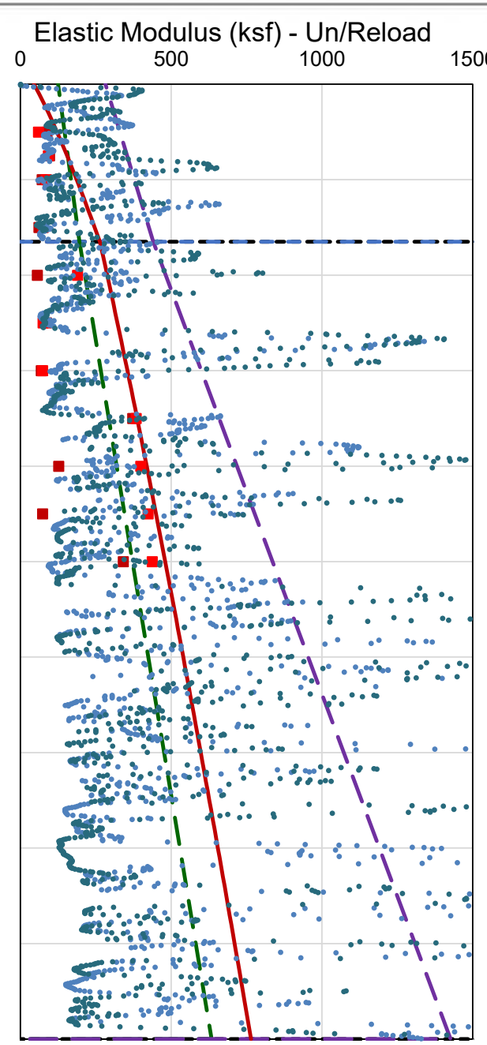

Figure D4c

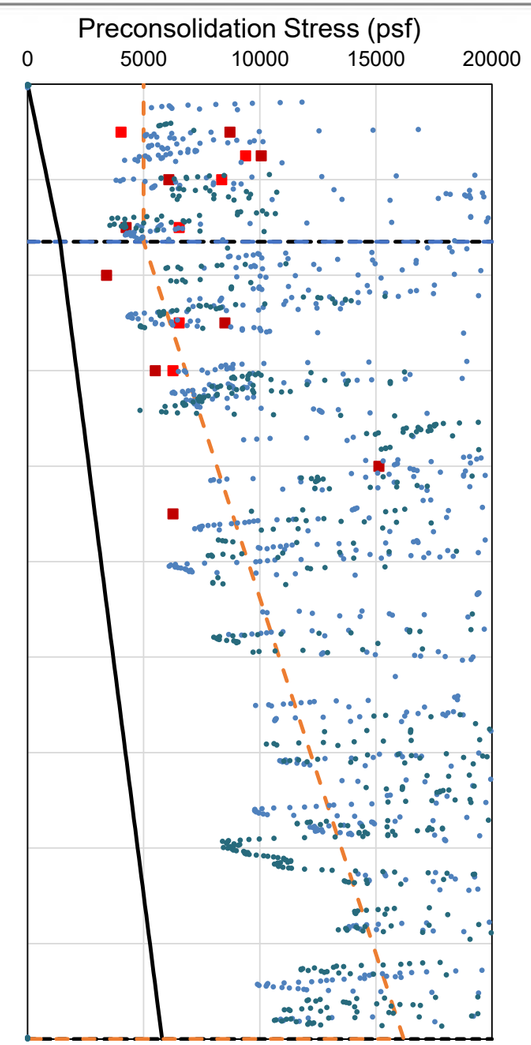

Figure E4d

Design Value

Design Groundwater Elevation

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Design Stratigraphy and Soil Properties (3 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1
San Jacinto, California

APPENDIX
E4

Figure E5a

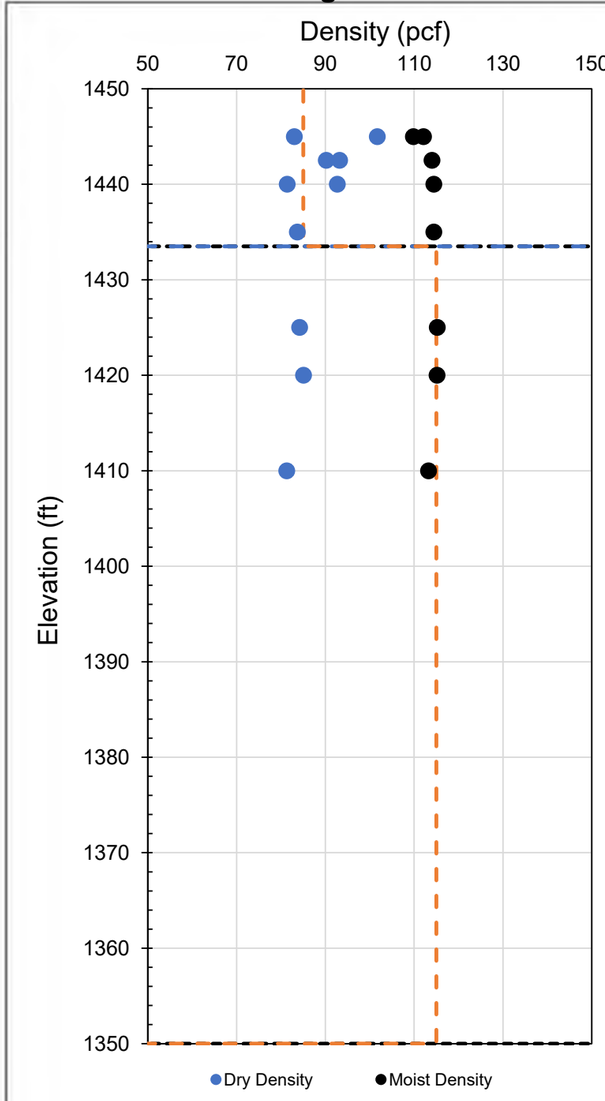


Figure E5b

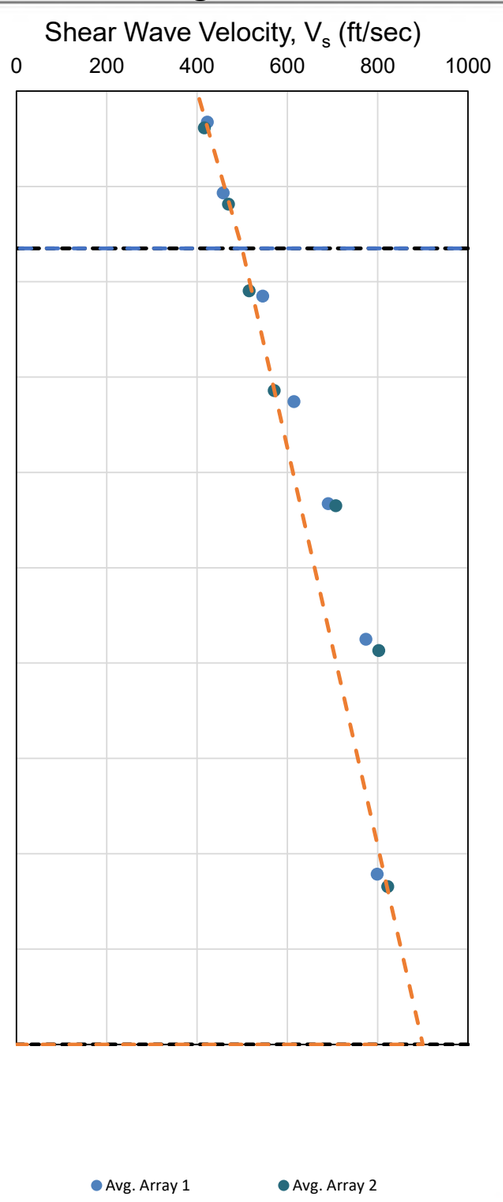


Figure E5c

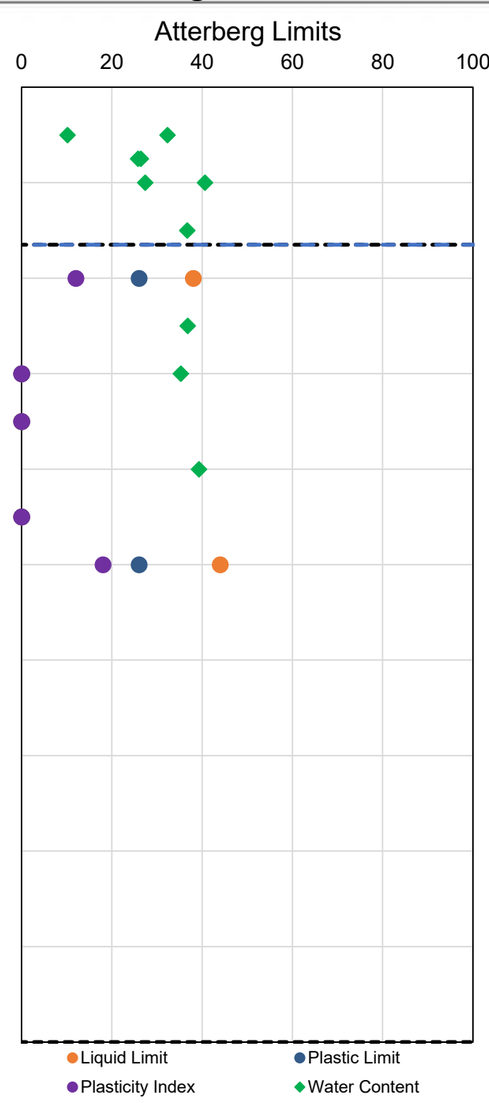
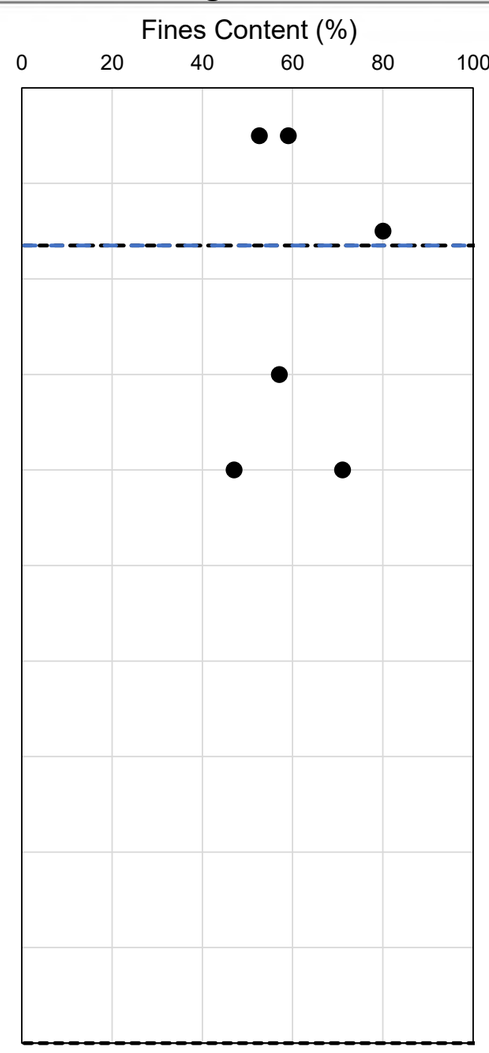


Figure E5d



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Design Value

Design Groundwater Elevation

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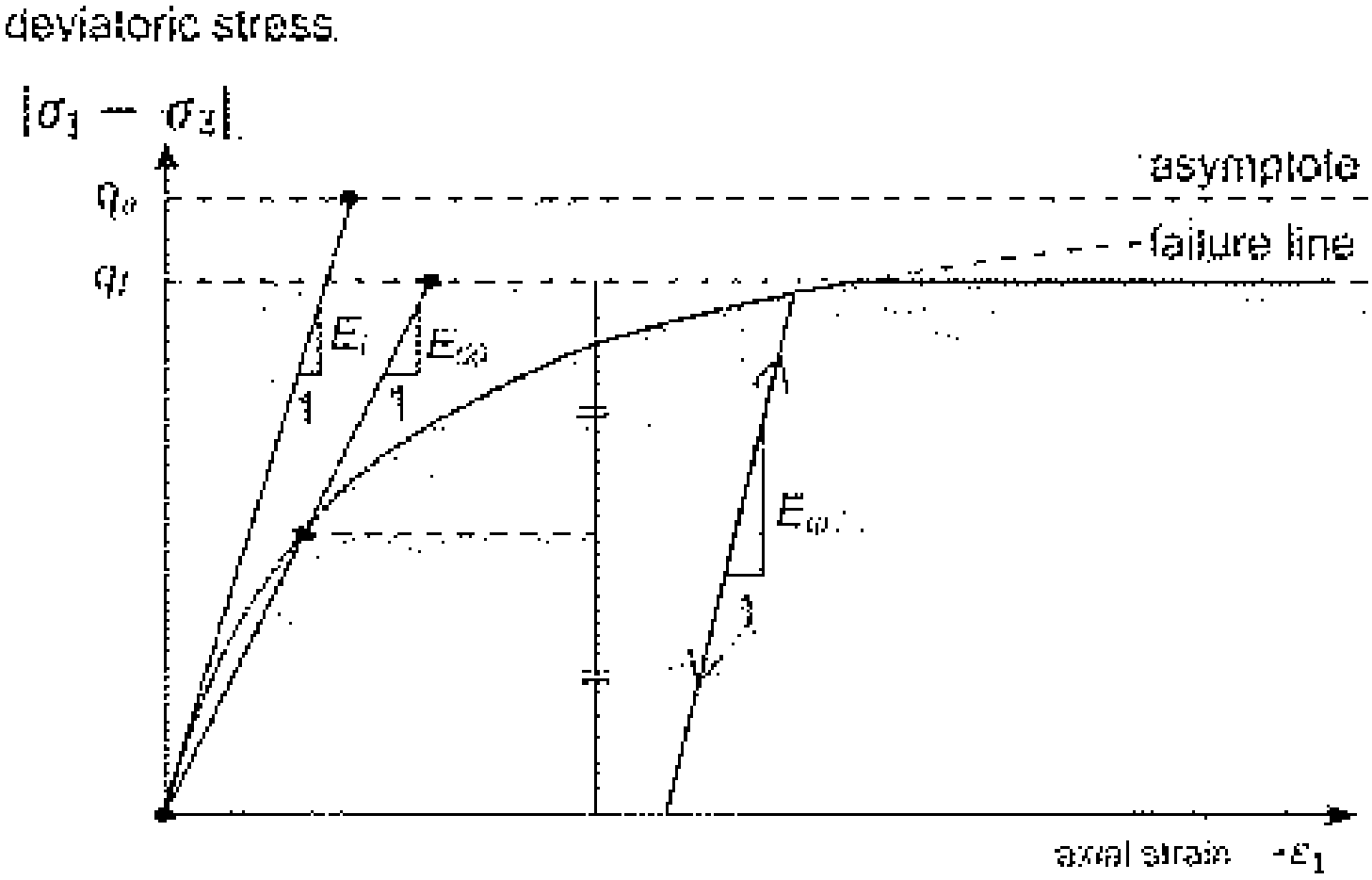
Design Stratigraphy and Soil Properties (4 of 4)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1
San Jacinto, California

APPENDIX
E5



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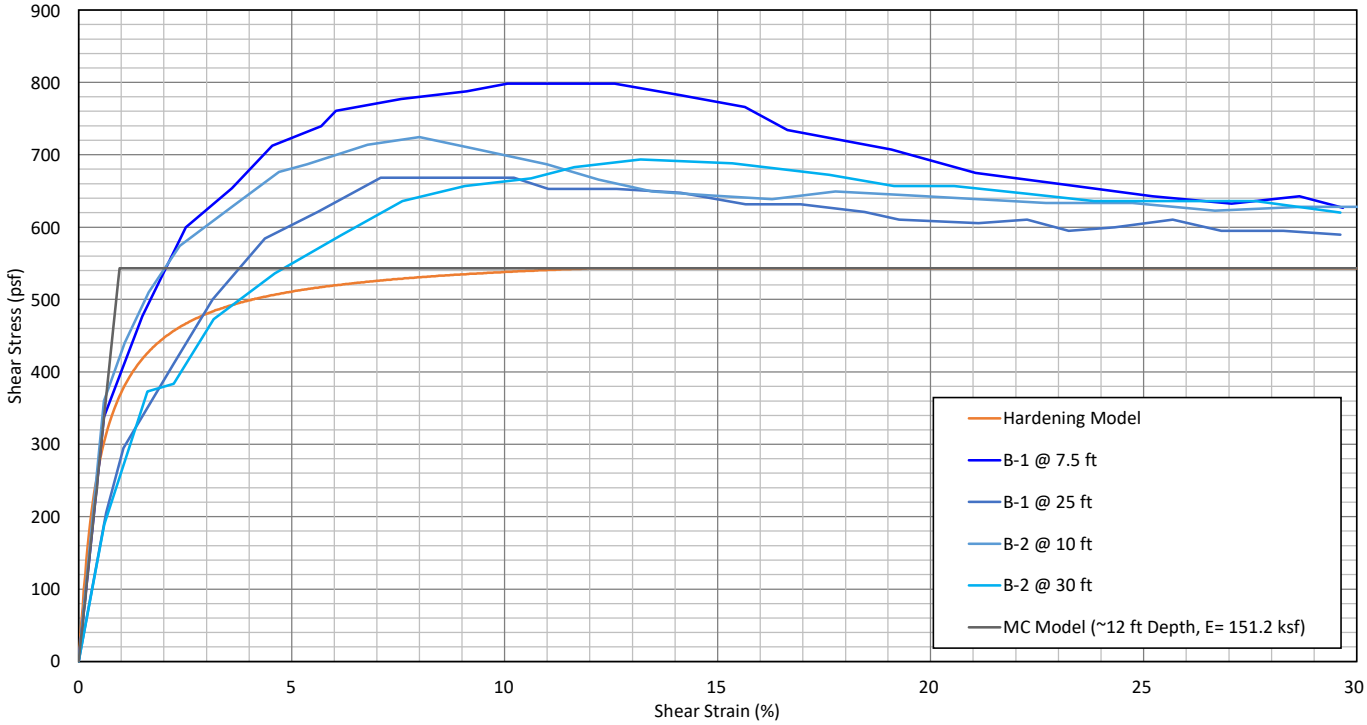
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

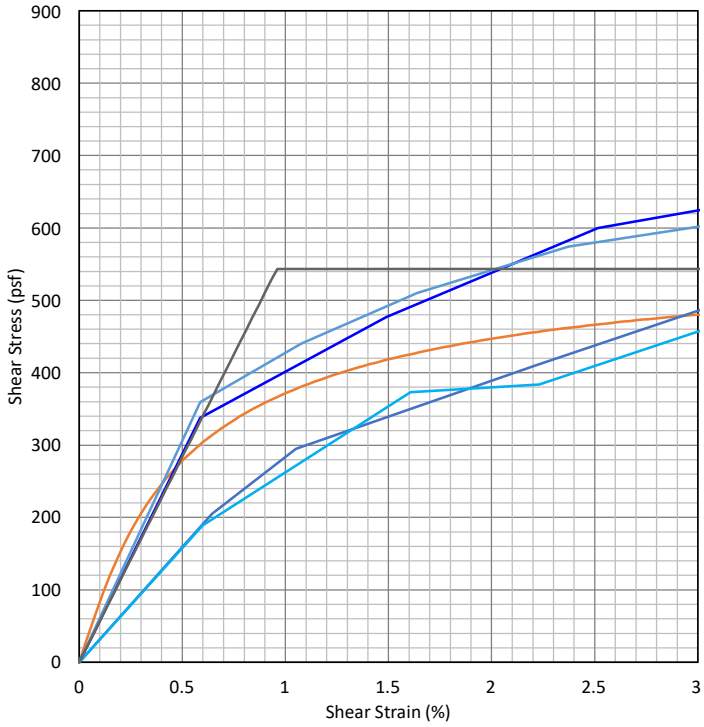
Stress-Strain Behavior of Hardening Model and Definition of Various Moduli (Taken from PLAXIS Manual)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:

E6





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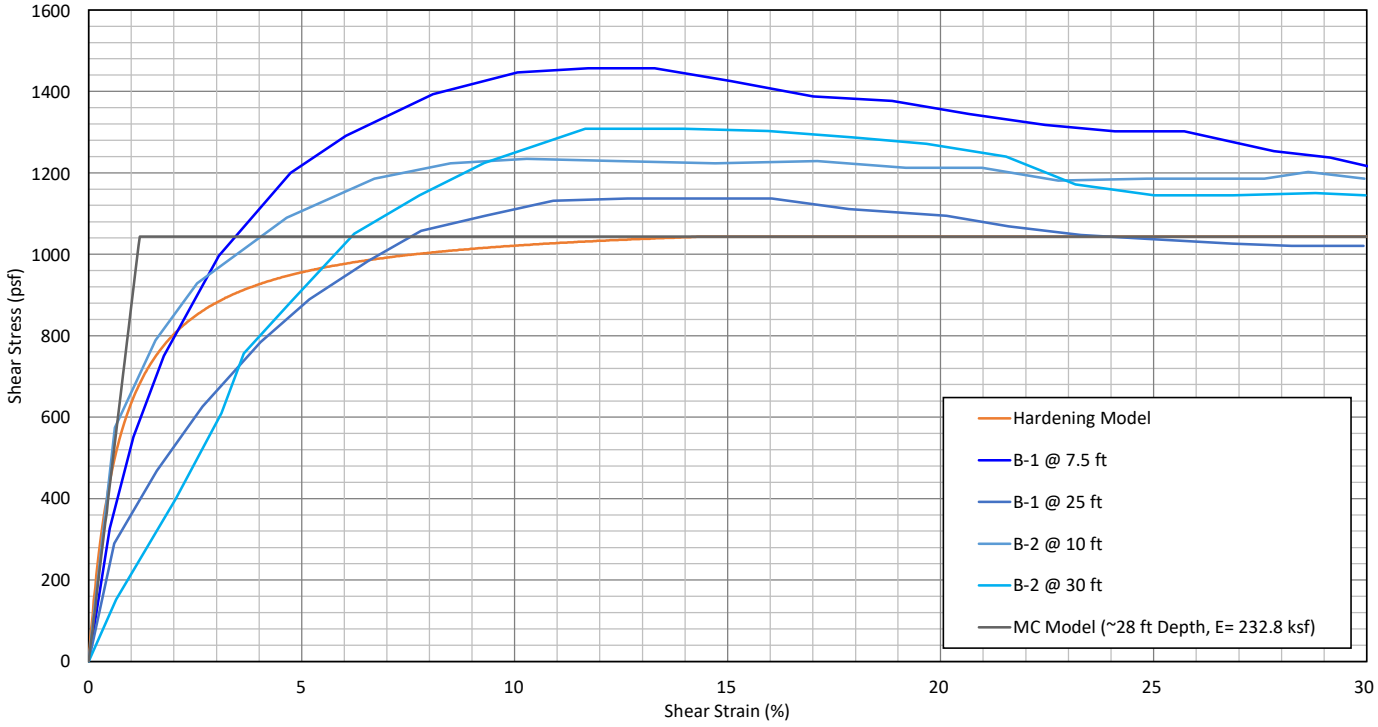
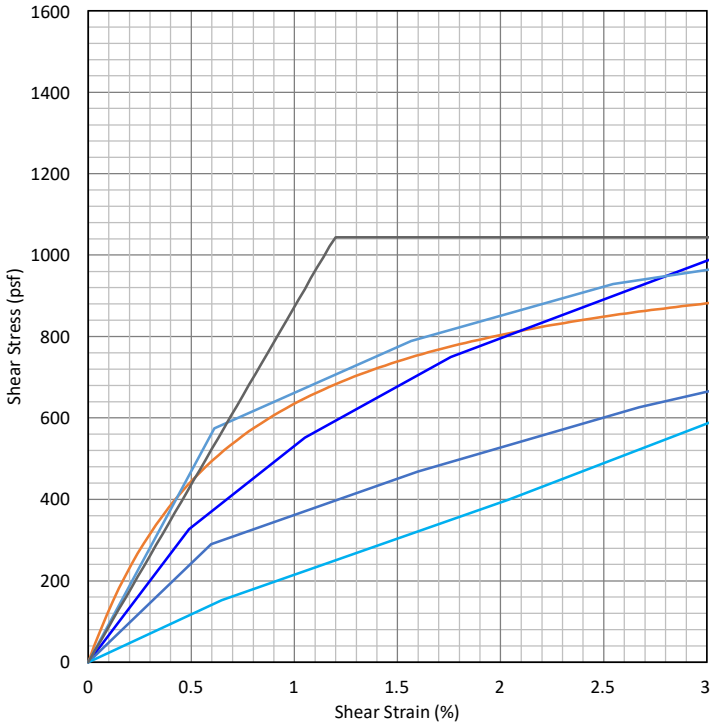
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Constitutive Model Calibration
Direct Simple Shear Test
Normal Stress - 1 ksf (1 of 3)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E7





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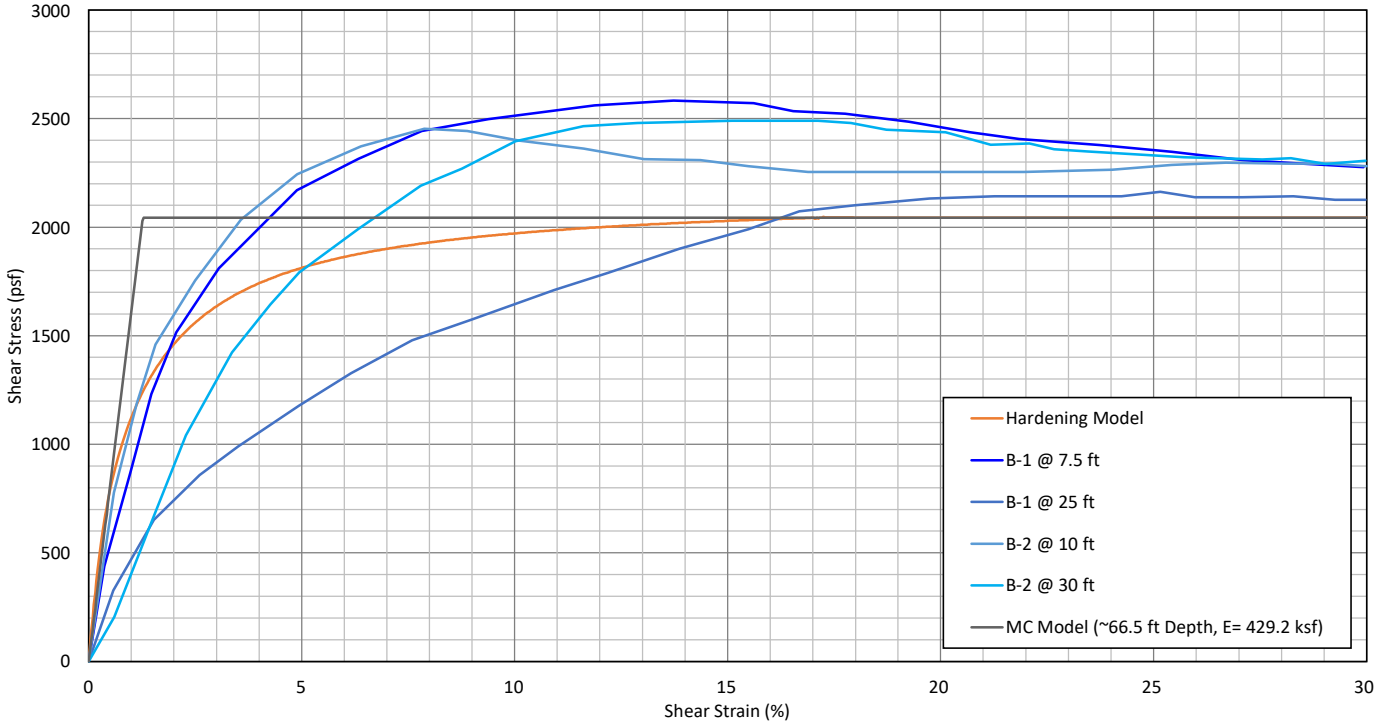
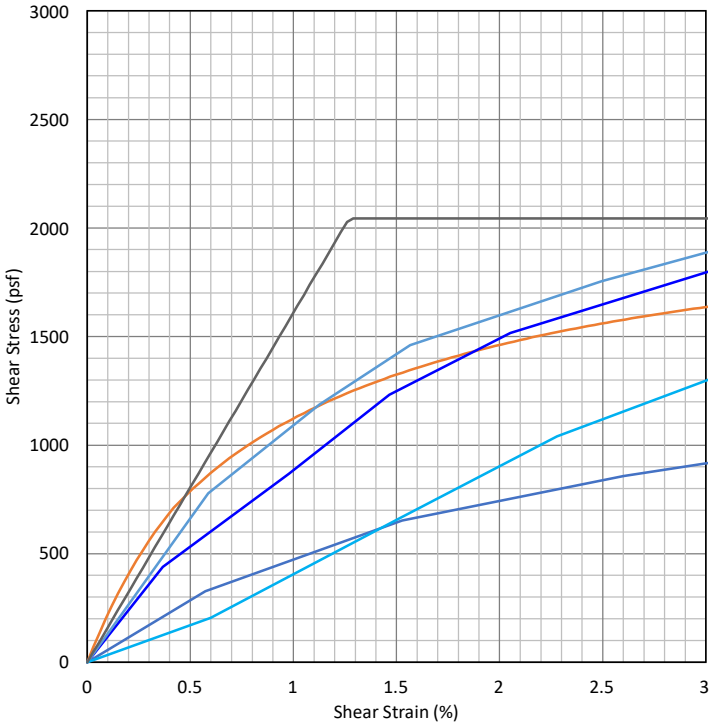
Constitutive Model Calibration
Direct Simple Shear Test
Normal Stress - 2 ksf (2 of 3)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E8





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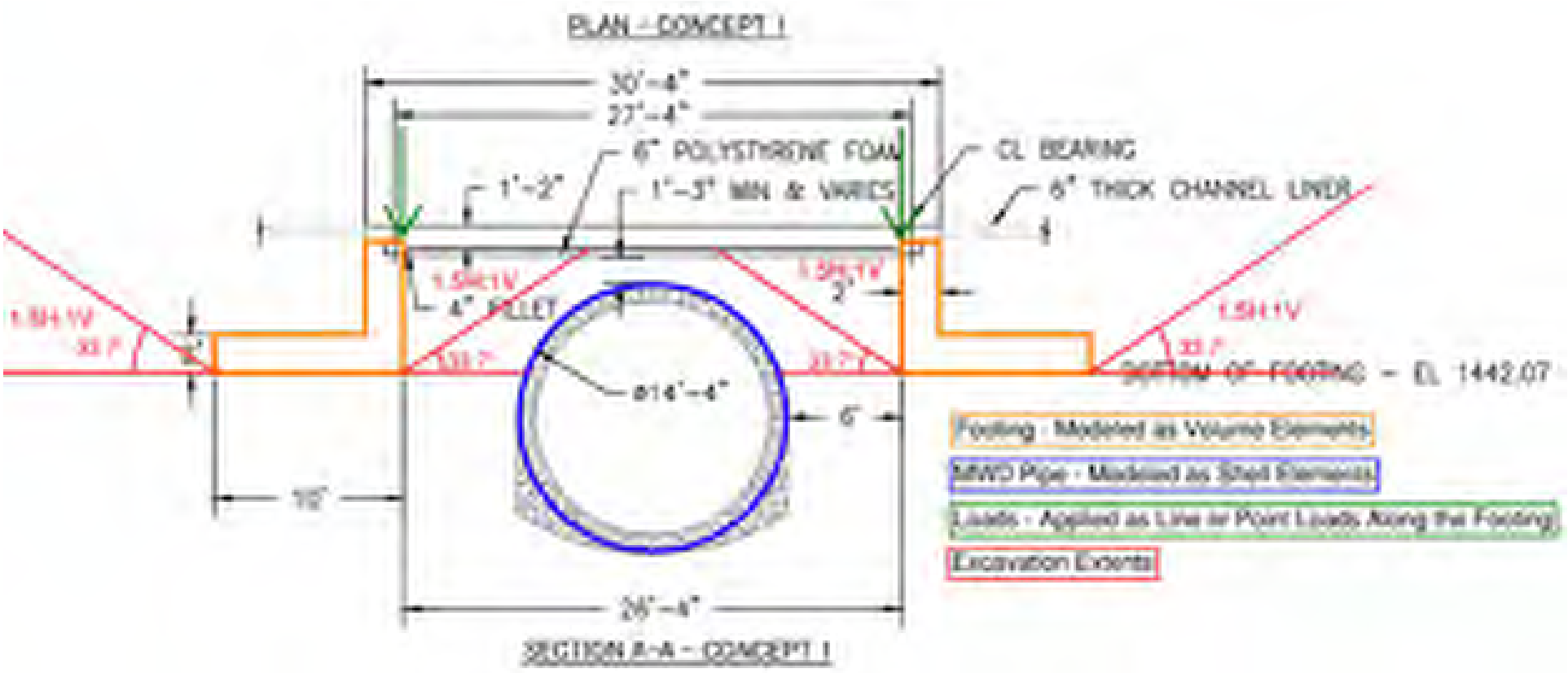
Constitutive Model Calibration
Direct Simple Shear Test
Normal Stress - 4 ksf (3 of 3)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E9



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Preliminary Crossing Concept Cross-Section with Modeling Concepts for PLAXIS

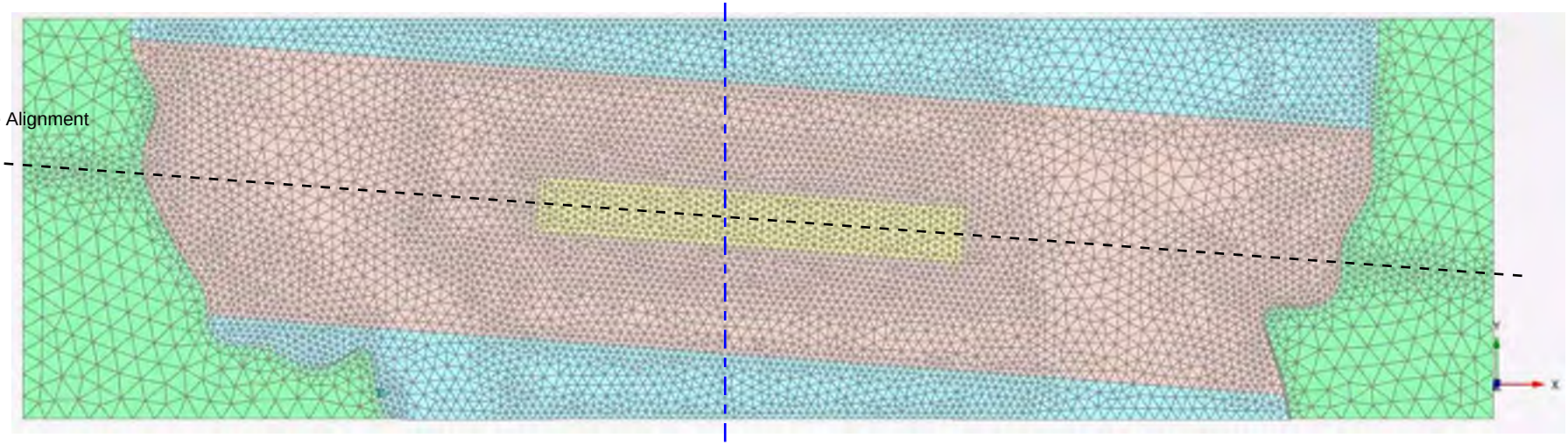
San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:

E10

Flow Direction of Storm Channel

MWD Pipe Alignment



APPROXIMATE SCALE (1" = 80')

0 40 80 160

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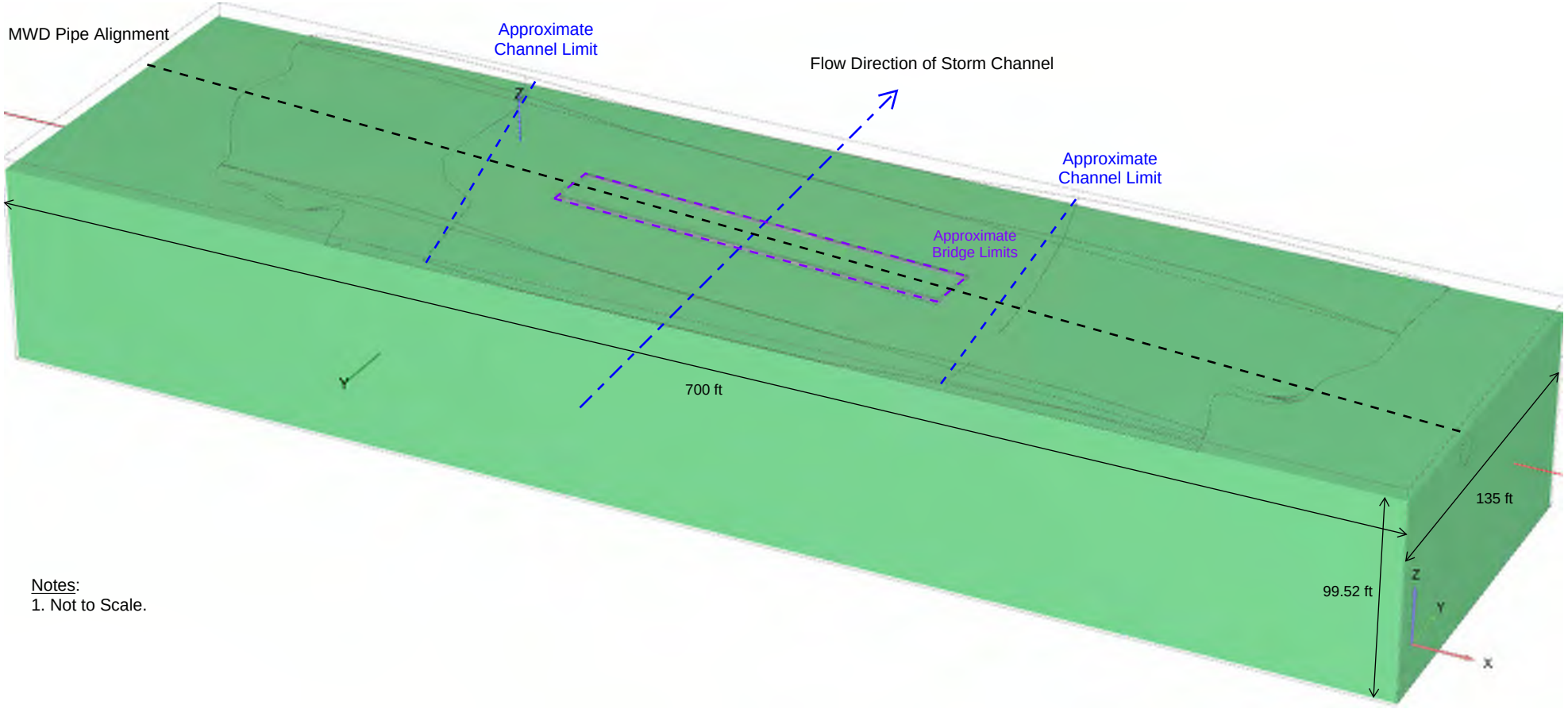
Plan View of Model Mesh

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:

E11

Step 0.a: Initial Phase - PLAXIS K_0 Routine & Gravity Loading



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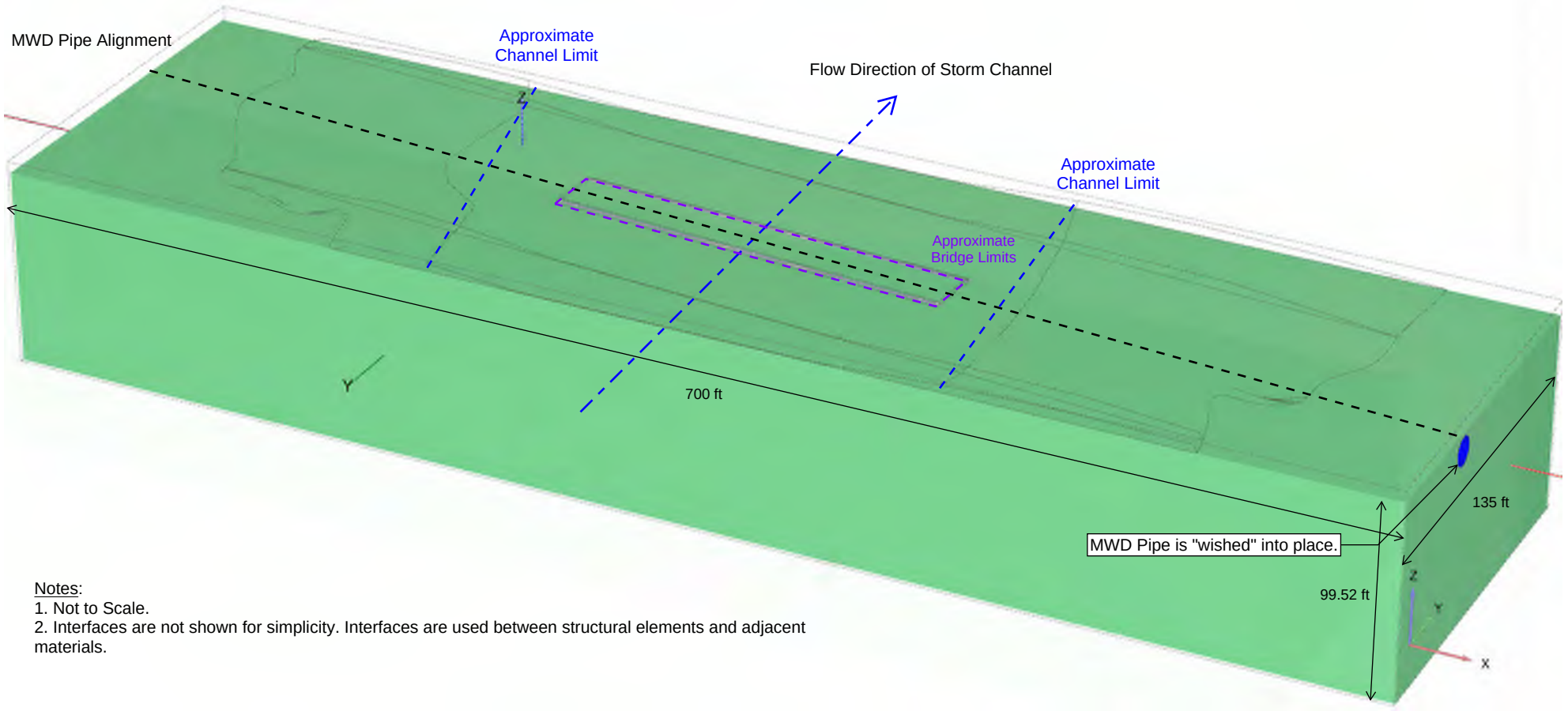
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 0.a: PLAXIS K_0 & Gravity Loading

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E12

Step 0.b: Initial Phase - Activation of MWD Pipe



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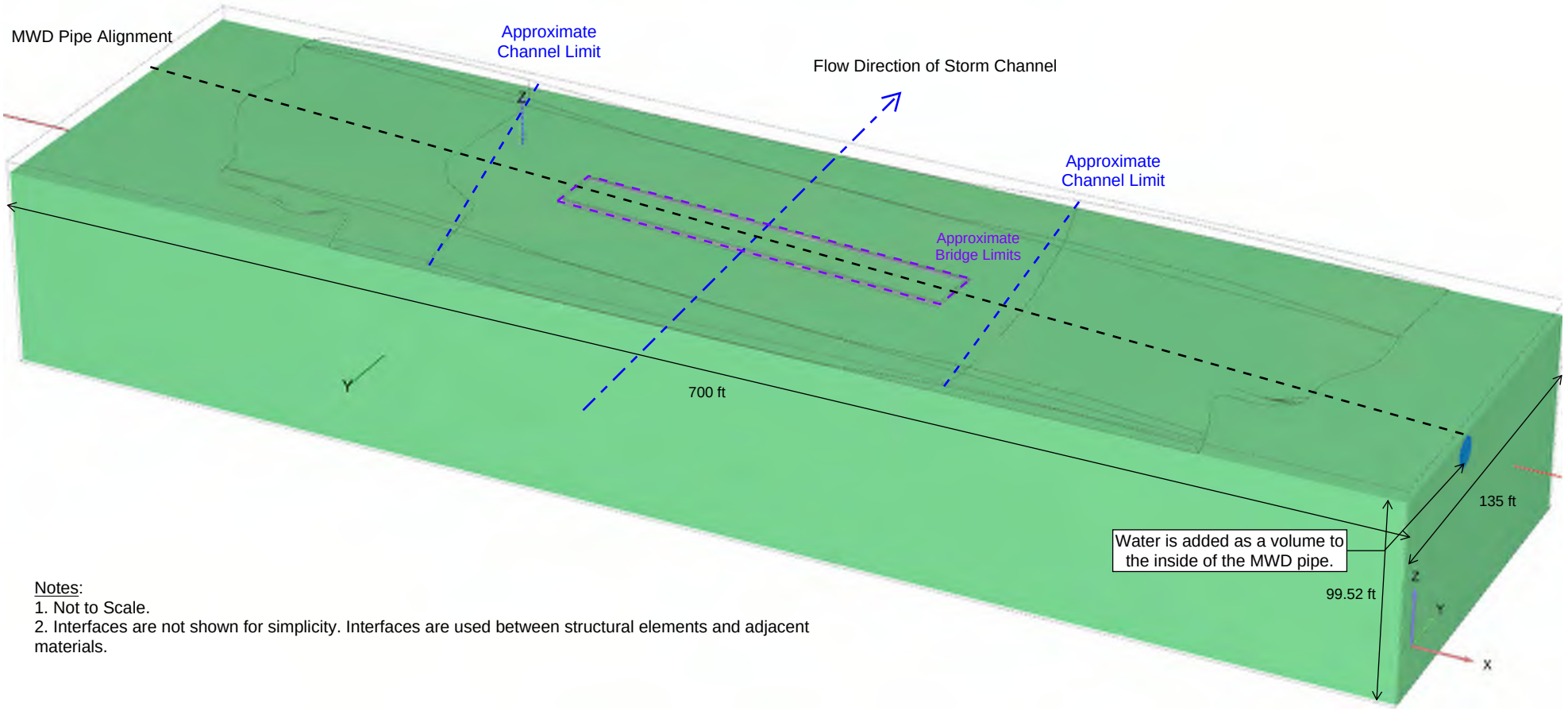
Model Staging
Step 0.b: Initial Phase - Activation of MWD Pipe

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E13

Step 0.c: Initial Phase - Add Water Inside the MWD Pipe



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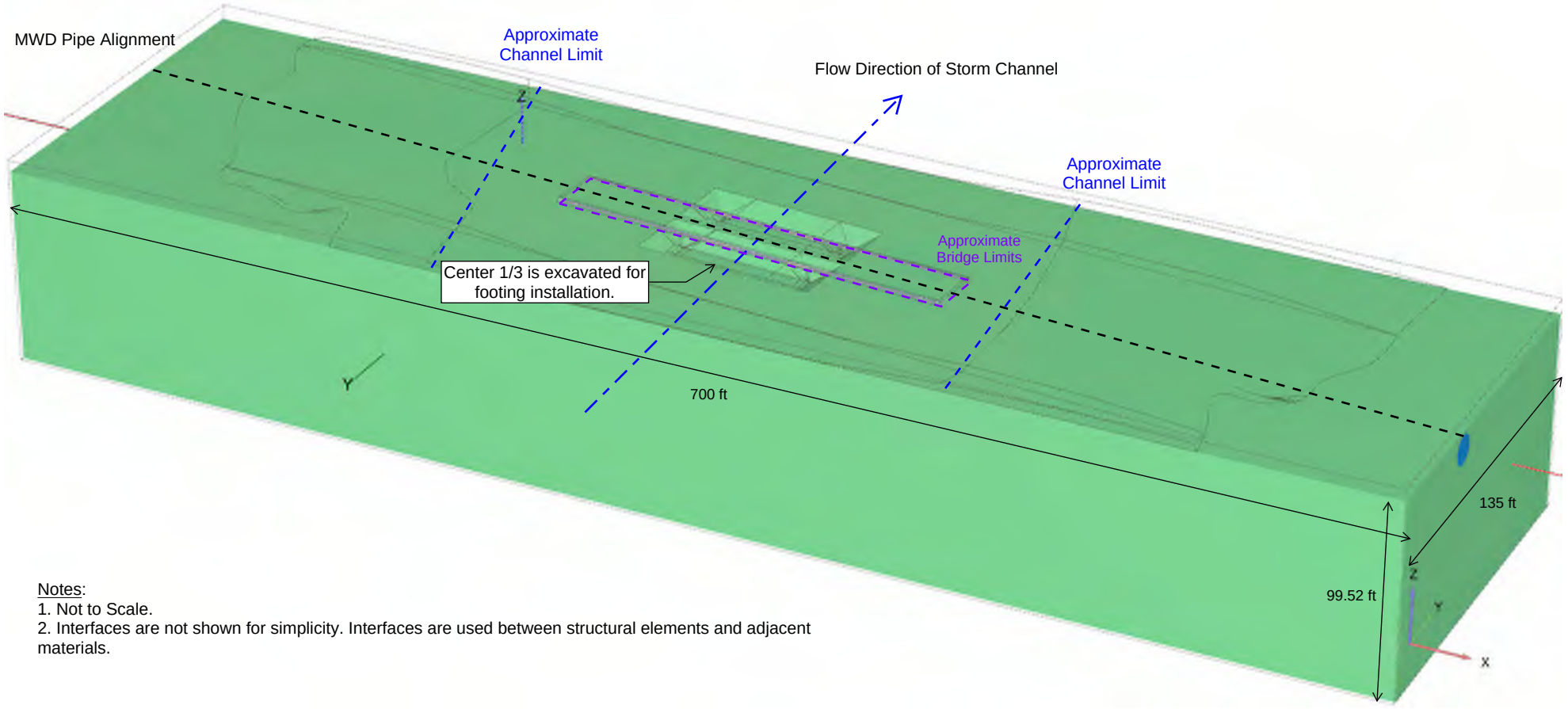
Model Staging
Step 0.c: Initial Phase - Add Water Inside the MWD Pipe

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E14

Step 1.a: Excavate & Place Footings - Excavate Center 1/3



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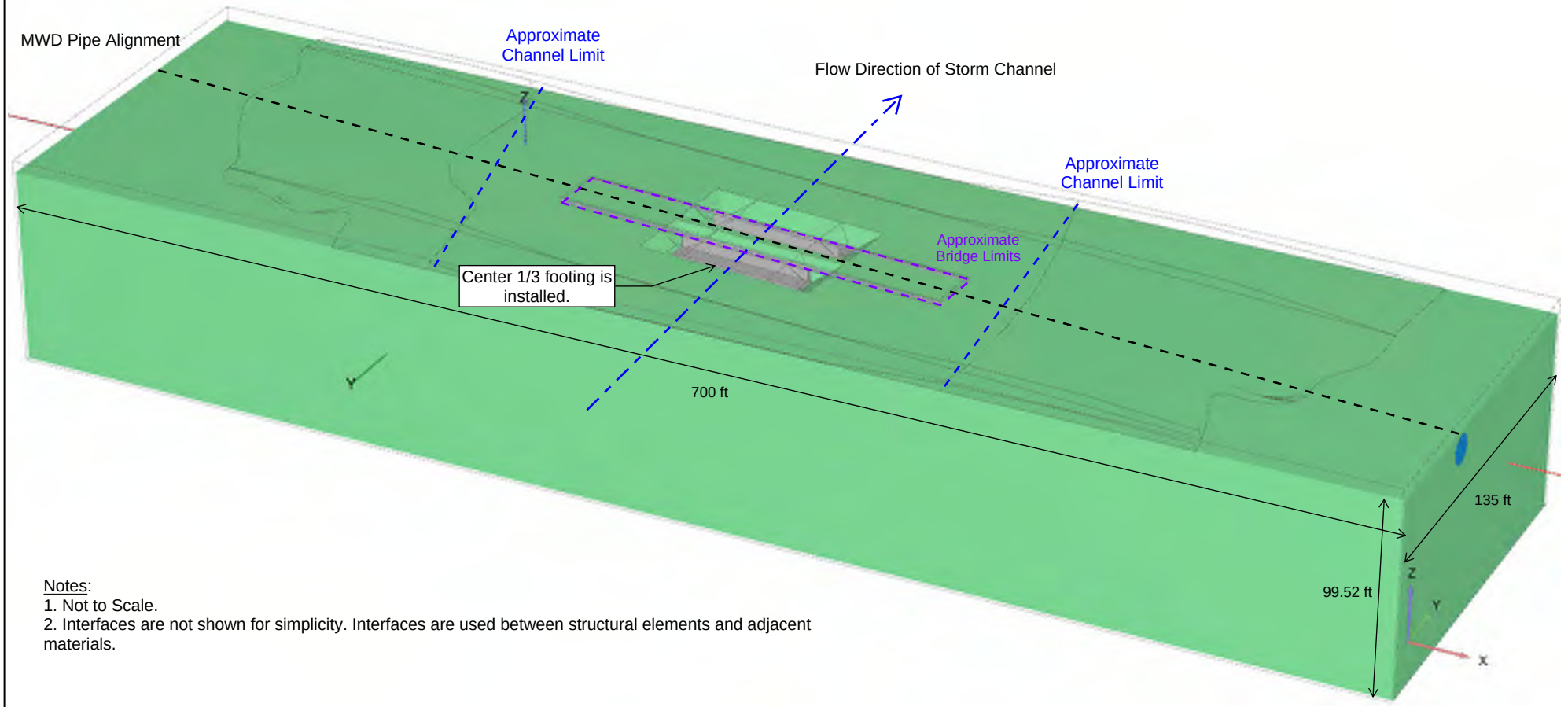
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 1.a: Excavate & Place Footings - Excavate Center 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E15

Step 1.b: Excavate & Place Footings - Construct Center 1/3 Footing



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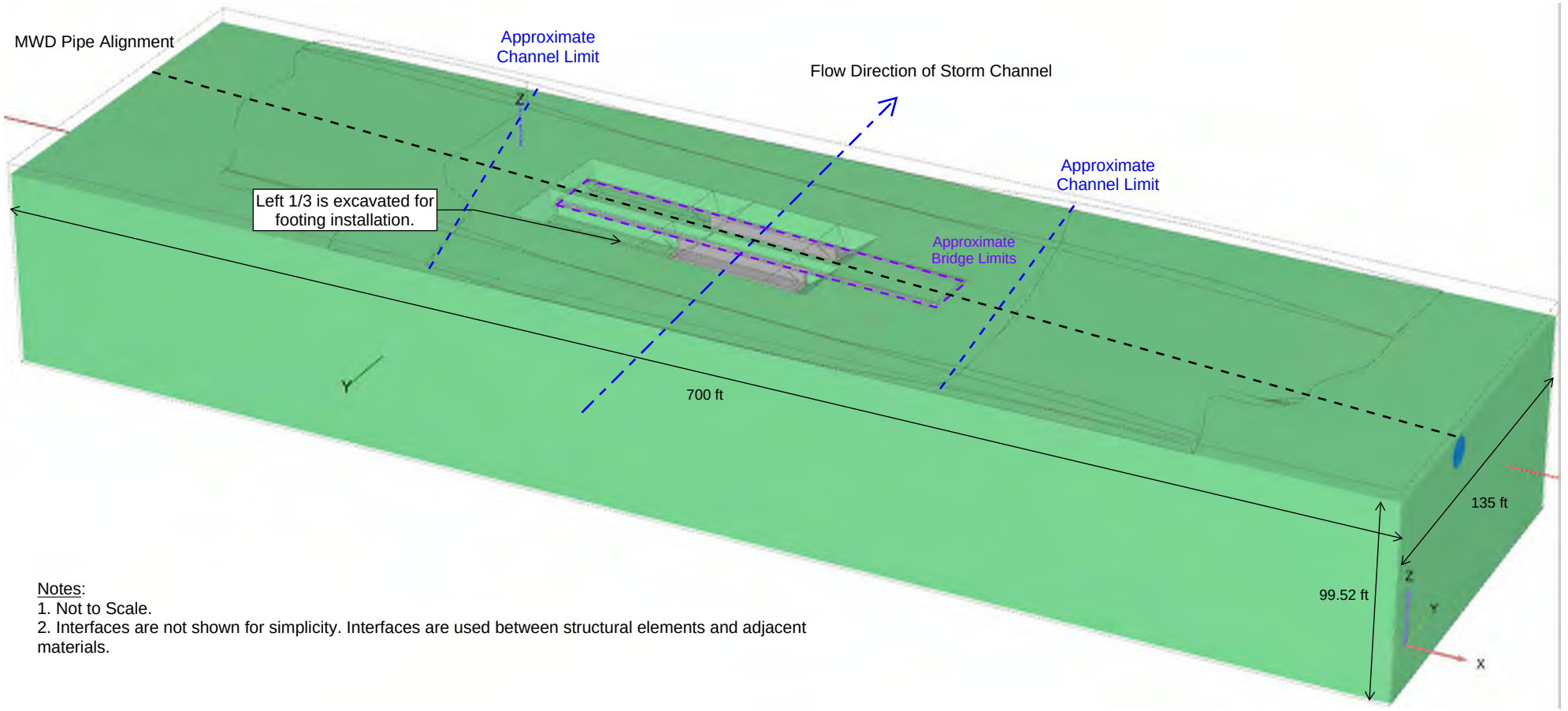
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 1.b: Excavate & Place Footings - Construct Center 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E16

Step 1.c: Excavate & Place Footings - Excavate Left 1/3



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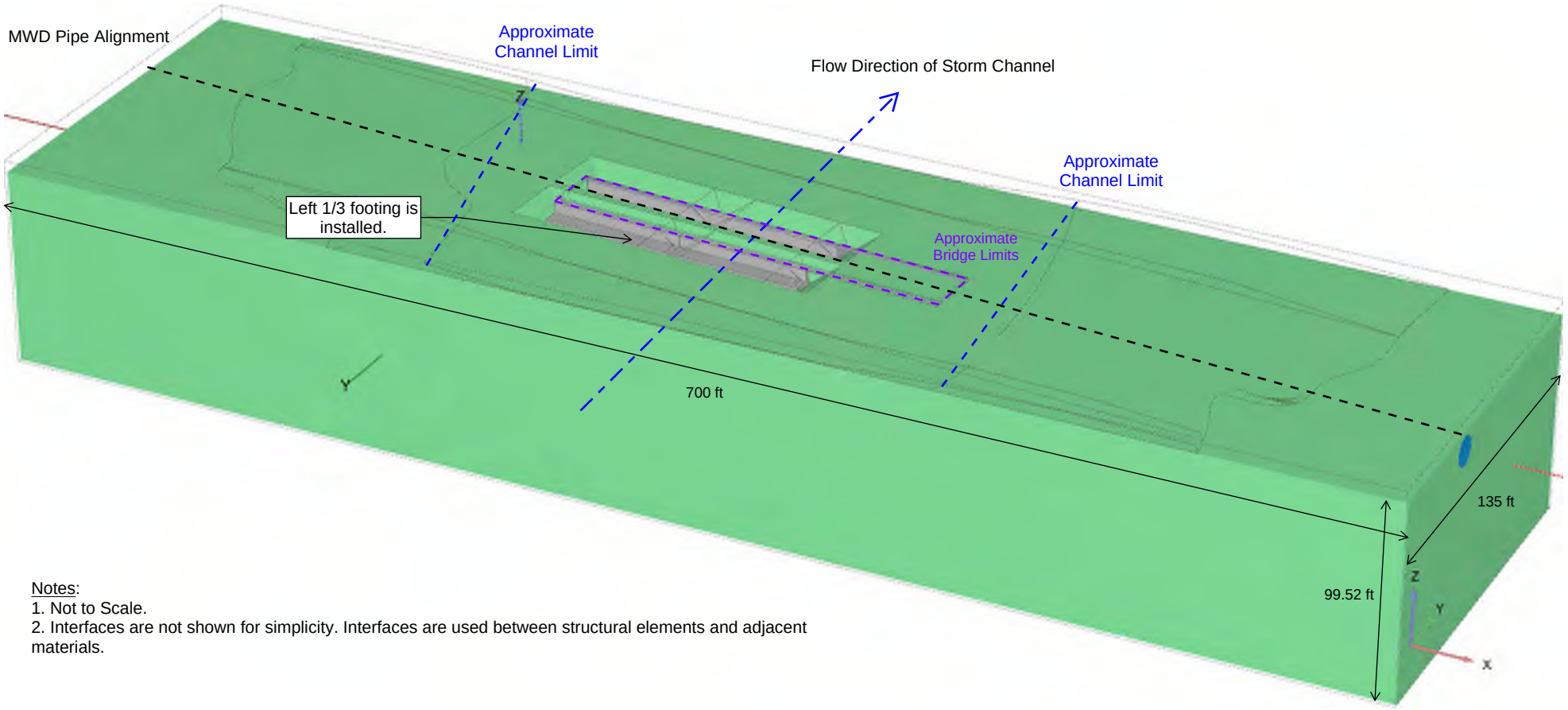
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 1.c: Excavate & Place Footings - Excavate Left 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E17

Step 1.d: Excavate & Place Footings - Construct Left 1/3 Footing



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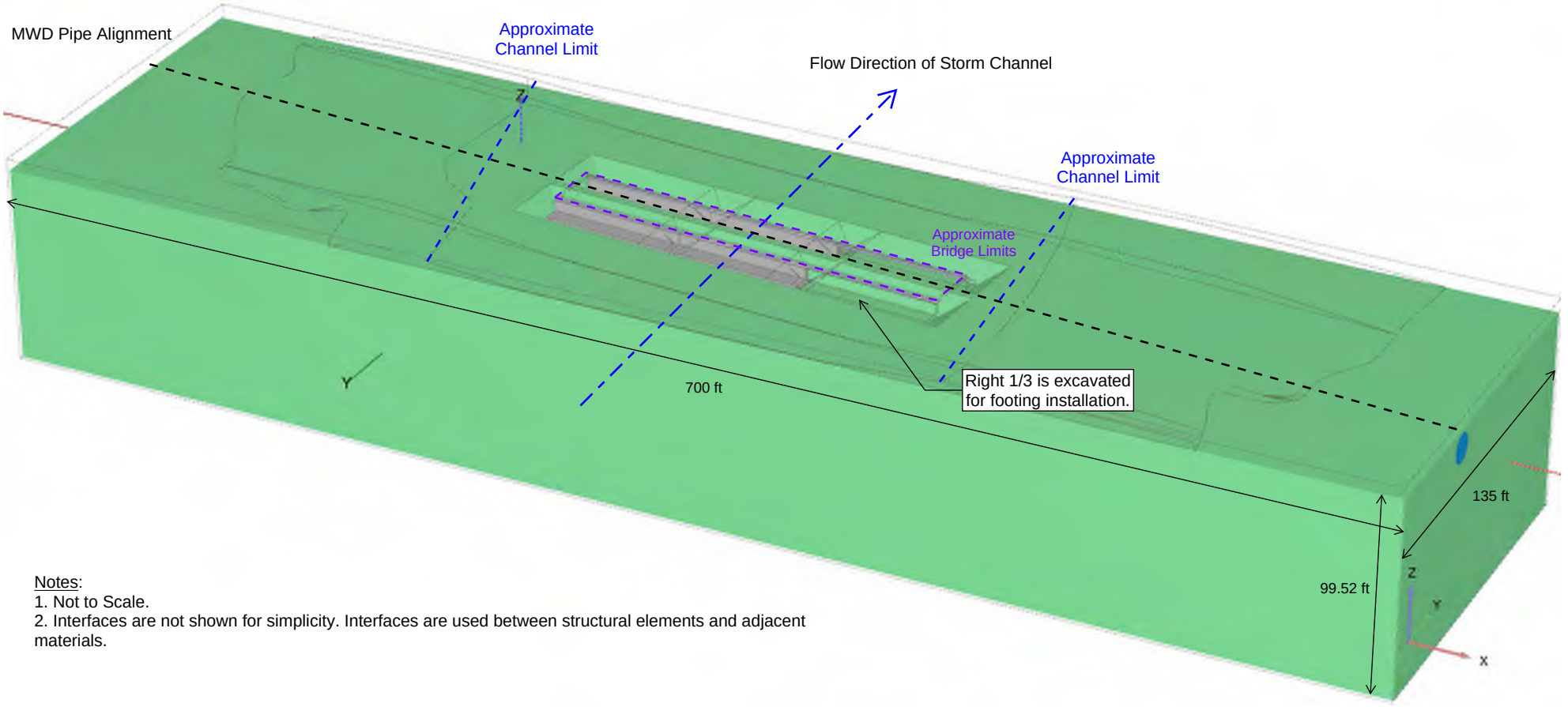
PROJECT NO.	24002328.001A
DRAWN:	10/2024
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 1.d: Excavate & Place Footings - Construct Left 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E18

Step 1.e: Excavate & Place Footings - Excavate Right 1/3



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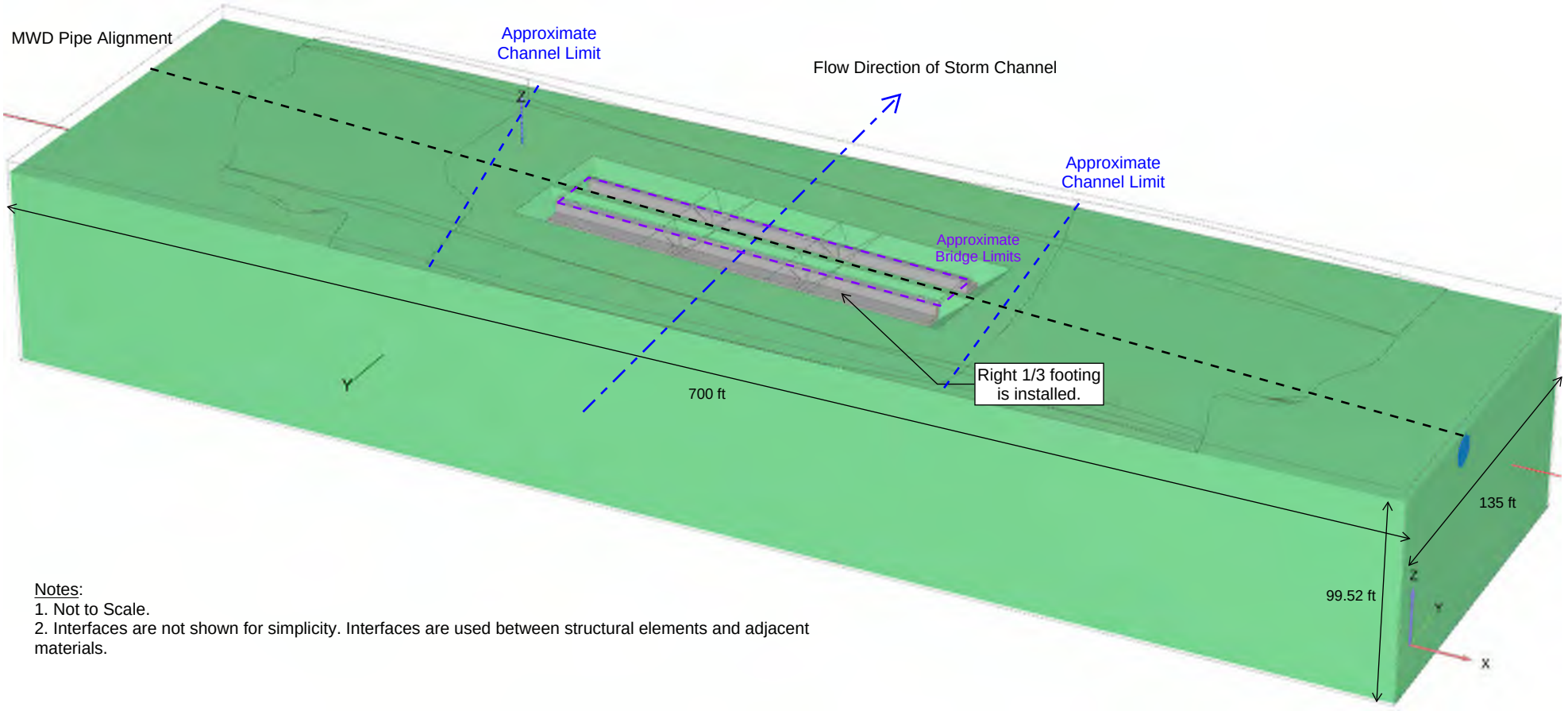
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 1.e: Excavate & Place Footings - Excavate Right 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E19

Step 1.f: Excavate & Place Footings - Construct Right 1/3 Footing



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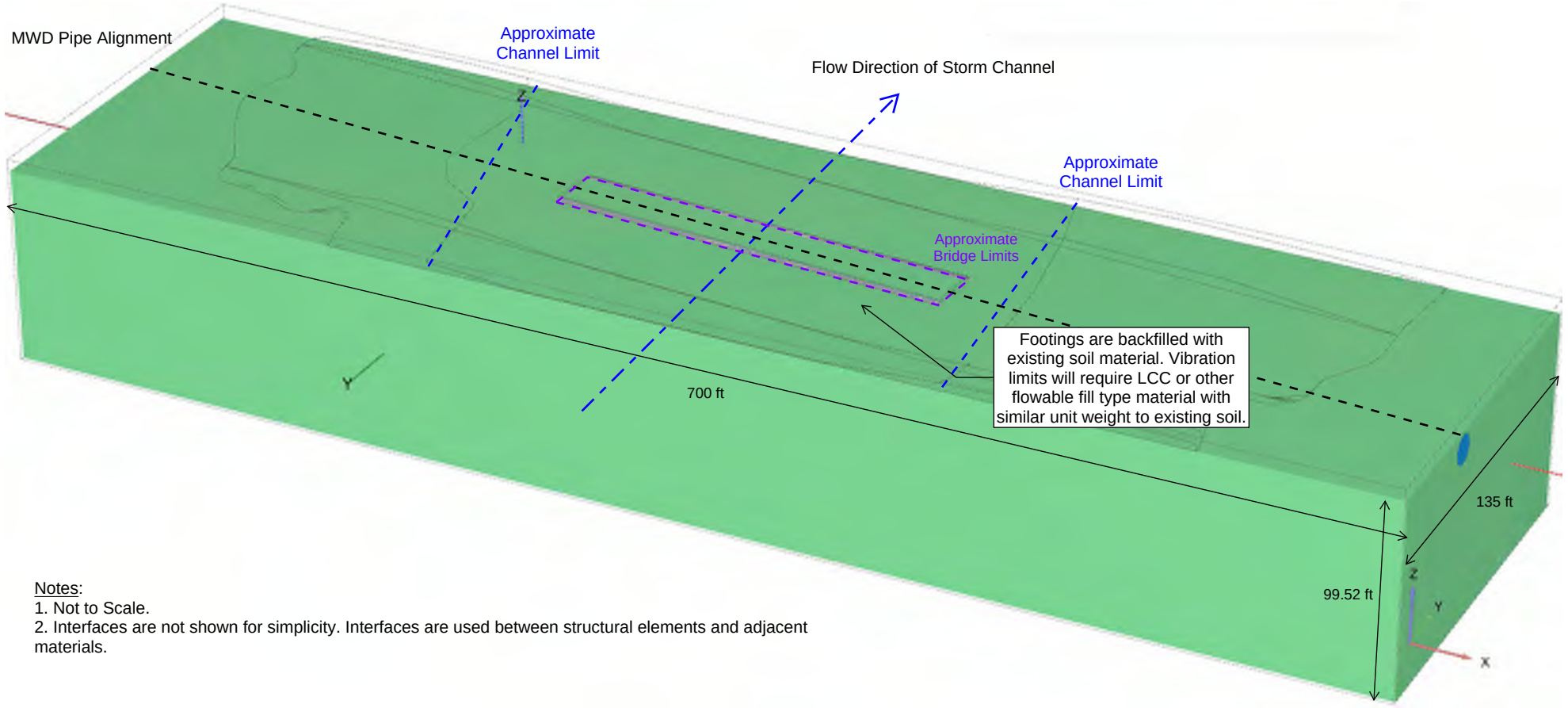
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 1.f: Excavate & Place Footings - Construct Right 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E20

Step 2: Backfill Footings



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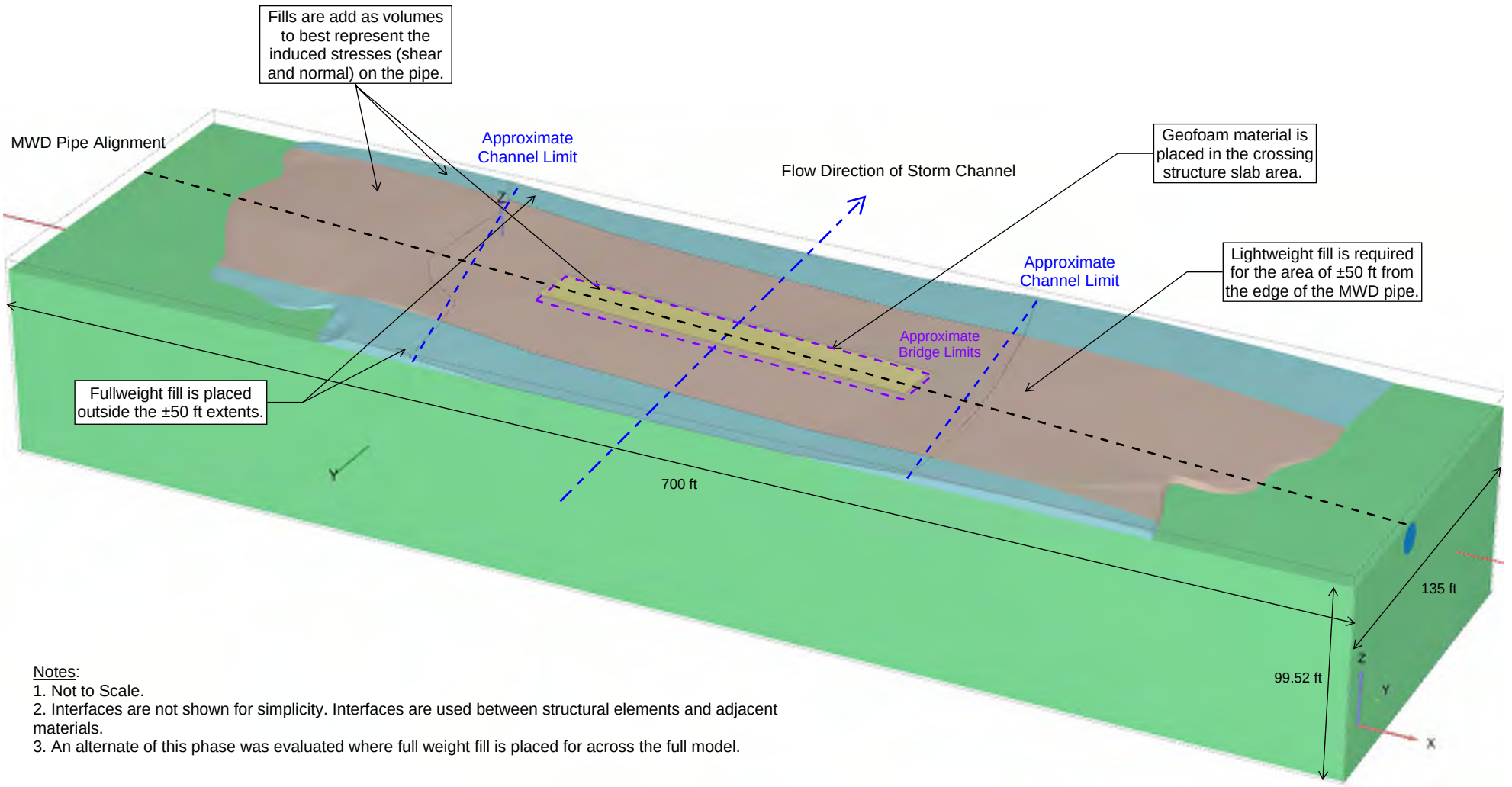
Model Staging
Step 2: Backfill Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E21

Step 3: Place Channel Embankments



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3. An alternate of this phase was evaluated where full weight fill is placed for across the full model.

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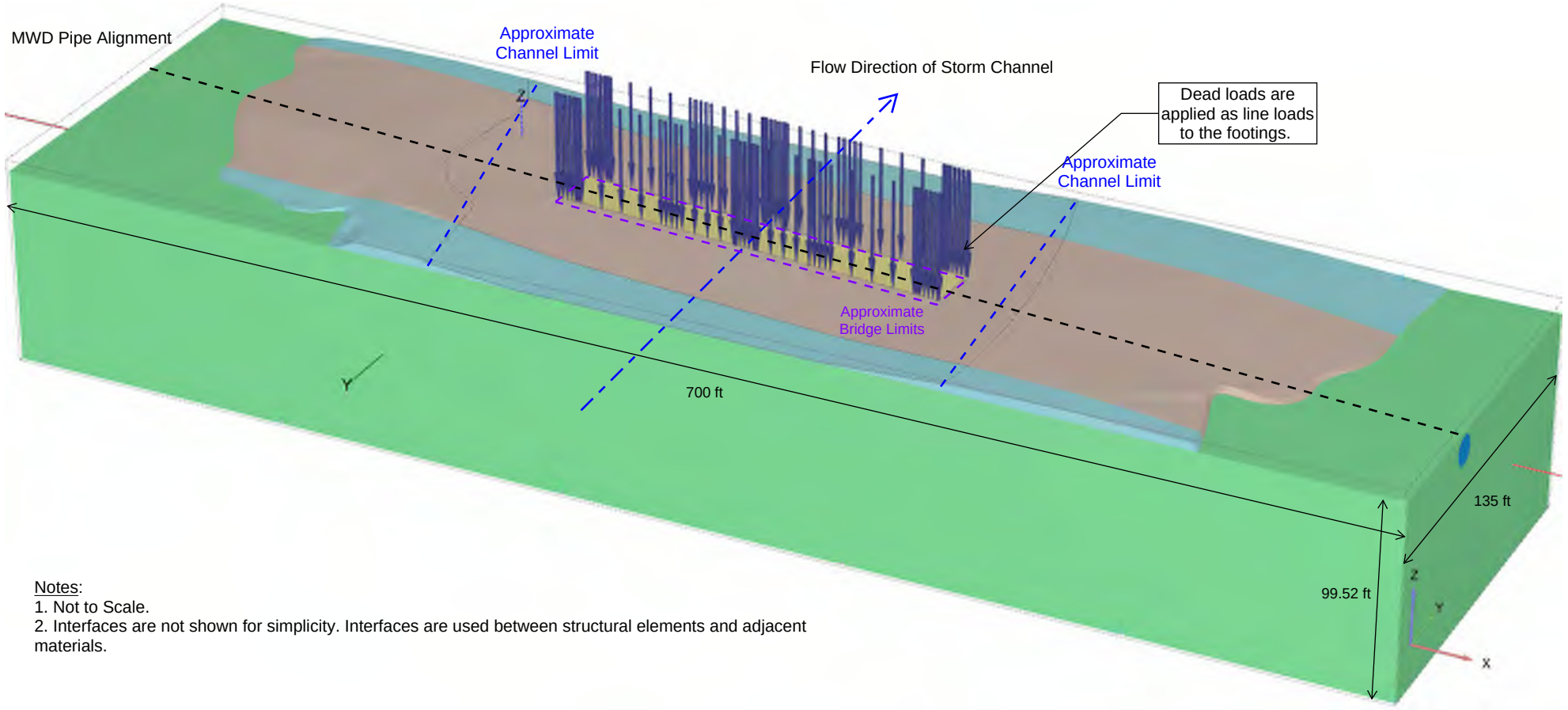
Model Staging
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E22

Step 4: Apply Dead Loads from Slab



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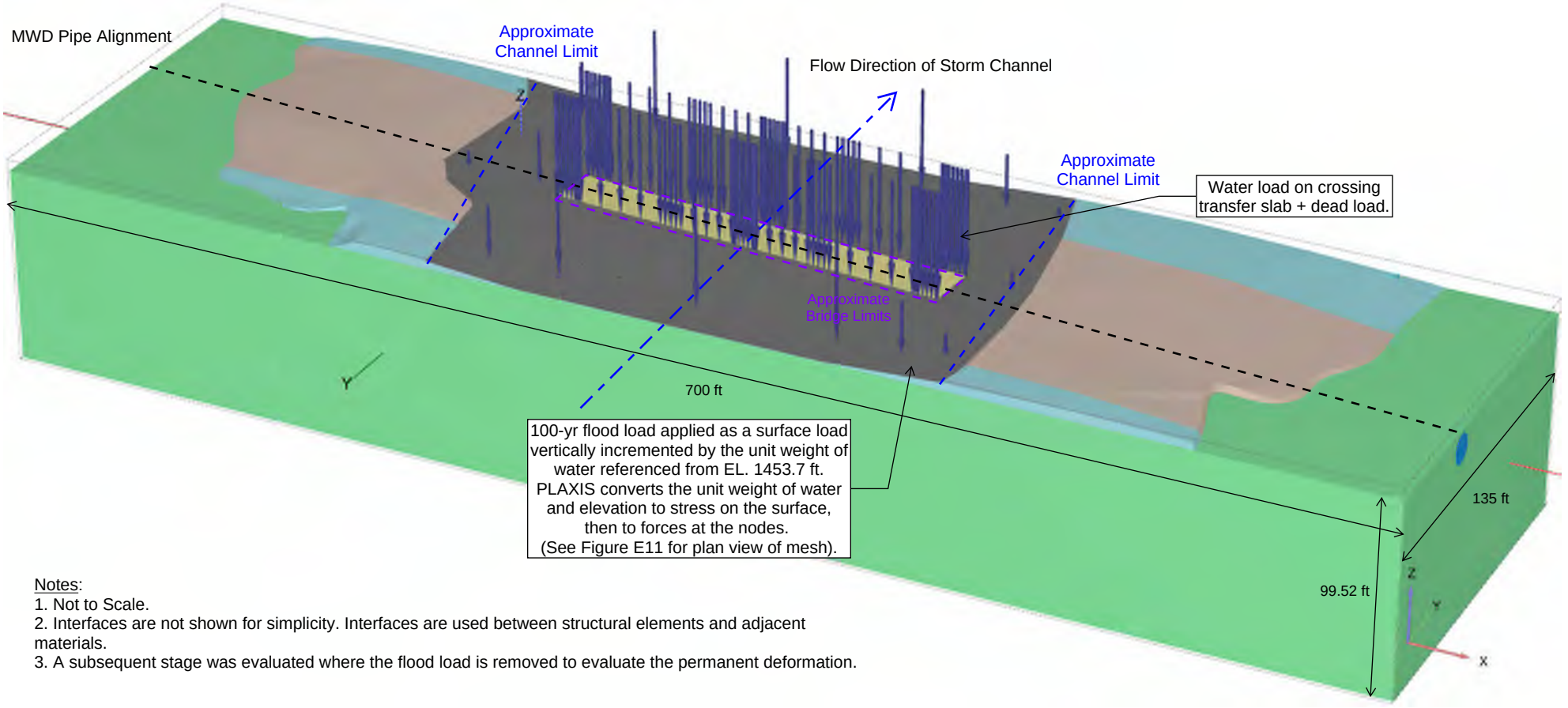
Model Staging
Step 4: Apply Dead Loads from Slab

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E23

Step 5.a: Apply Various Loads - 100-yr Flood Load



Notes:
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3. A subsequent stage was evaluated where the flood load is removed to evaluate the permanent deformation.

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DRAWN BY:	T. Covill
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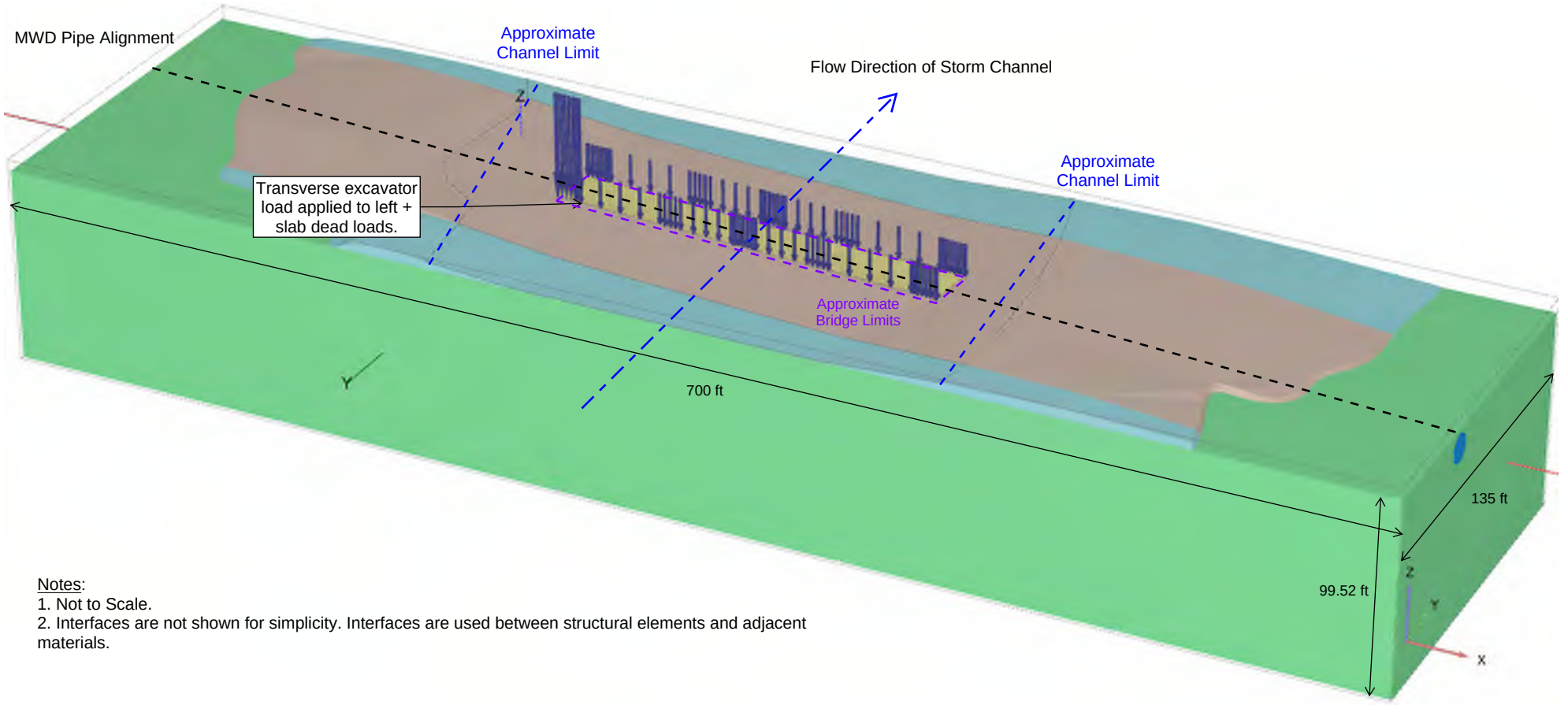
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 5.a: Apply Various Loads - 100-yr Flood Load

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E24

Step 5.b: Transverse Excavator on Left



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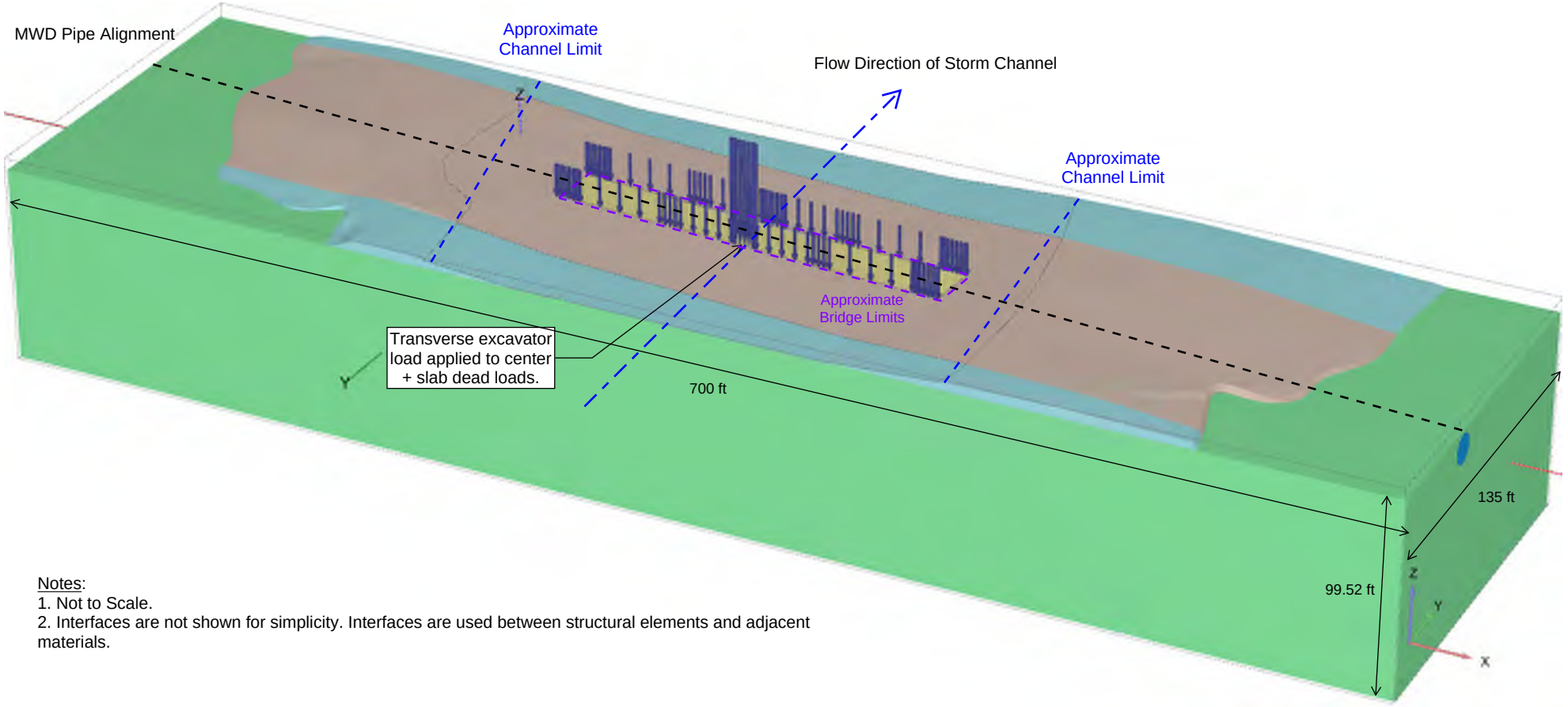
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 5.b: Transverse Excavator on Left

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E25

Step 5.c: Transverse Excavator on Center



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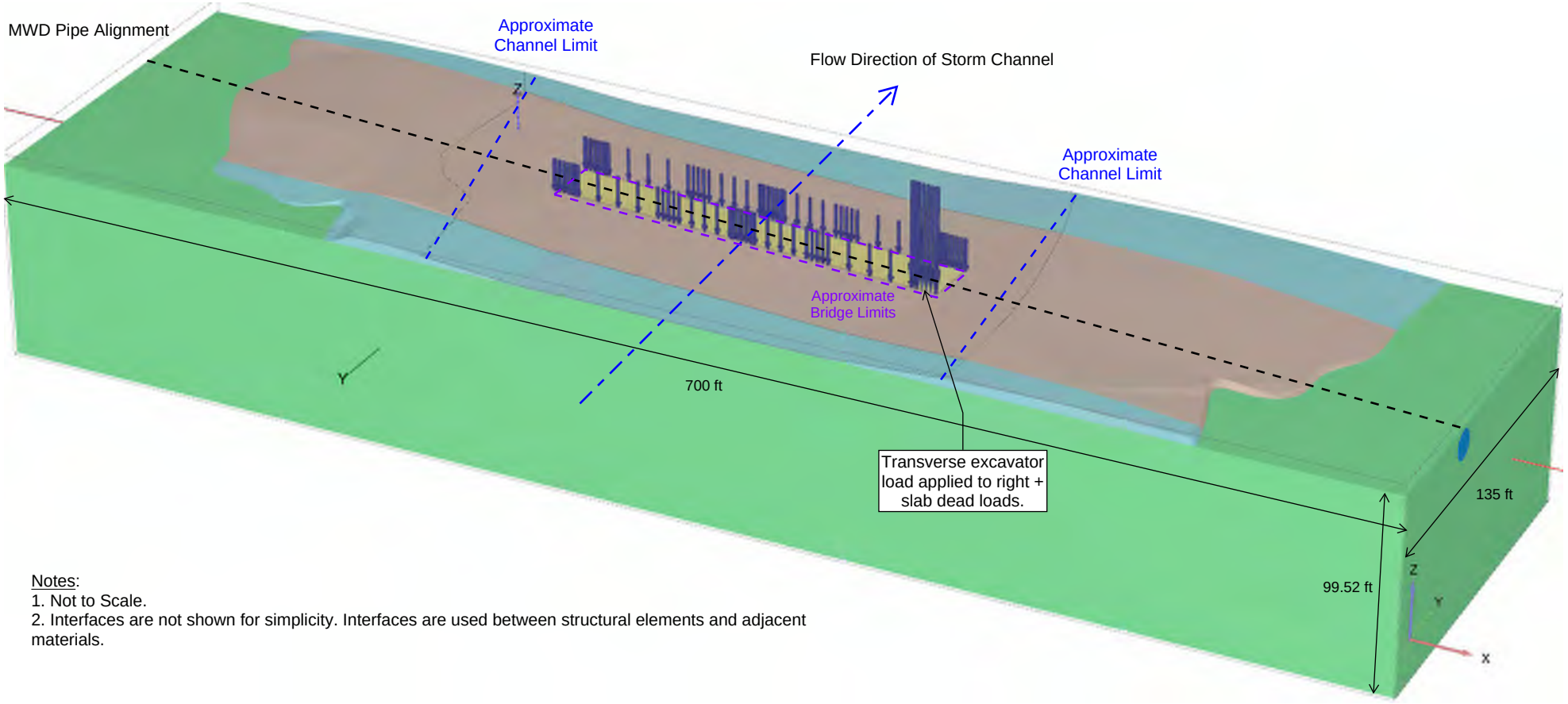
Model Staging
Step 5.c: Transverse Excavator on Center

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E26

Step 5.d: Transverse Excavator on Right



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DRAWN BY:	T. Covill
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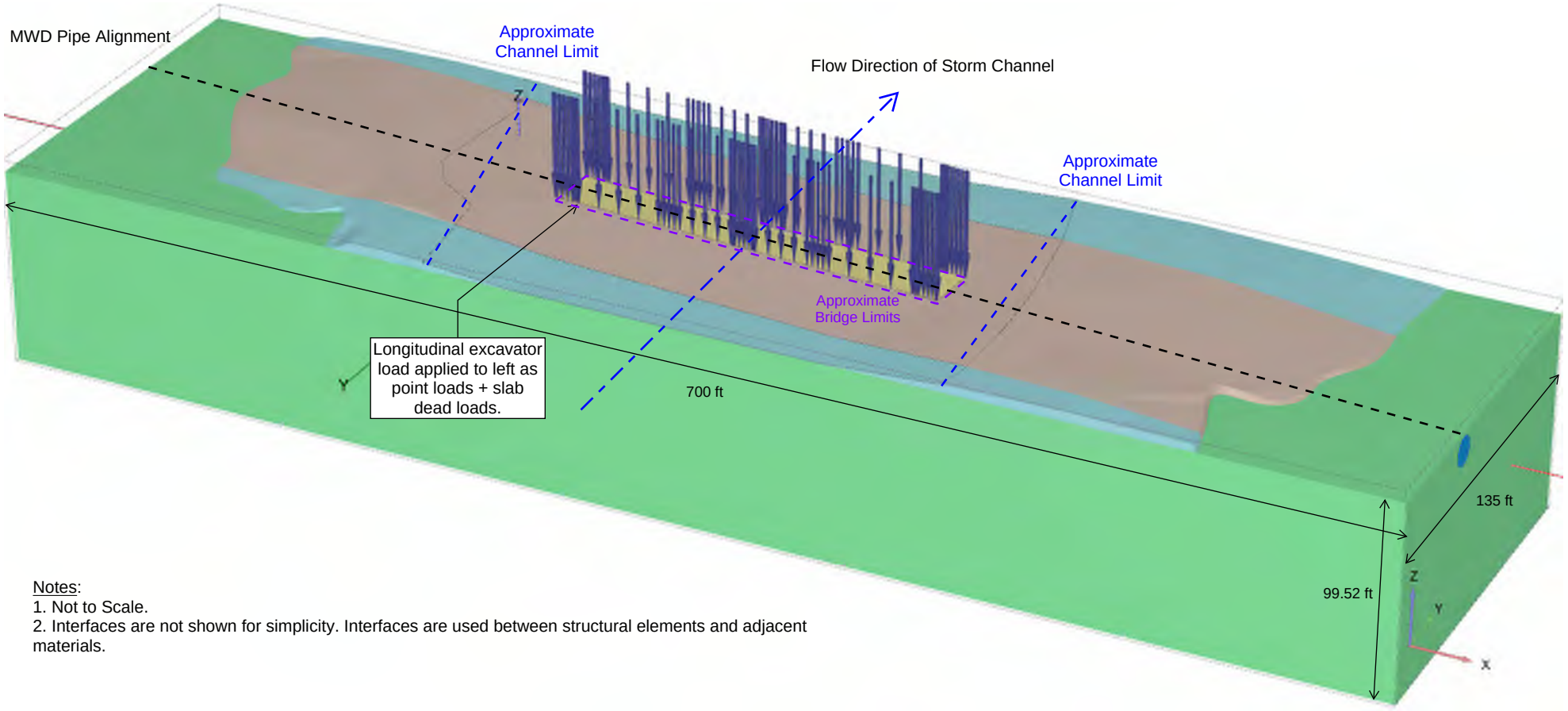
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 5.d: Transverse Excavator on Right

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E27

Step 5.e: Longitudinal Excavator on Left



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DRAWN BY:	T. Covill
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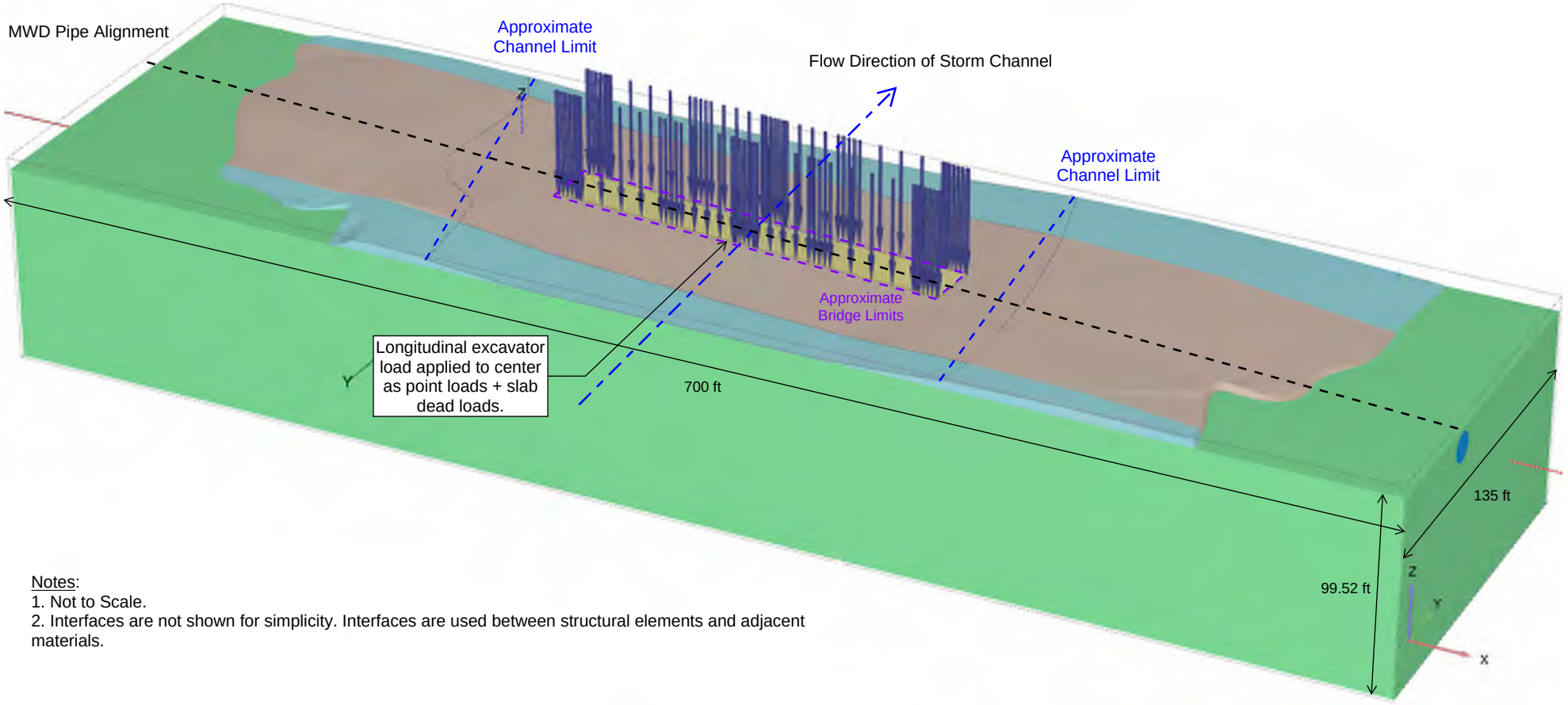
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 5.e: Longitudinal Excavator on Left

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E28

Step 5.f: Longitudinal Excavator on Center



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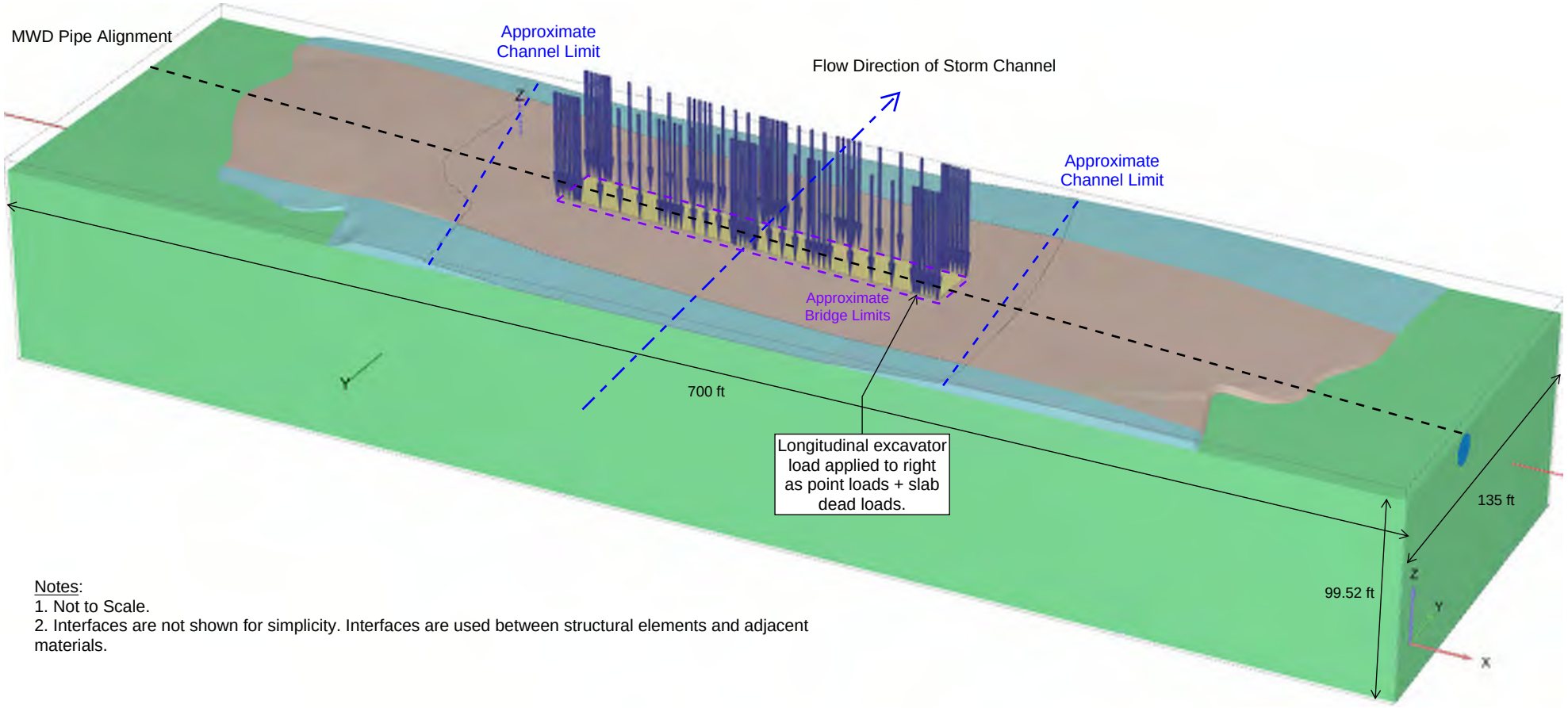
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 5.f: Longitudinal Excavator on Center

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E29

Step 5.f: Longitudinal Excavator on Right



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DRAWN BY:	T. Covill
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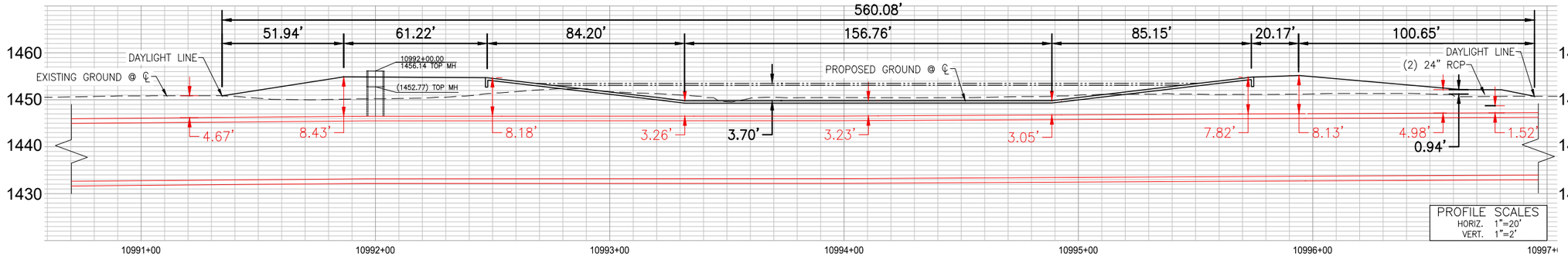
FILE NAME:	ANALYSIS FIGURES

Model Staging
Step 5.f: Longitudinal Excavator on Right

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E30

MWD BARREL NO 1 PROFILE



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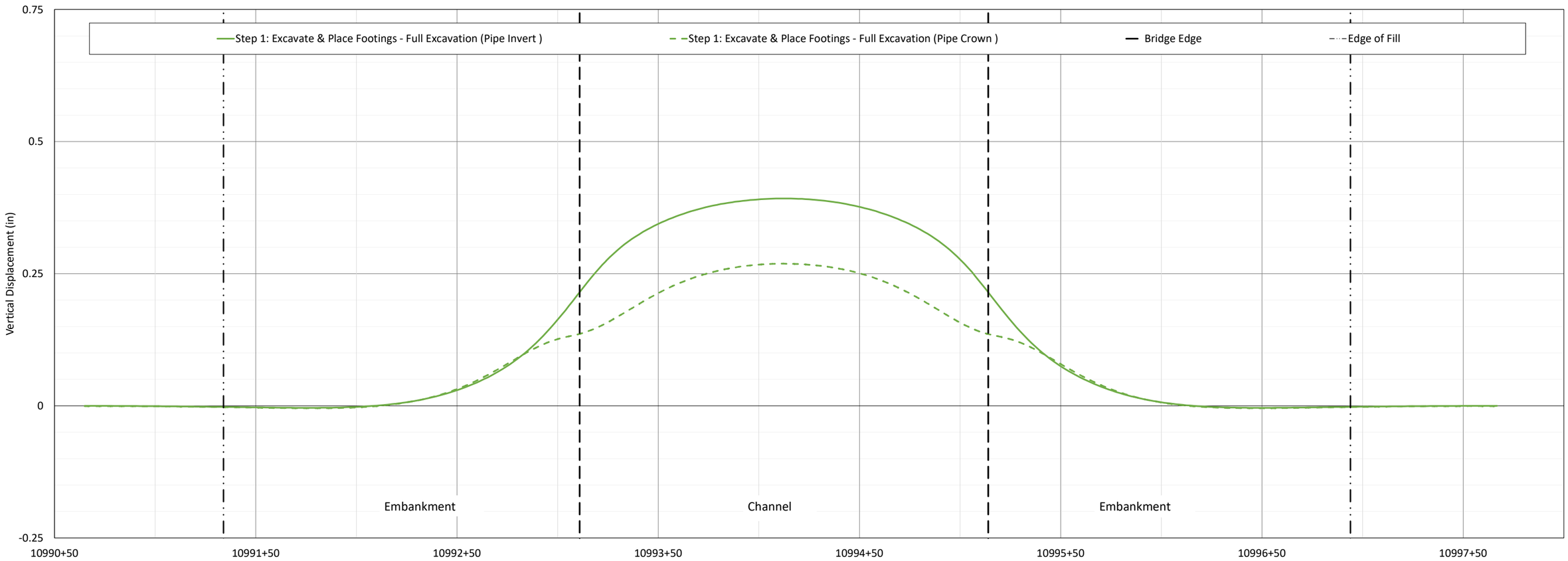
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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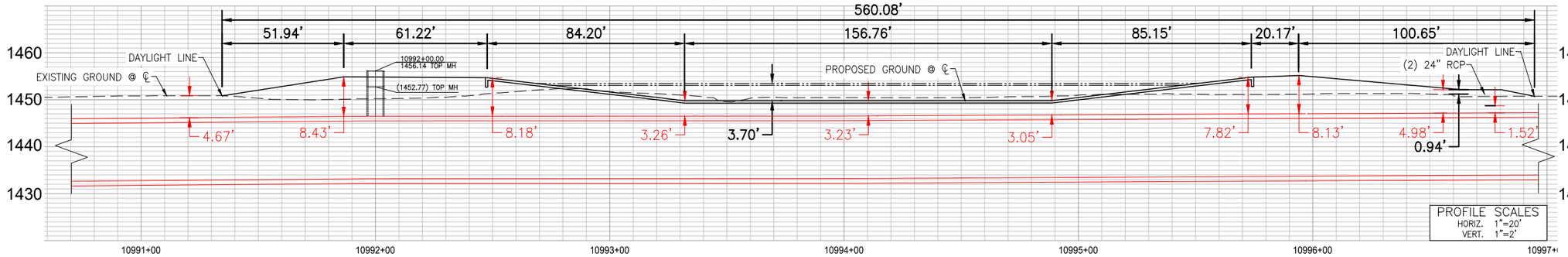
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1: Excavate & Place Footings
Full Length Excavation

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E31

MWD BARREL NO 1 PROFILE



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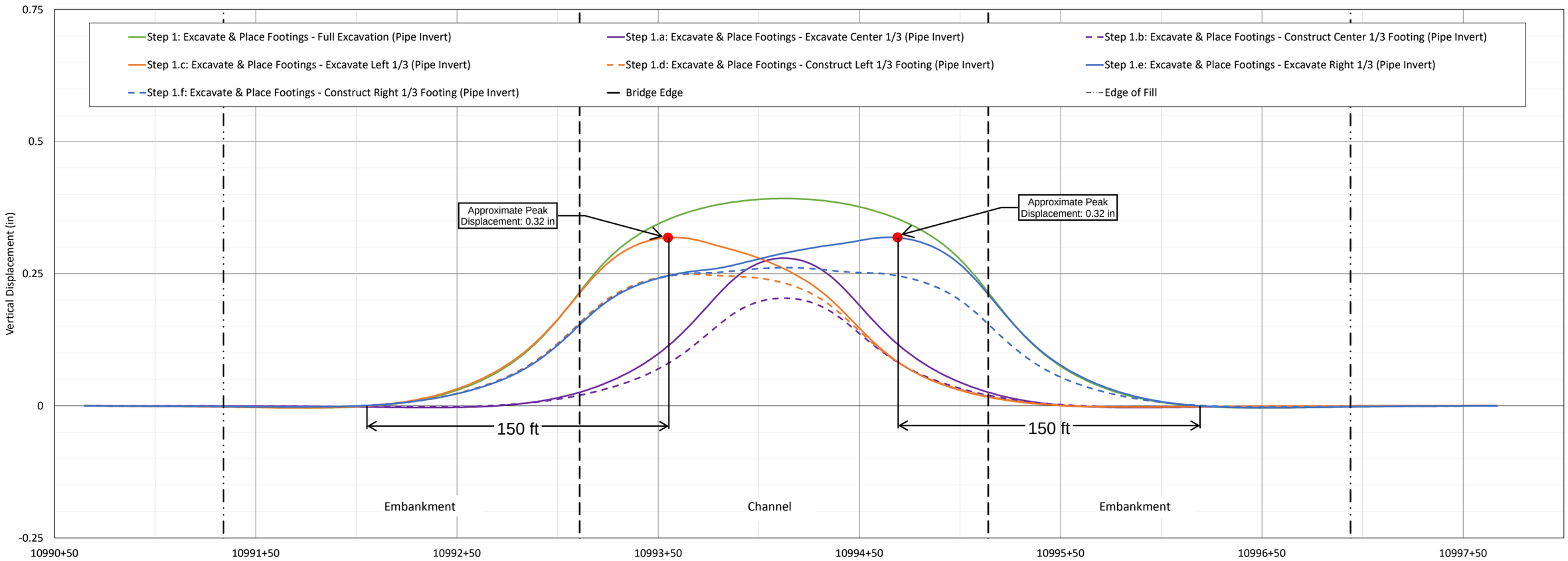

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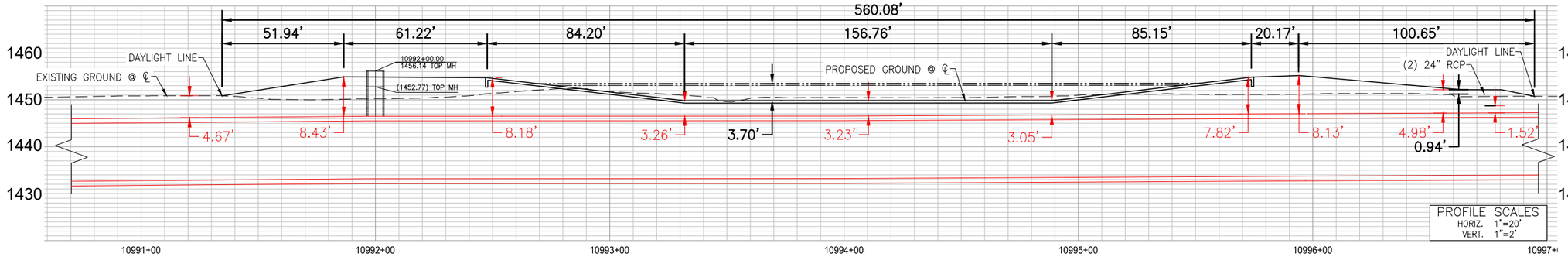
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1a-f: Excavate & Place Footings
1/3 Construction Sequencing at Pipe Invert

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E32

MWD BARREL NO 1 PROFILE



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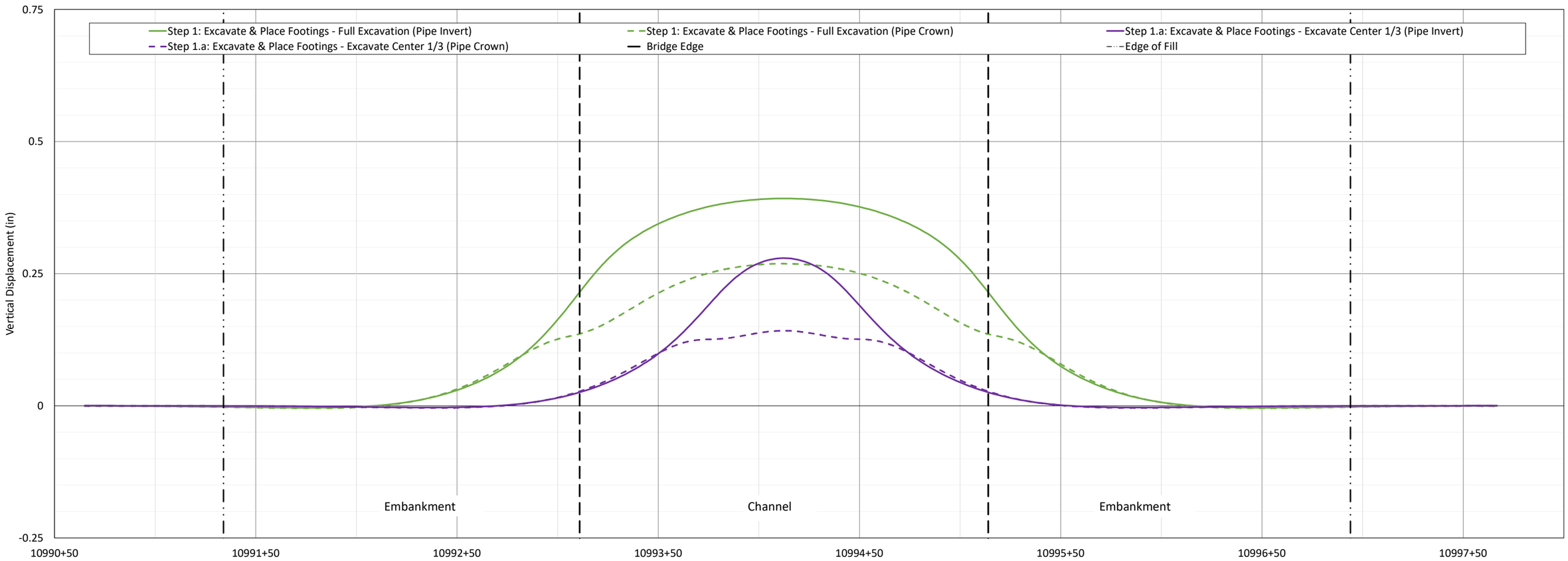

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0 25 50 100

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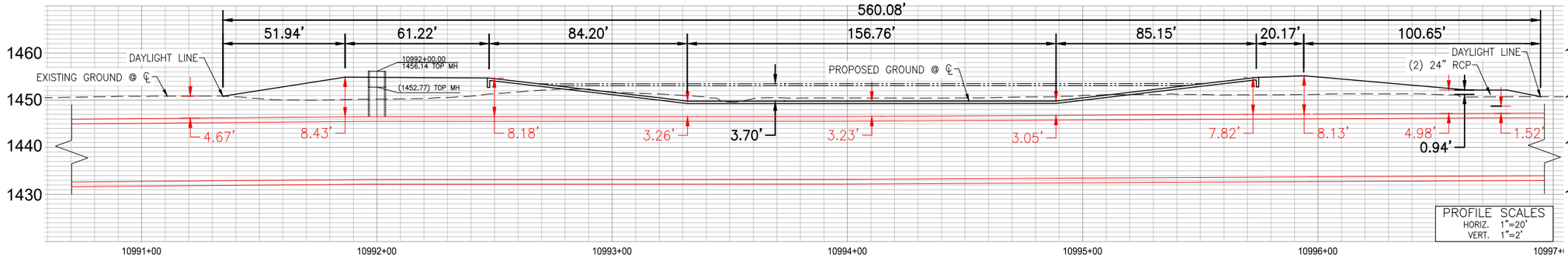
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1a: Excavate & Place Footings
Excavate Center 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E33

MWD BARREL NO 1 PROFILE



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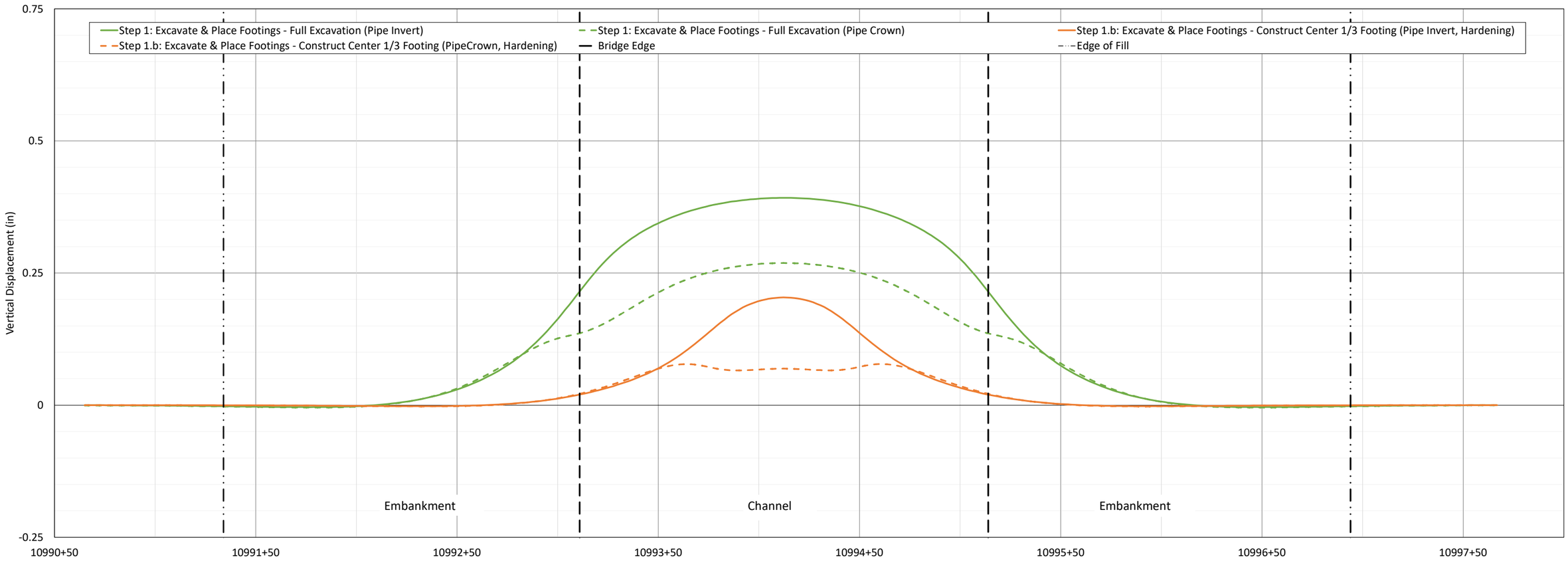

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SCALE (1" = 50')

0 25 50 100

VERTICAL NOT TO SCALE

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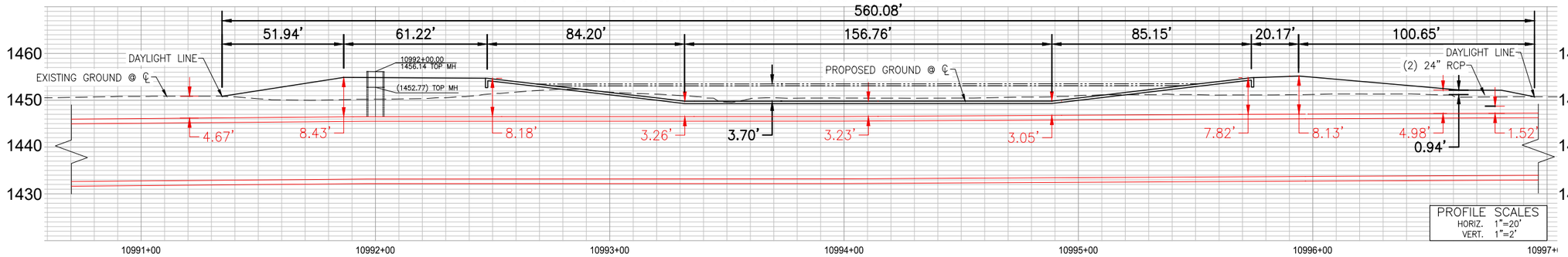
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1b: Excavate & Place Footings
Place Center 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E34

MWD BARREL NO 1 PROFILE



Notes:
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2. Scale is modified for reporting purposes (40% of original).
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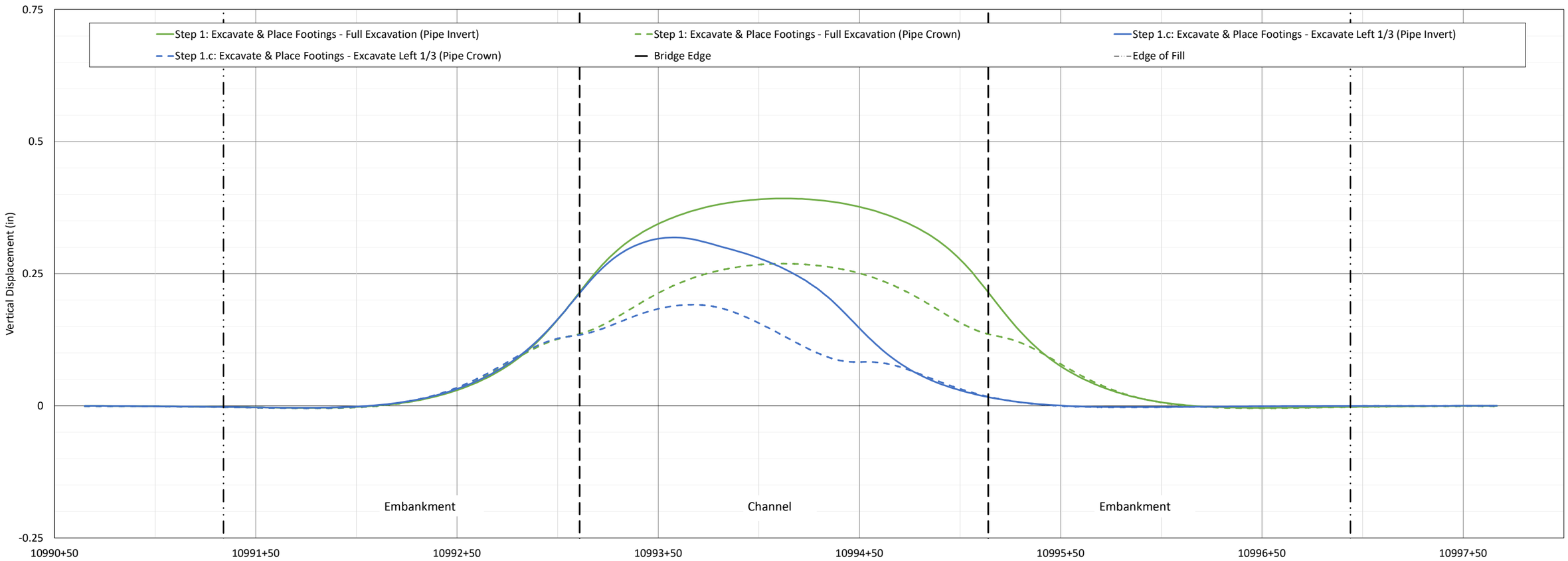
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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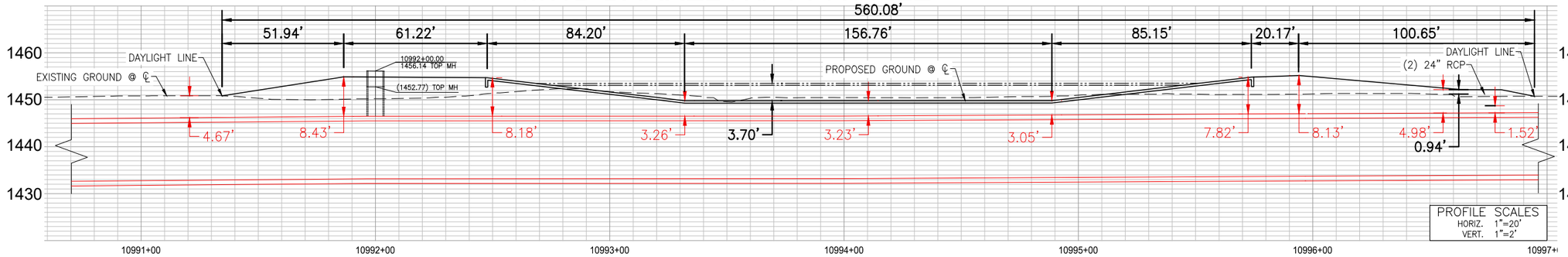
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1c: Excavate & Place Footings
Excavate Left 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E35

MWD BARREL NO 1 PROFILE



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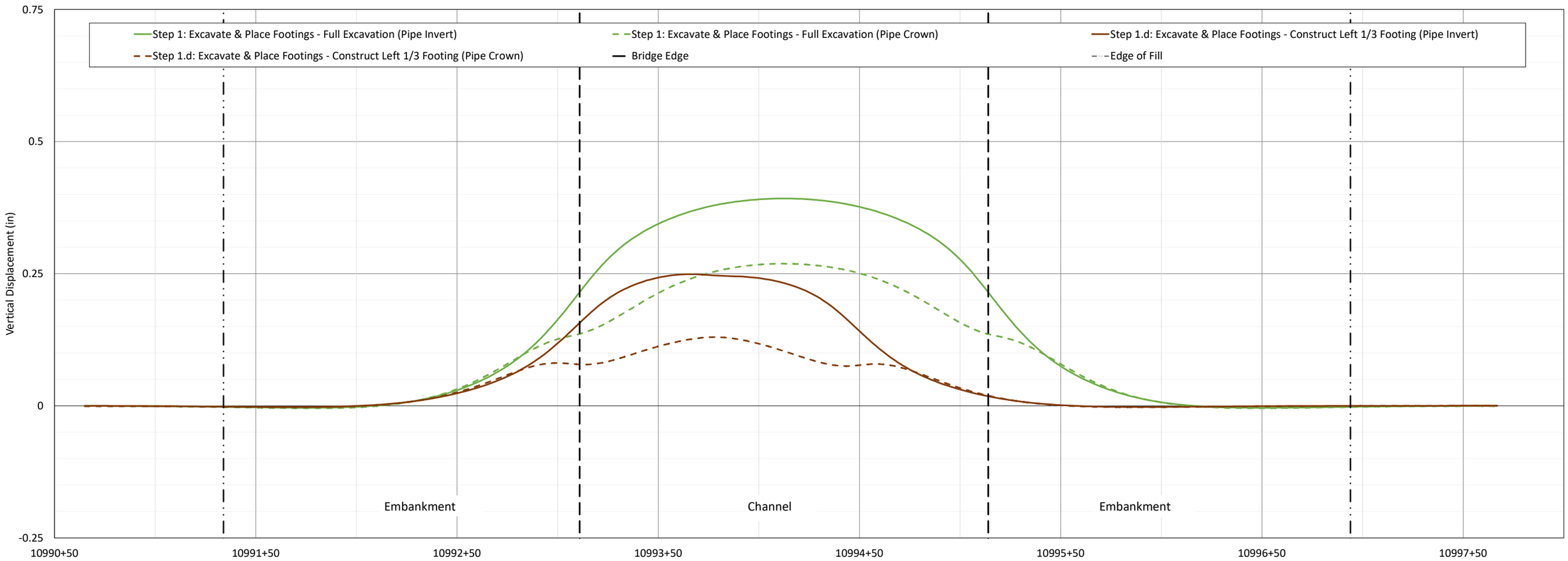

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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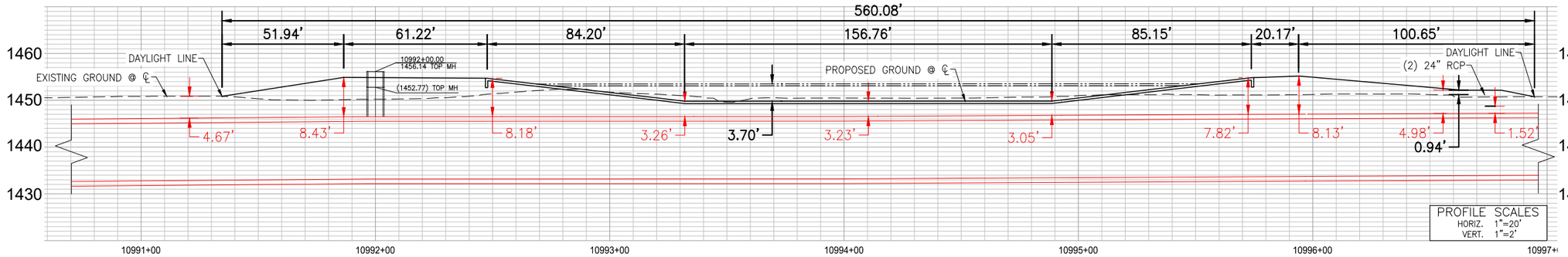
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1d: Excavate & Place Footings
Place Left 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E36

MWD BARREL NO 1 PROFILE



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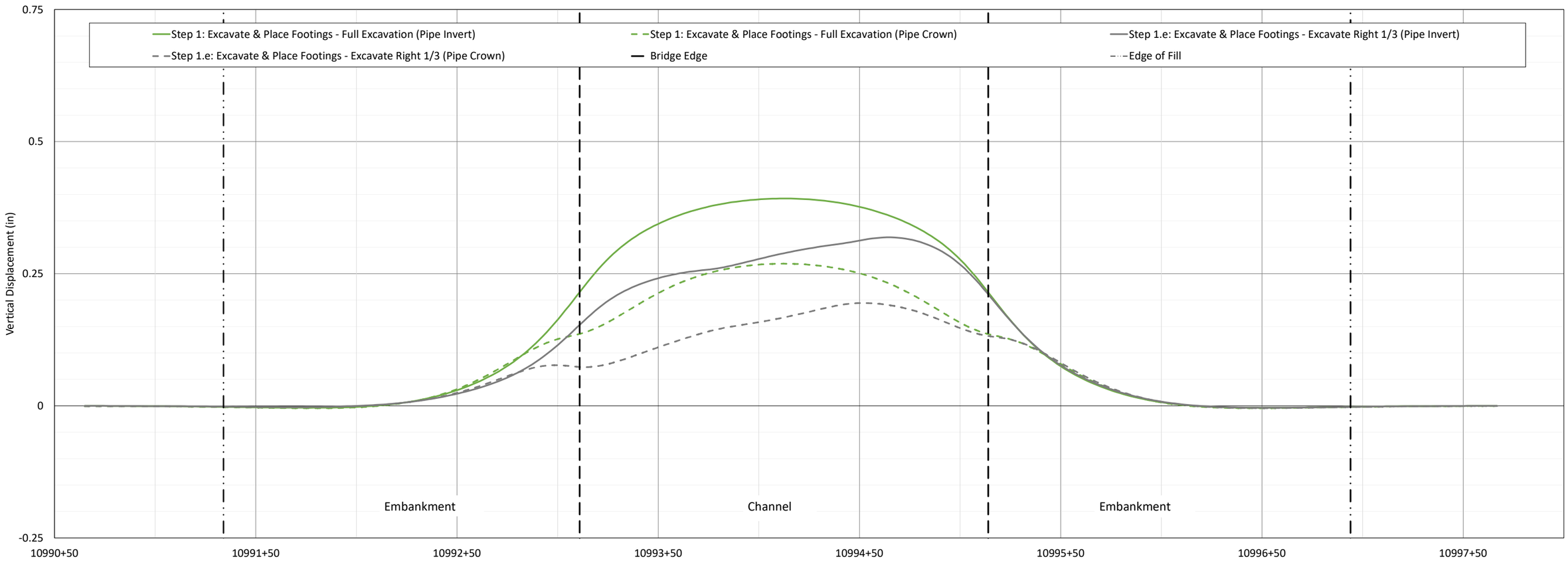

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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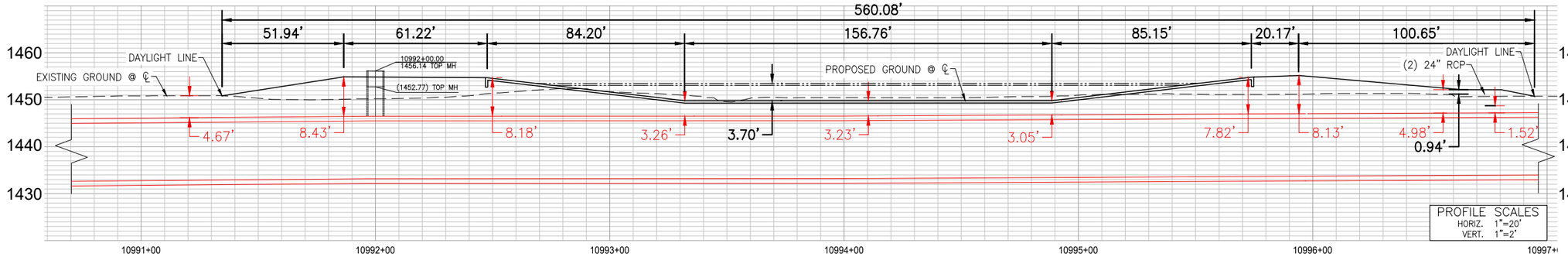
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1e: Excavate & Place Footings
Excavate Right 1/3

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E37

MWD BARREL NO 1 PROFILE



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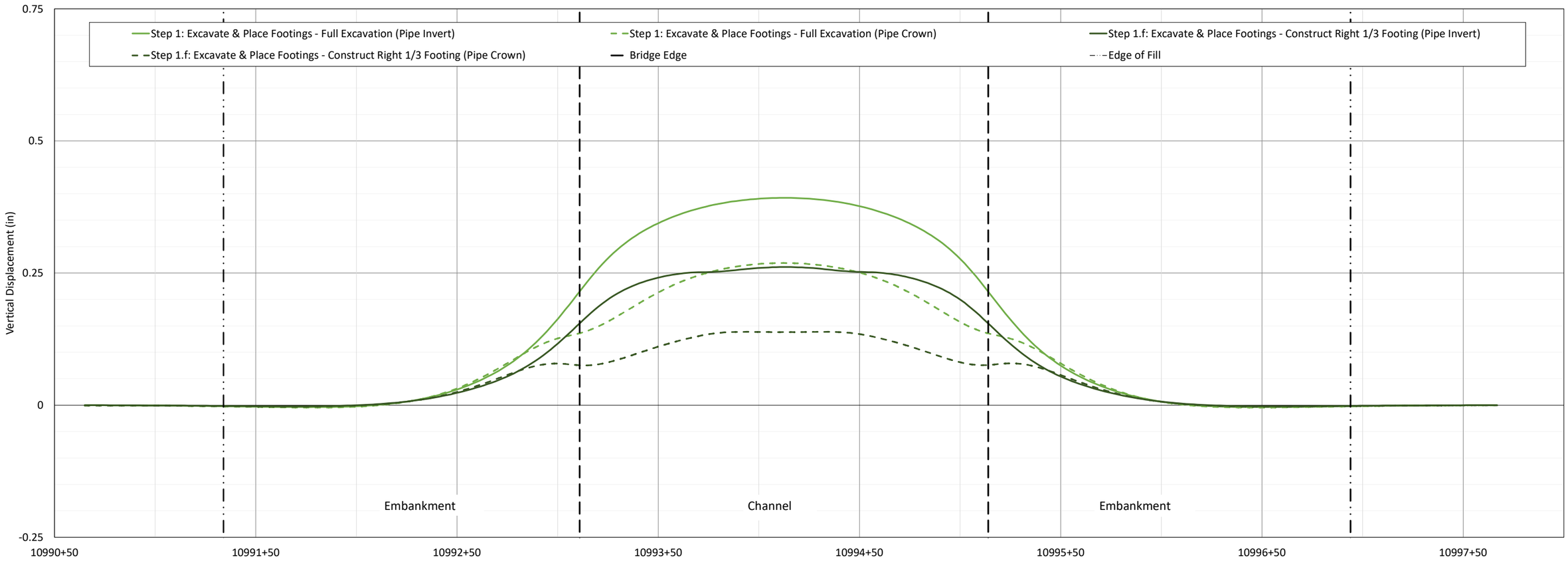

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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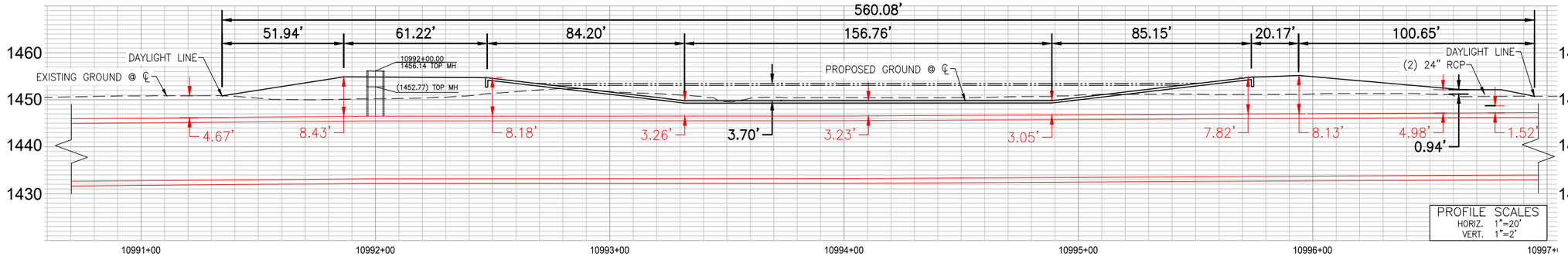
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 1f: Excavate & Place Footings
Place Right 1/3 Footing

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E38

MWD BARREL NO 1 PROFILE



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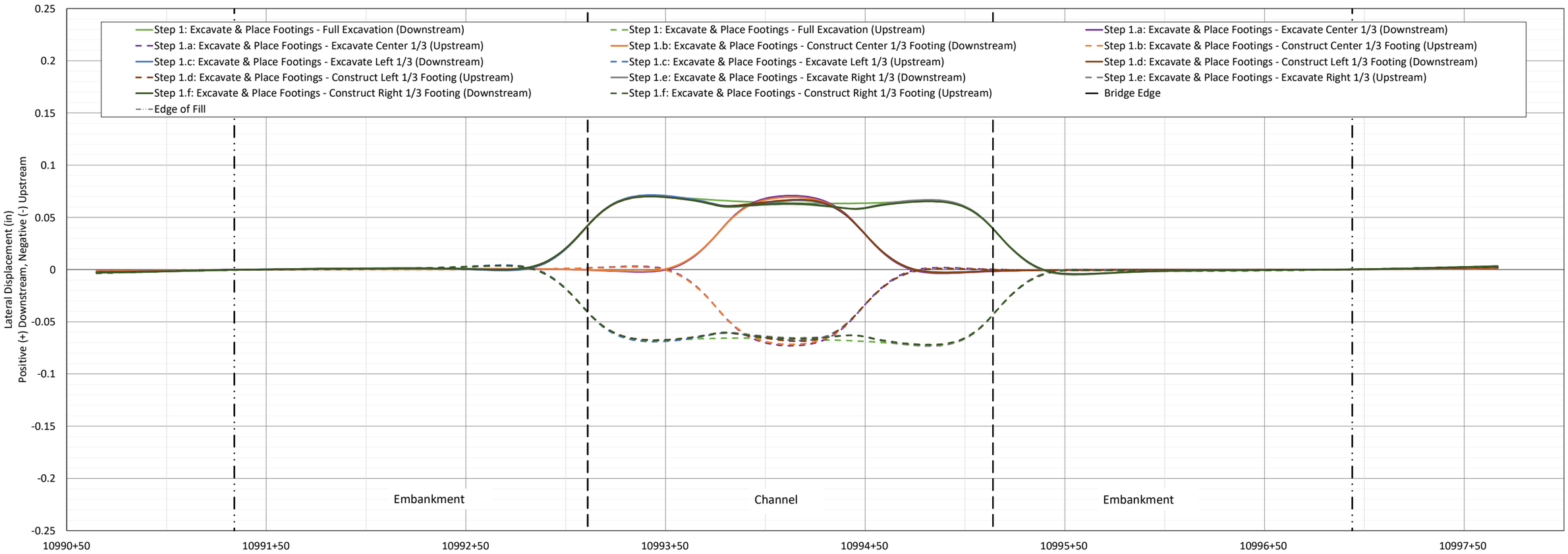

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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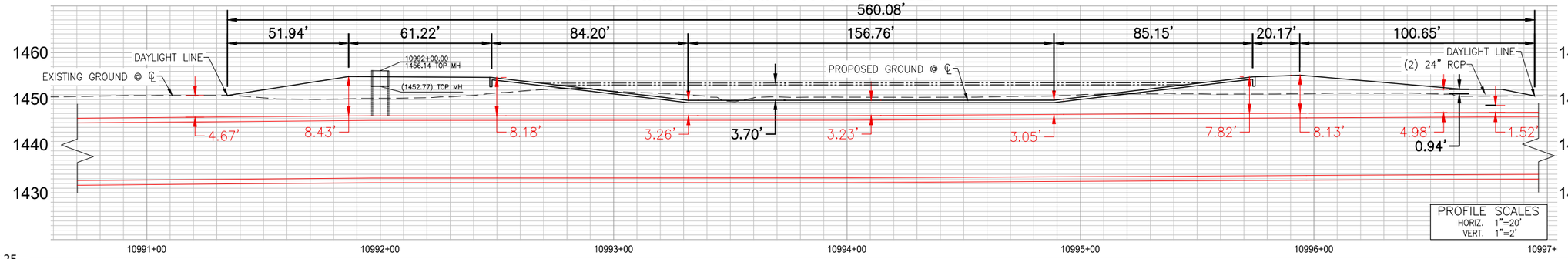
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Lateral Displacement
Step 1: Excavate & Place Footings
Full Length and Staged Excavation

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E39

MWD BARREL NO 1 PROFILE



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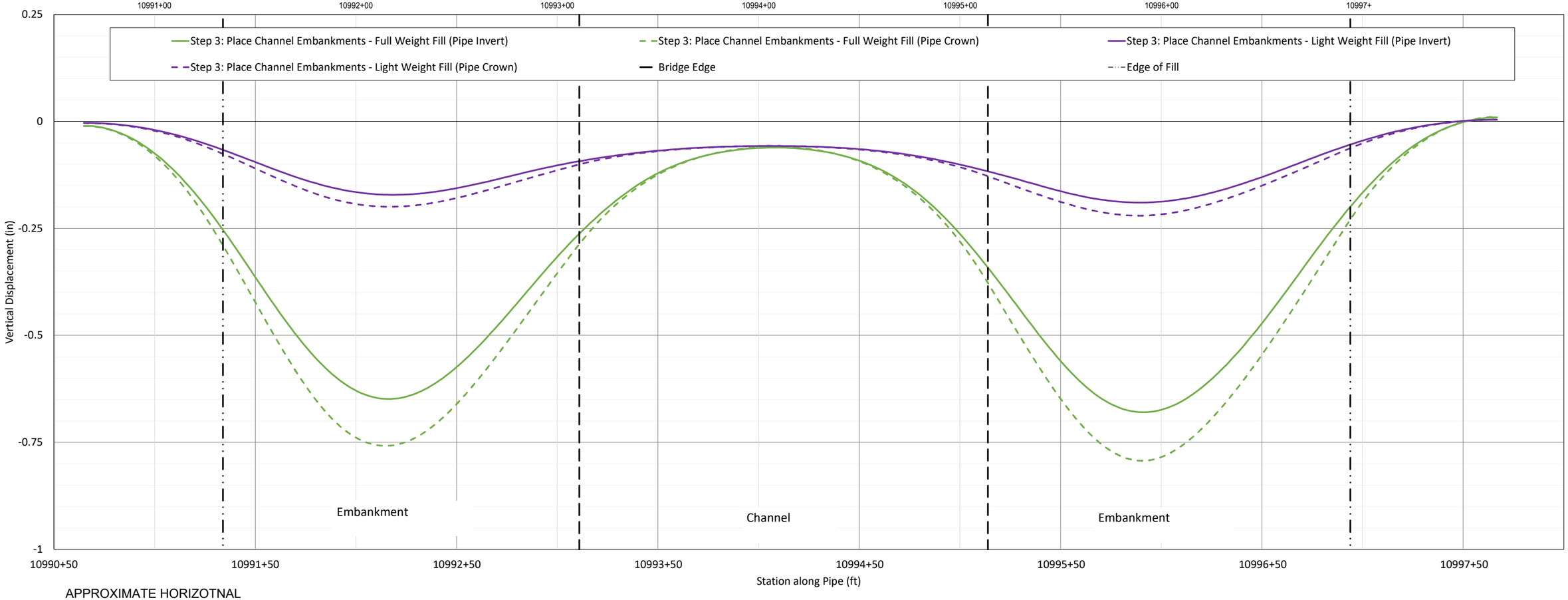

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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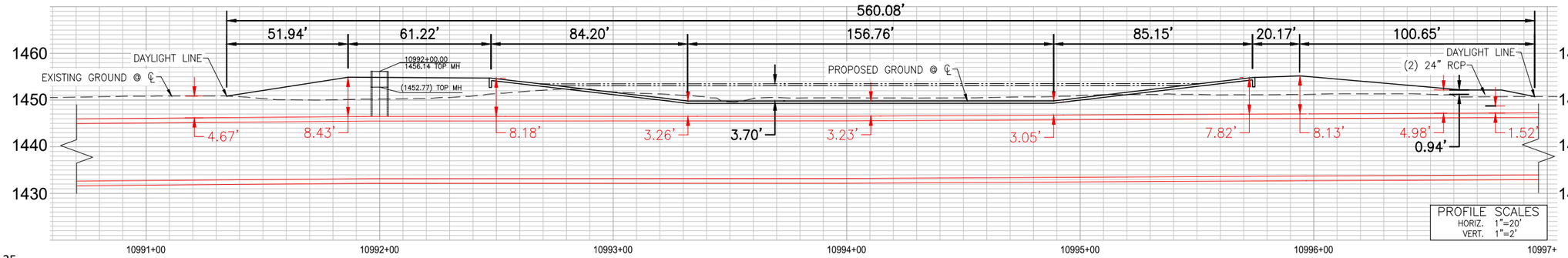
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 3: Place Channel Embankments
Full vs Light Weight Fill

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E40

MWD BARREL NO 1 PROFILE



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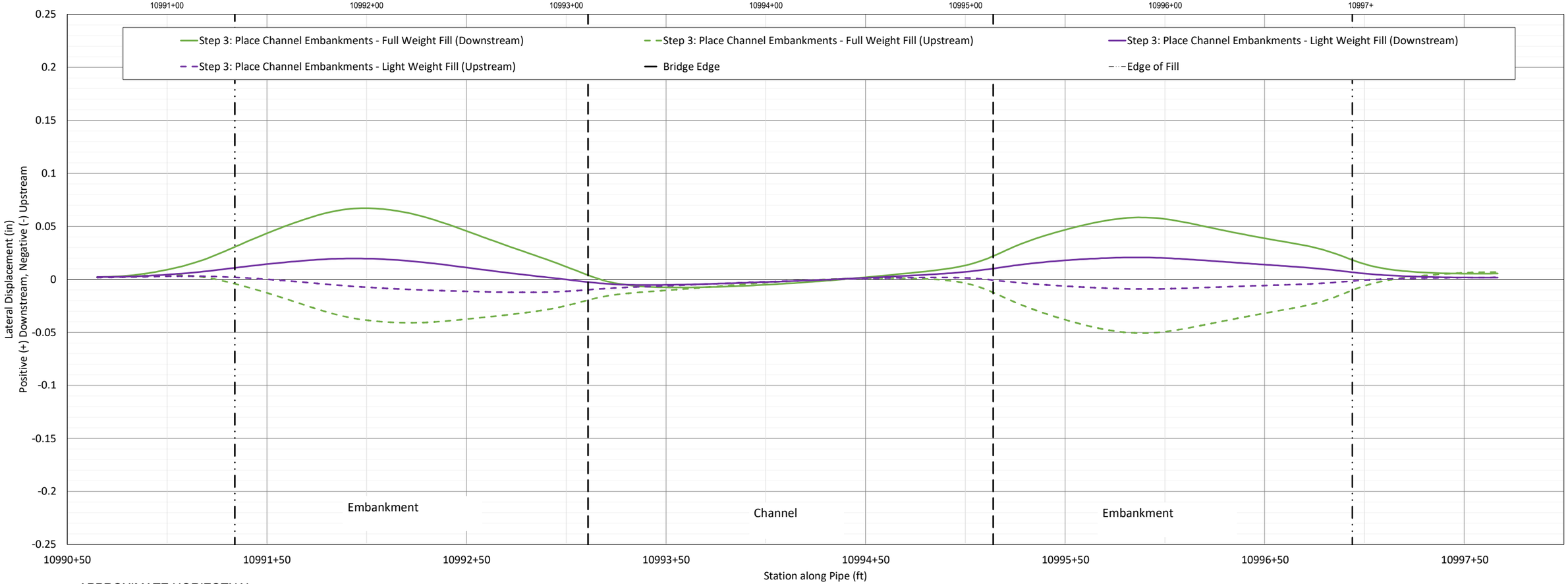

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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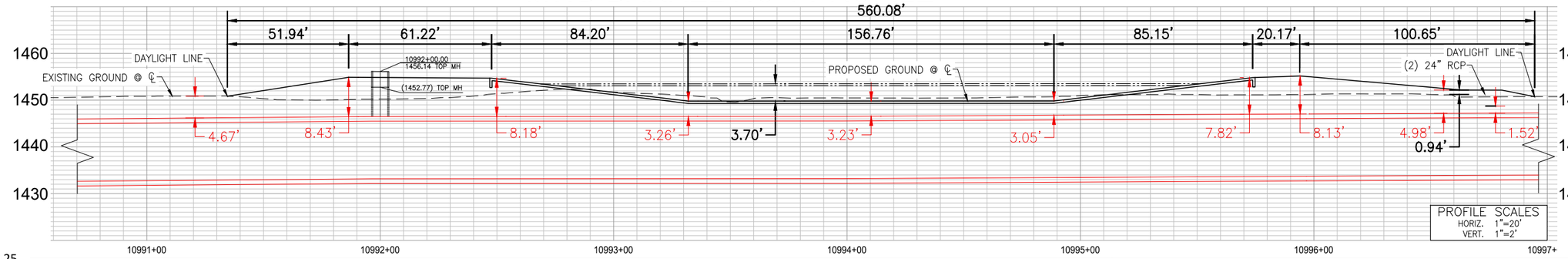
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Lateral Displacement
Step 3: Place Channel Embankments
Full vs Light Weight Fill

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E41

MWD BARREL NO 1 PROFILE



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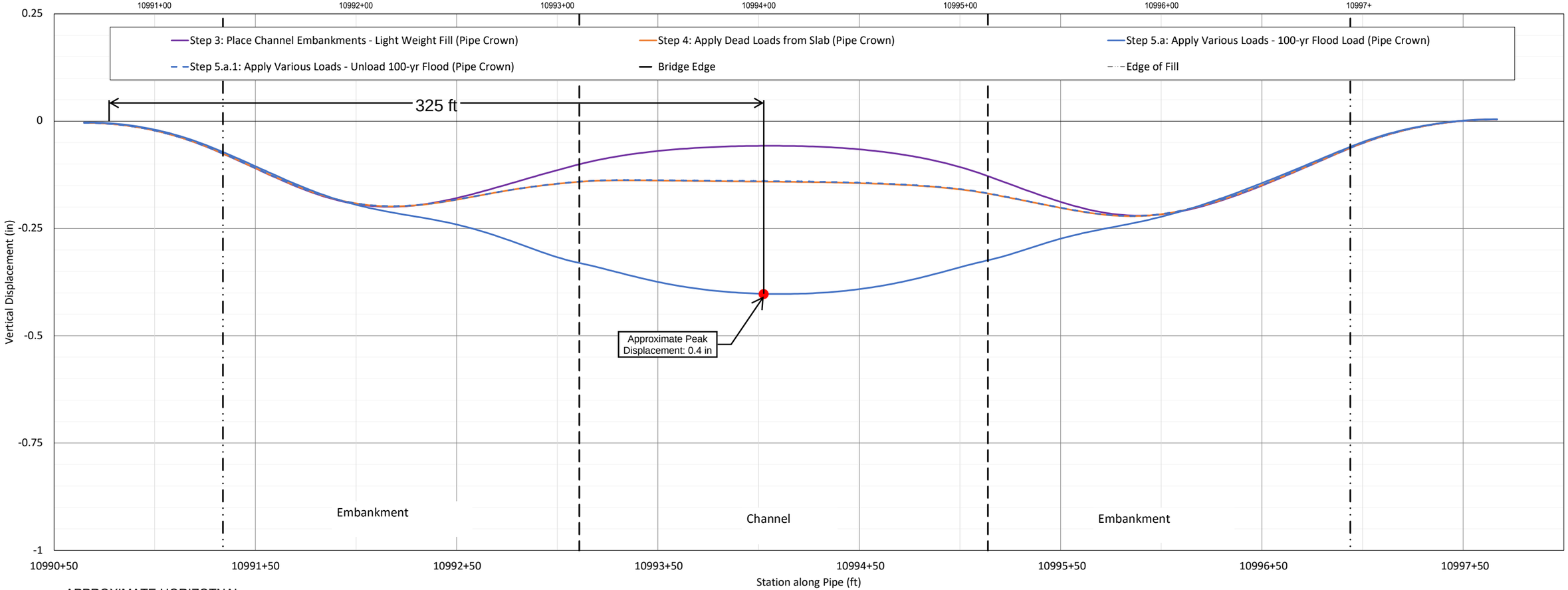

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

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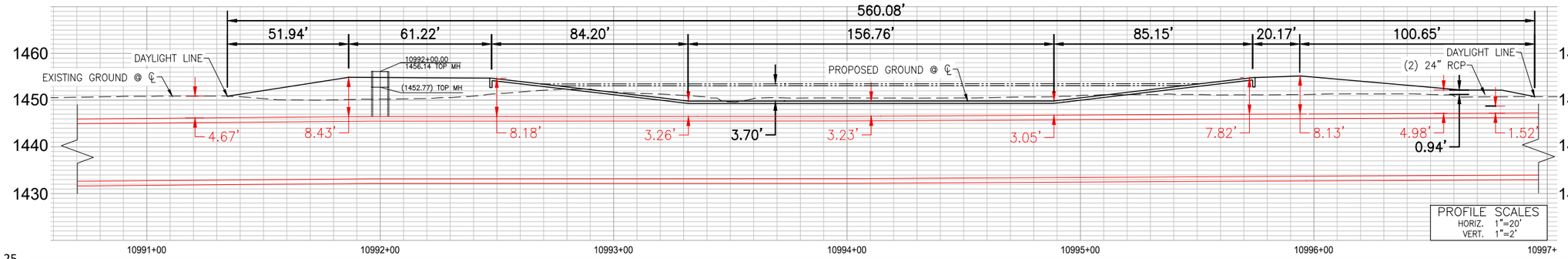
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement Step 3 to 5.a.1: 100-yr Flood Load Sequence

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E42

MWD BARREL NO 1 PROFILE



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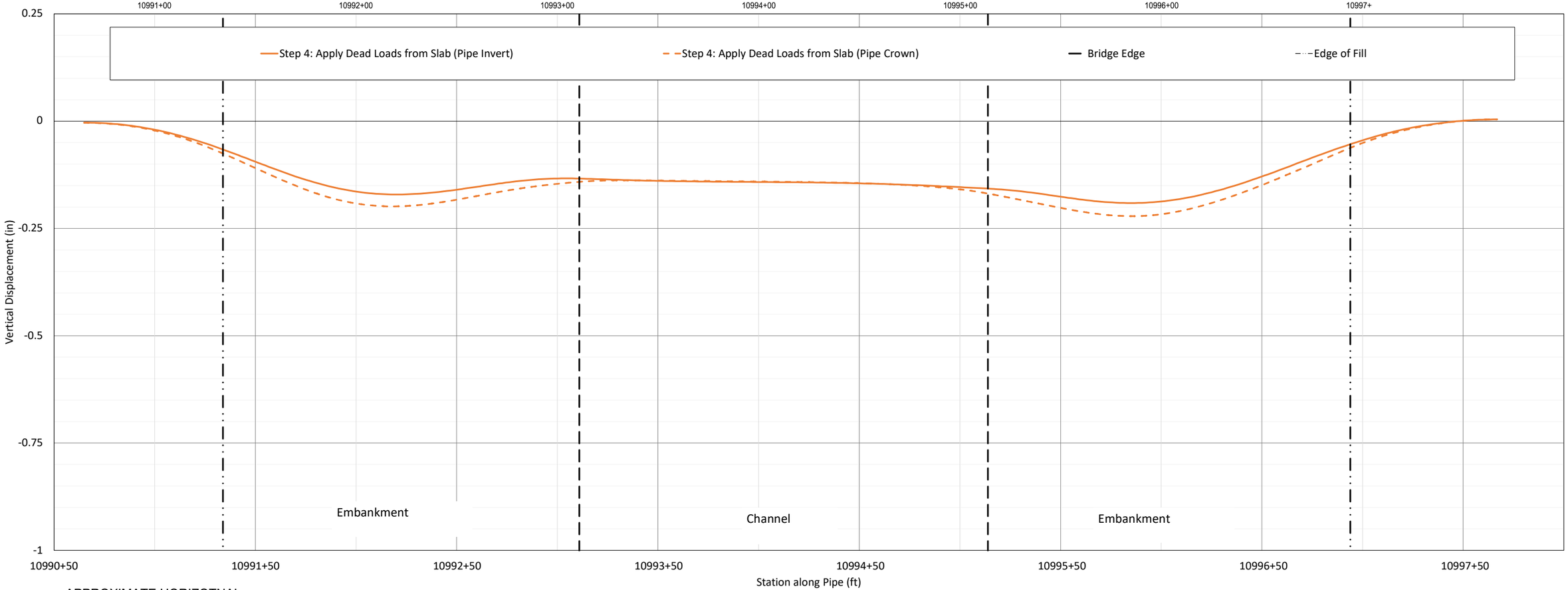

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0 25 50 100

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DRAWN:	02/2025
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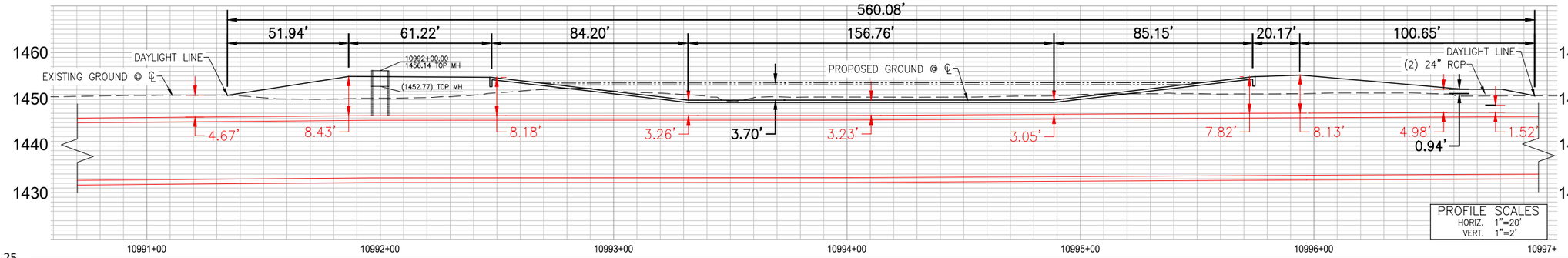
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 4: Apply Dead Loads from Slab

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E43

MWD BARREL NO 1 PROFILE



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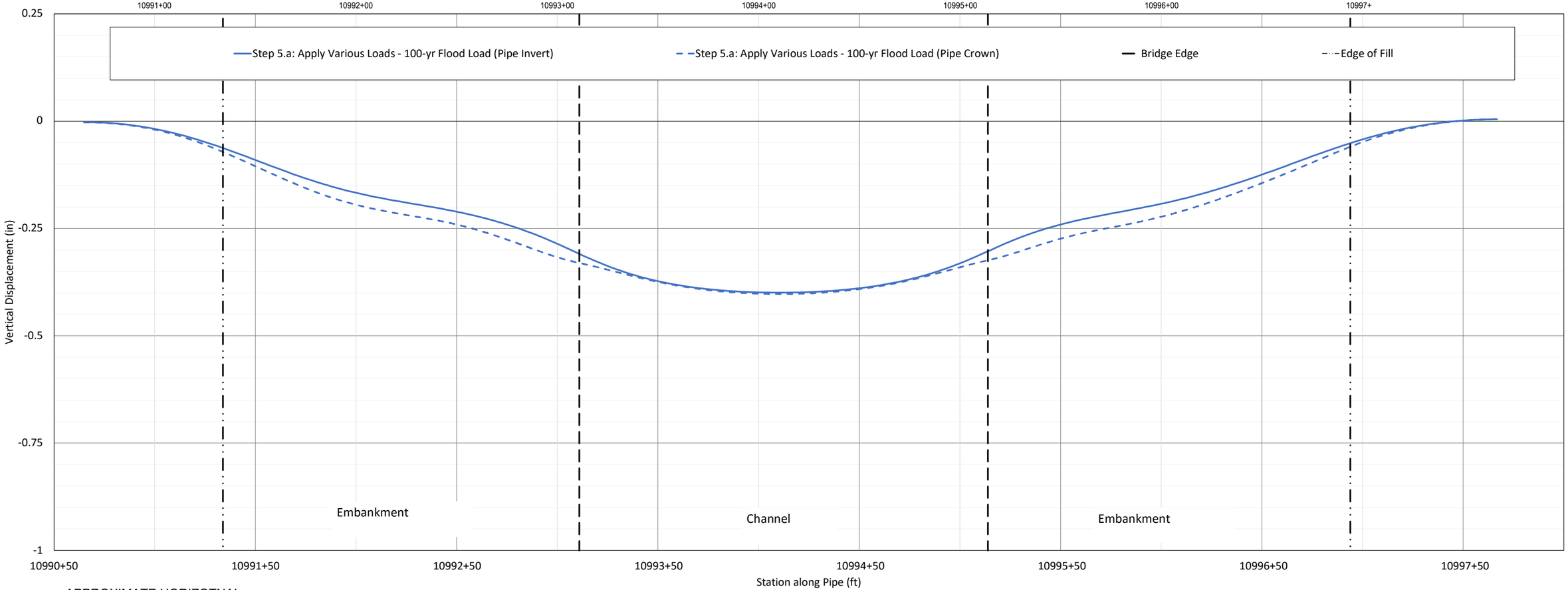

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

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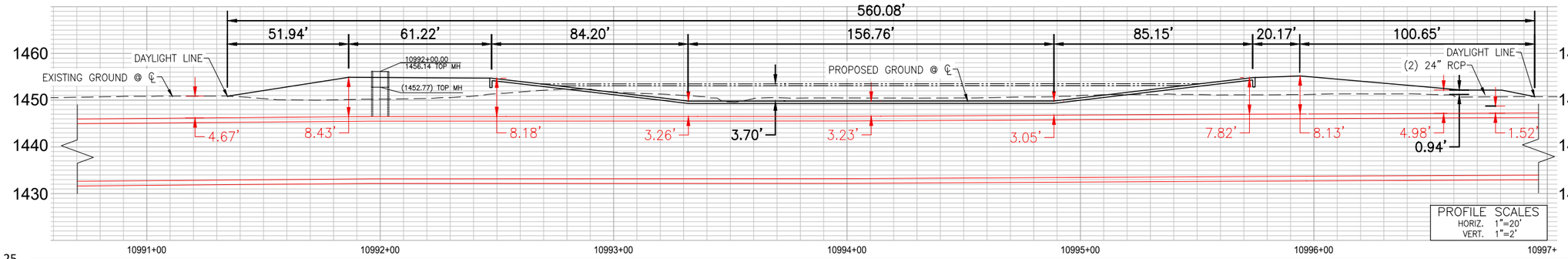
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 5.a: 100-yr Flood Load

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E44

MWD BARREL NO 1 PROFILE



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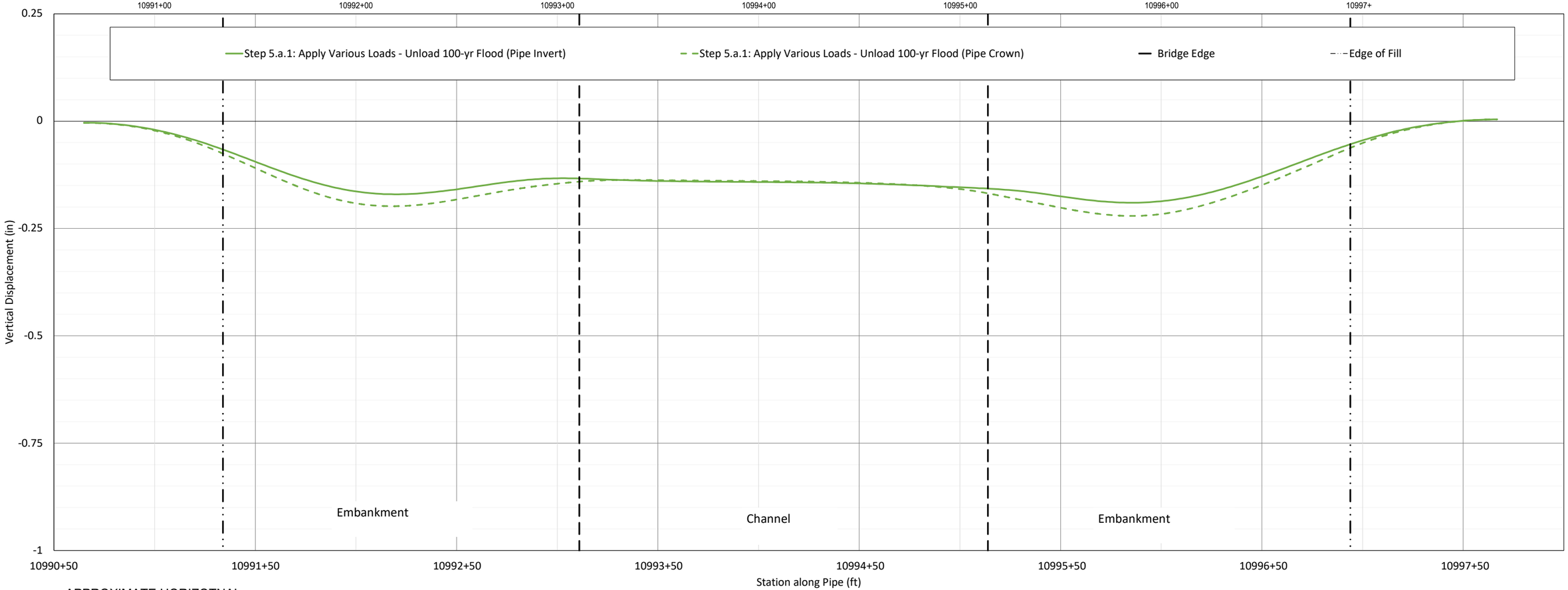

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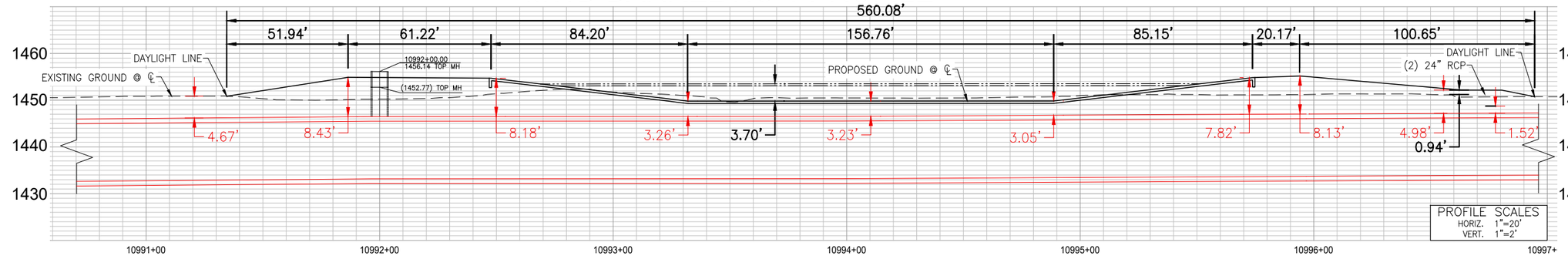
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Vertical Displacement
Step 5.a.1: Remove 100-yr Flood Load

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E45

MWD BARREL NO 1 PROFILE



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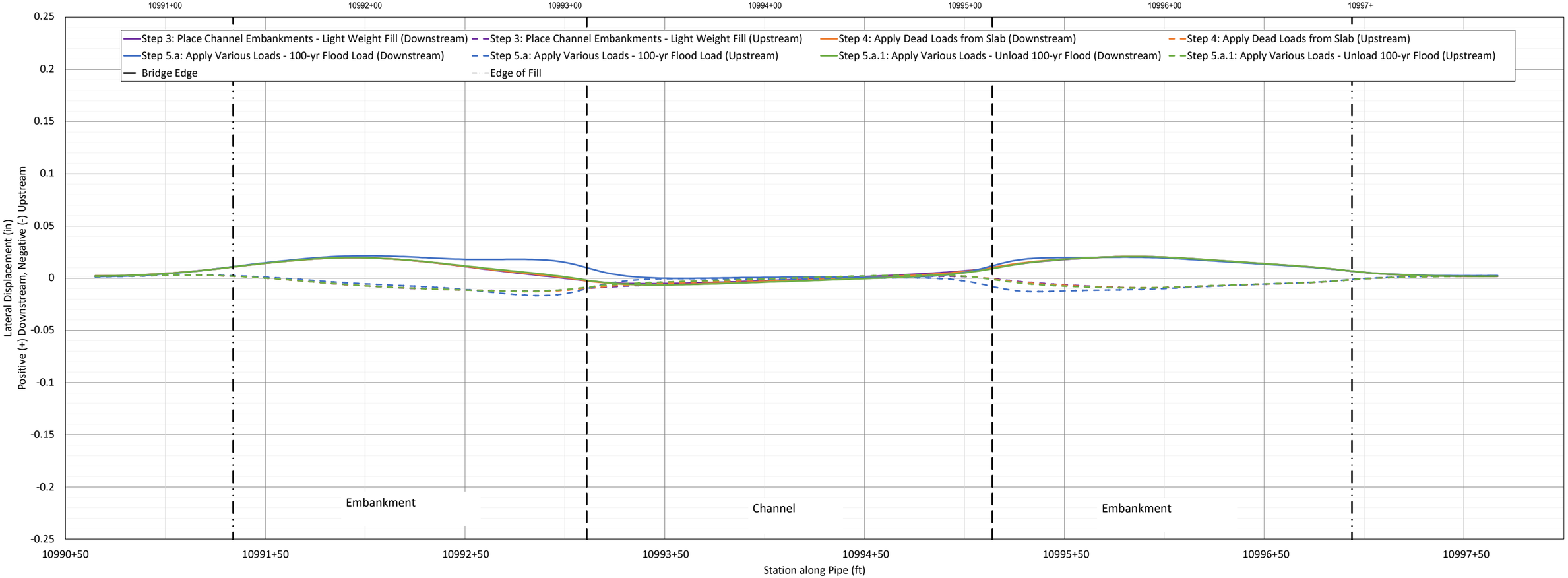

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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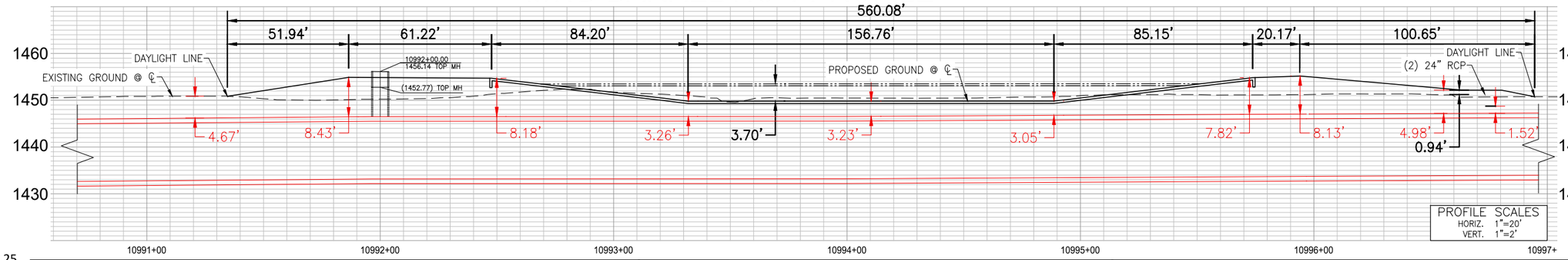
FILE NAME:	ANALYSIS FIGURES

Model Results - Lateral Displacement Step 3 to 5.a.1: 100-yr Flood Load Sequence

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E46

MWD BARREL NO 1 PROFILE



Notes:
1. Original profile provided by Albert A. Webb Associates (Webb), dated 2/3/2025.
2. Scale is modified for reporting purposes (40% of original).
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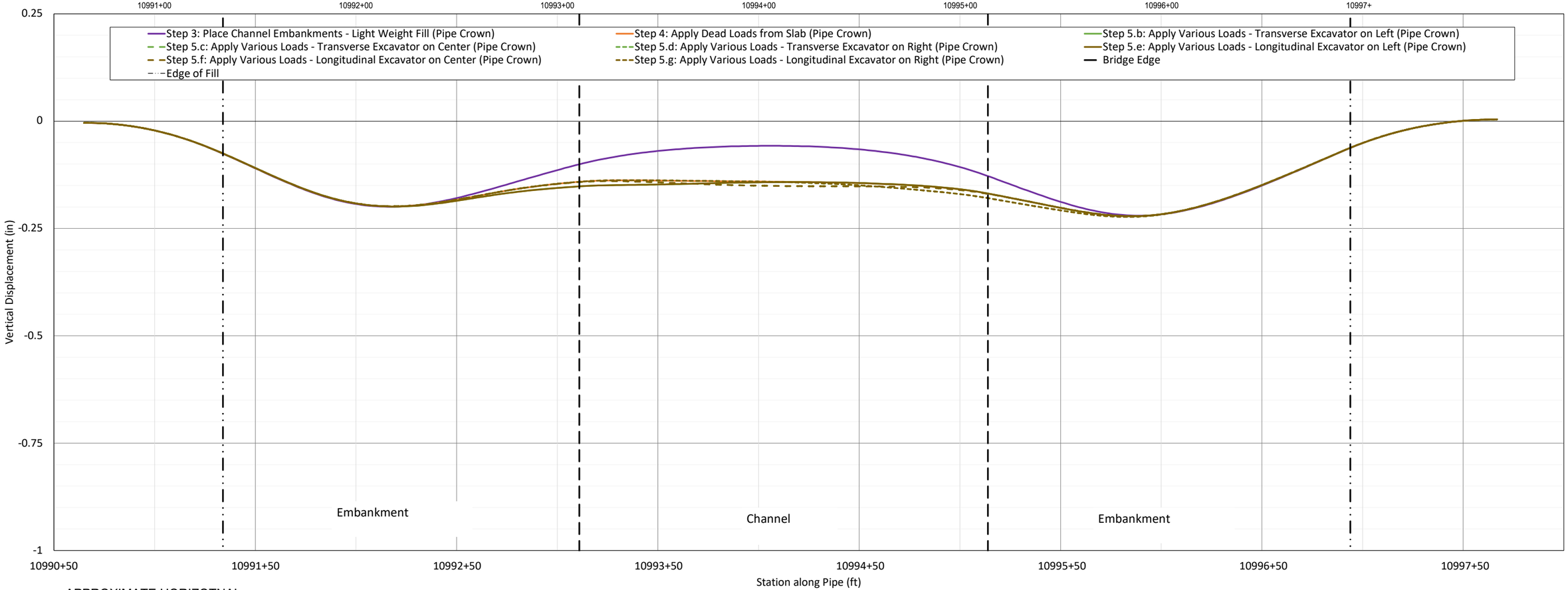
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

VERTICAL NOT TO SCALE

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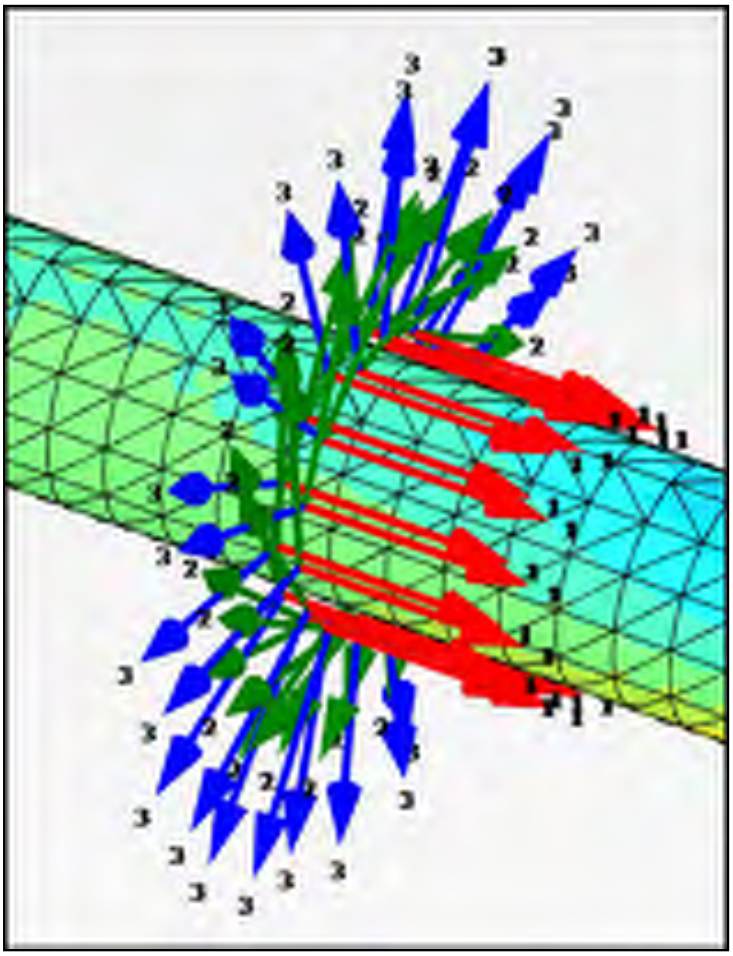
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

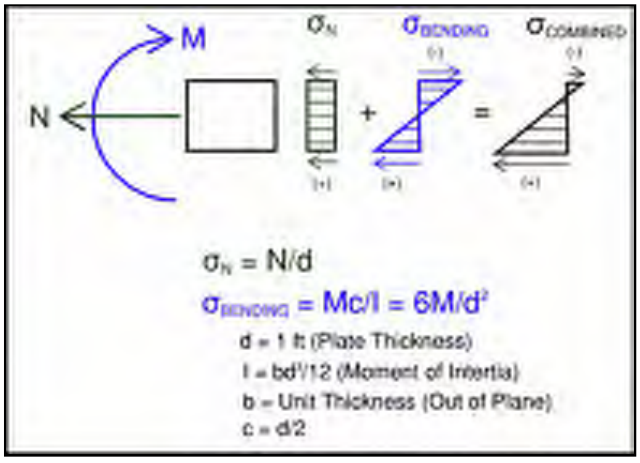
Model Results - Vertical Displacement Step 5.b to 5.g: Various Equipment Load Cases

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E47



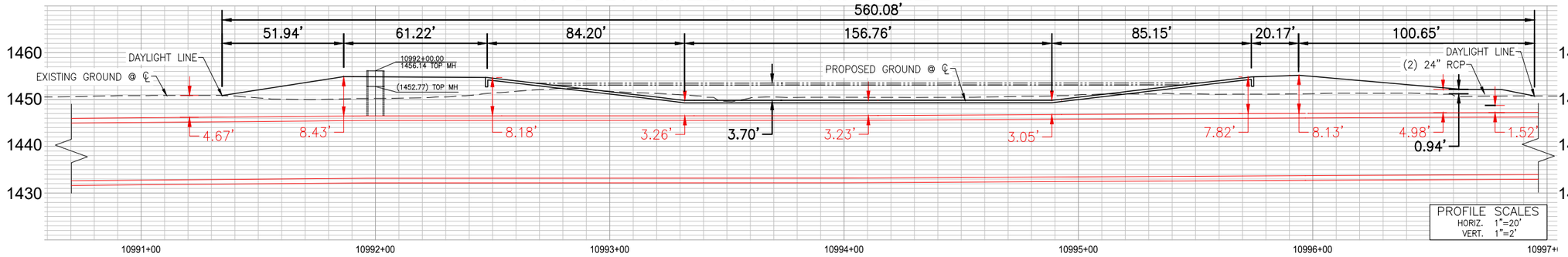
a: PLAXIS Local Axes for MWD Pipe Stresses



b: Converting PLAXIS Output Forces to Stresses

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO. 24002328.001A DRAWN: 10/2024 DRAWN BY: T. Covill CHECKED BY: M. Talebi FILE NAME: ANALYSIS FIGURES	**PLAXIS Local Axes for Pipe Stresses & Conversion of Output Forces to Stresses** San Jacinto Line E Storm Drain Metropolitan Water District Casa Loma Barrel No. 1 Crossing San Jacinto, California	FIGURE: **E48**

MWD BARREL NO 1 PROFILE



Notes:
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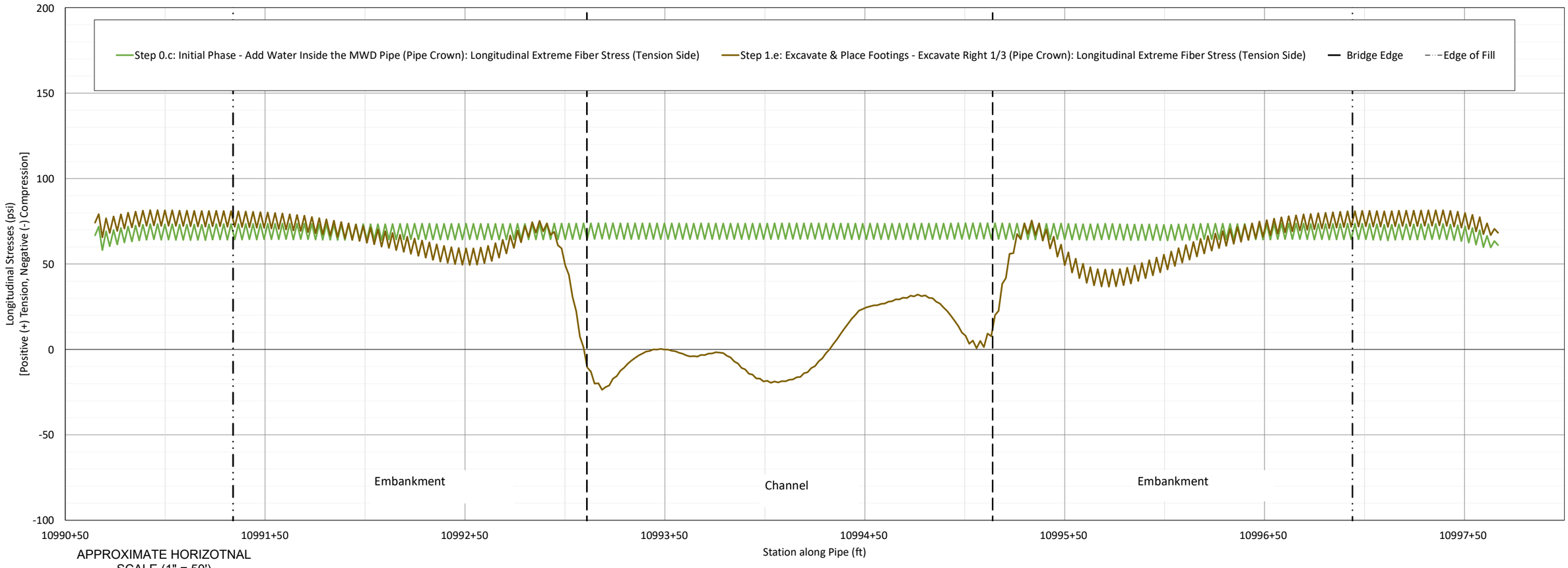
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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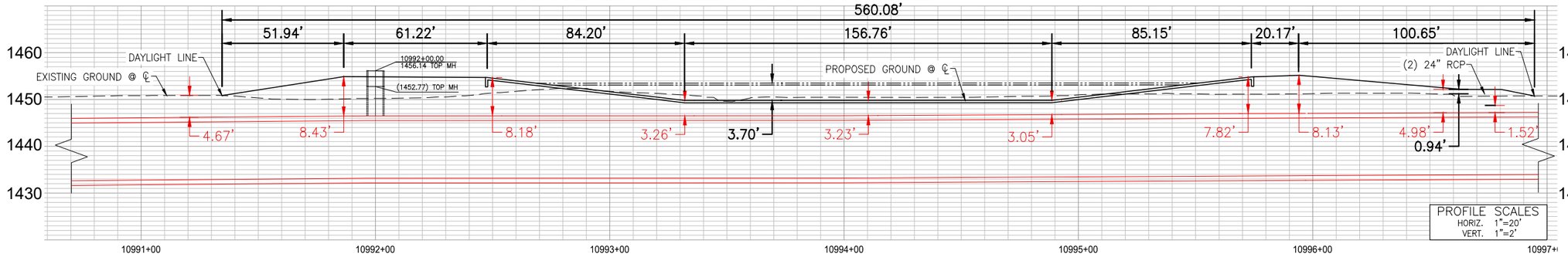
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Crown
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E49

MWD BARREL NO 1 PROFILE



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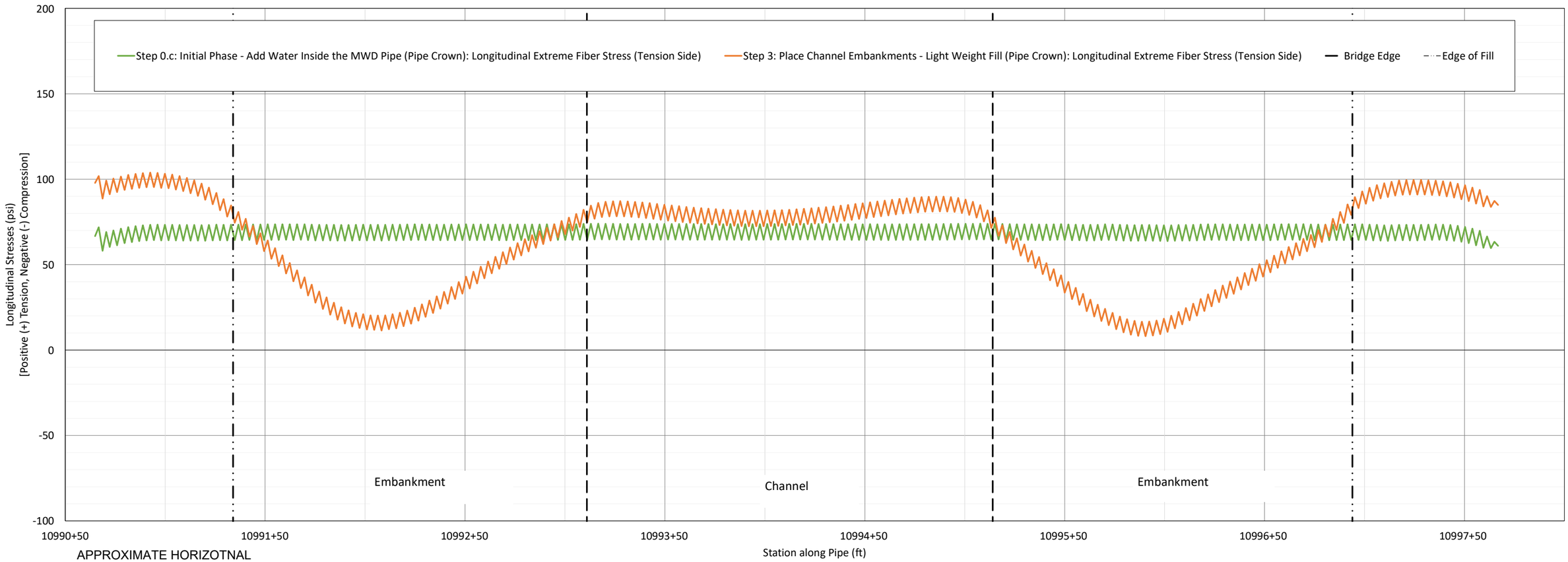
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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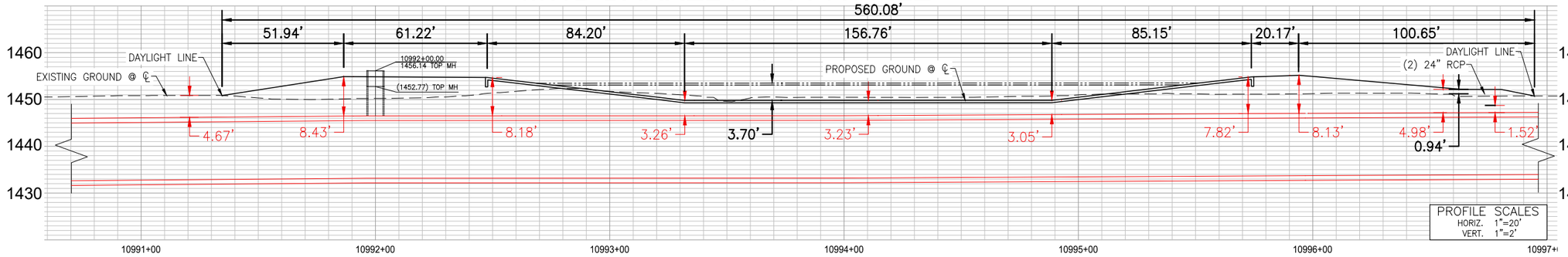
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Crown
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E50

MWD BARREL NO 1 PROFILE



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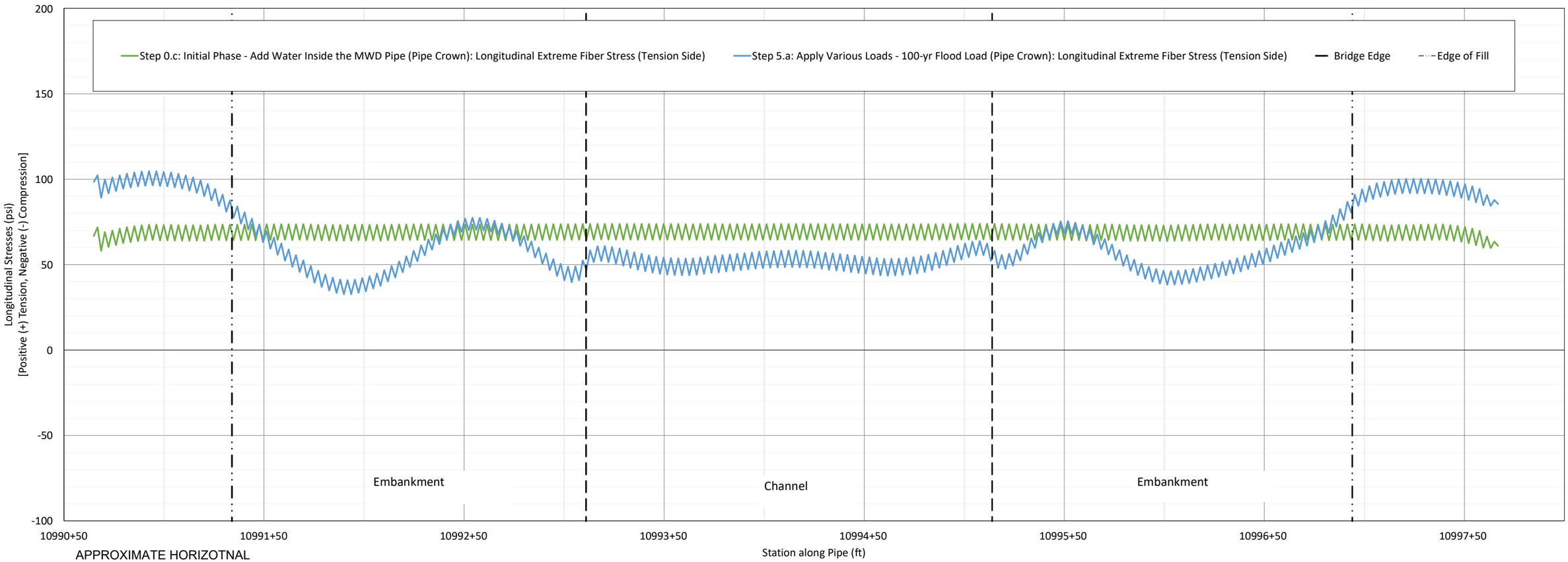

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SCALE (1" = 50')

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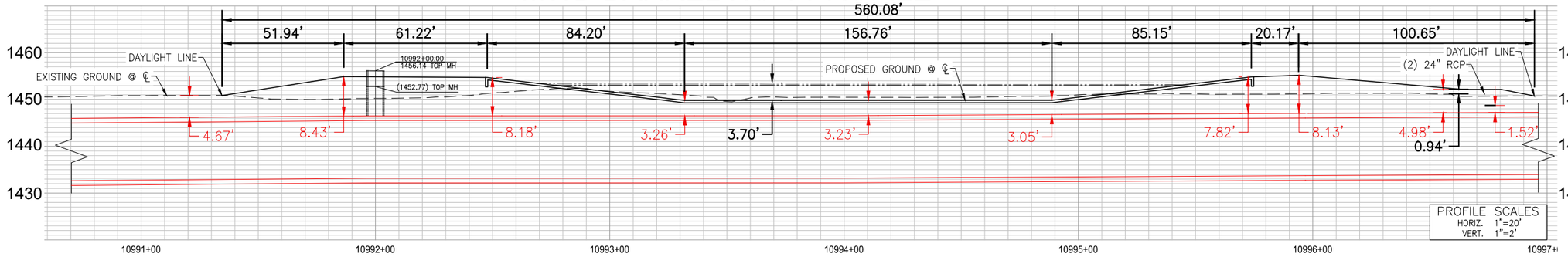
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Crown
Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E51

MWD BARREL NO 1 PROFILE



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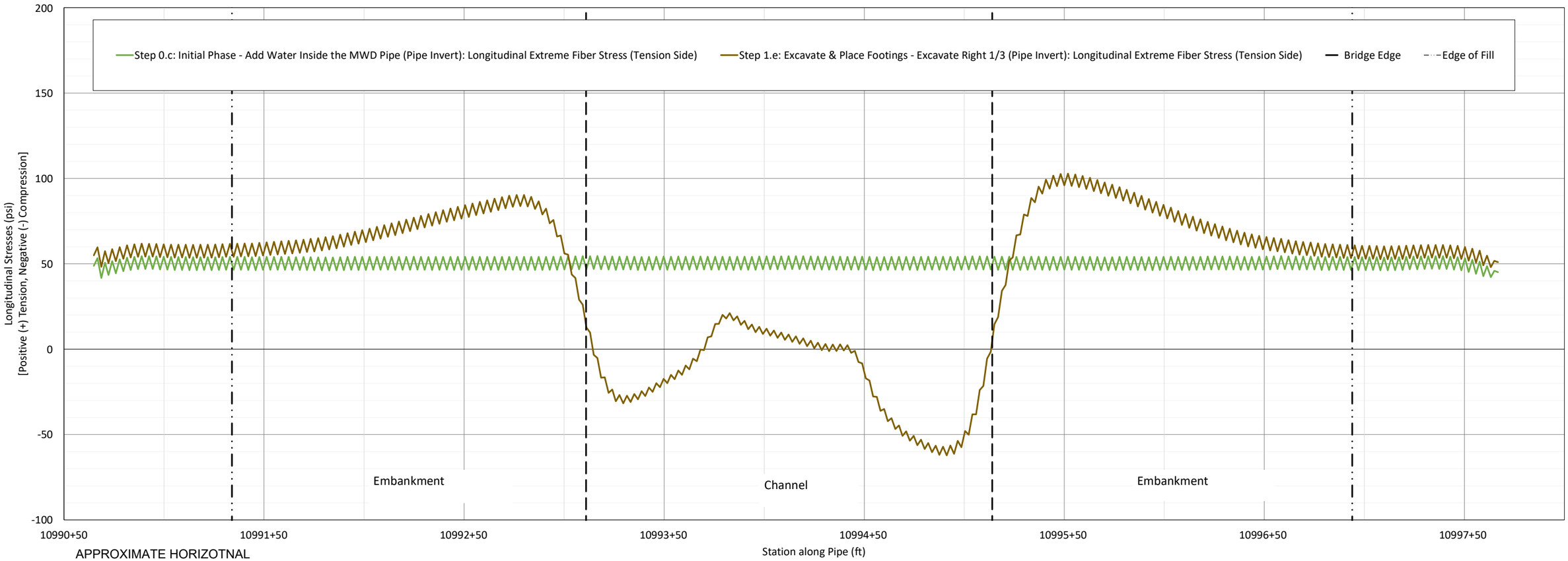

APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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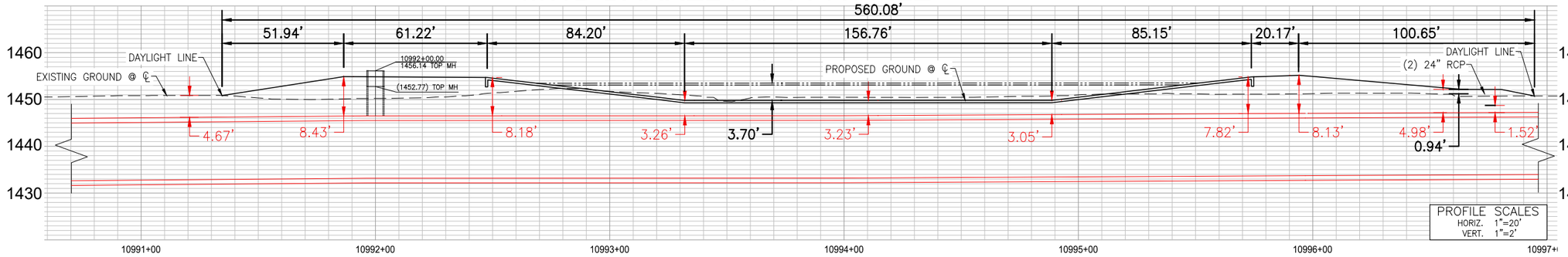
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Invert
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E52

MWD BARREL NO 1 PROFILE



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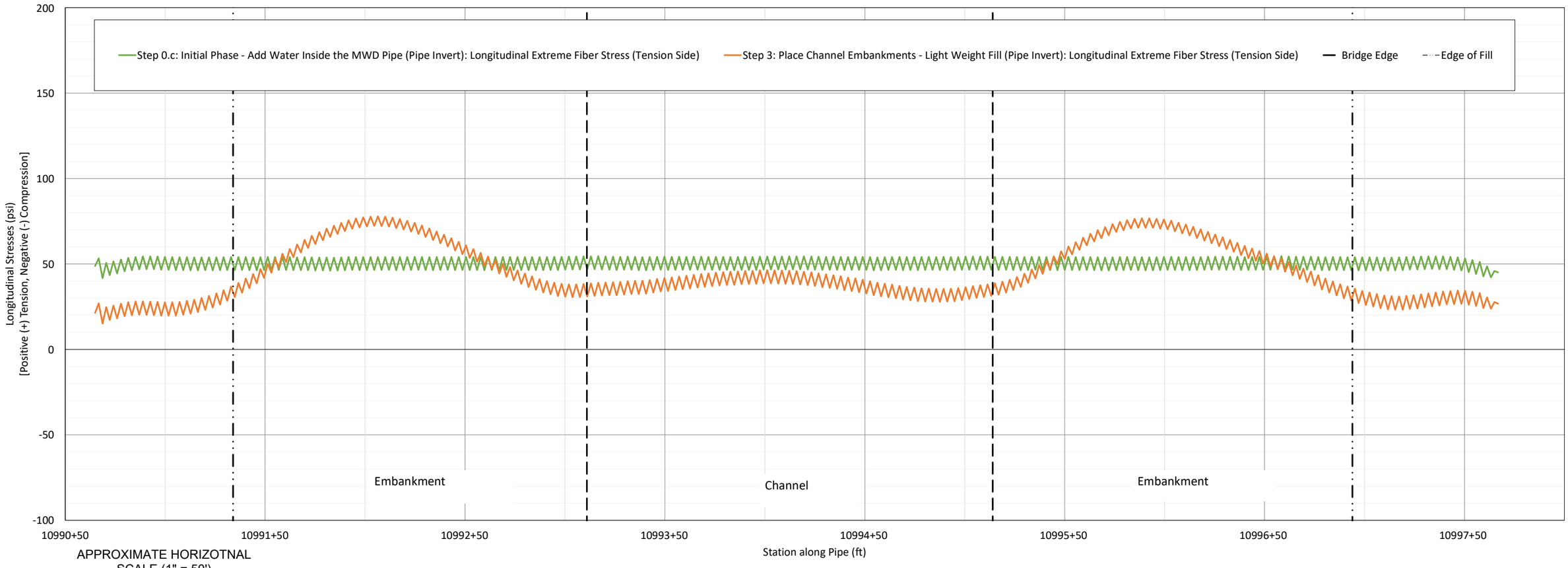

APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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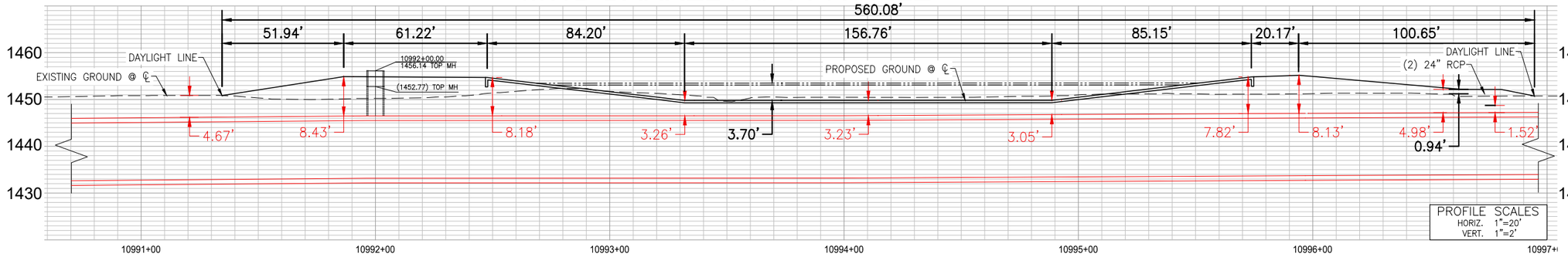
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Invert
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E53

MWD BARREL NO 1 PROFILE



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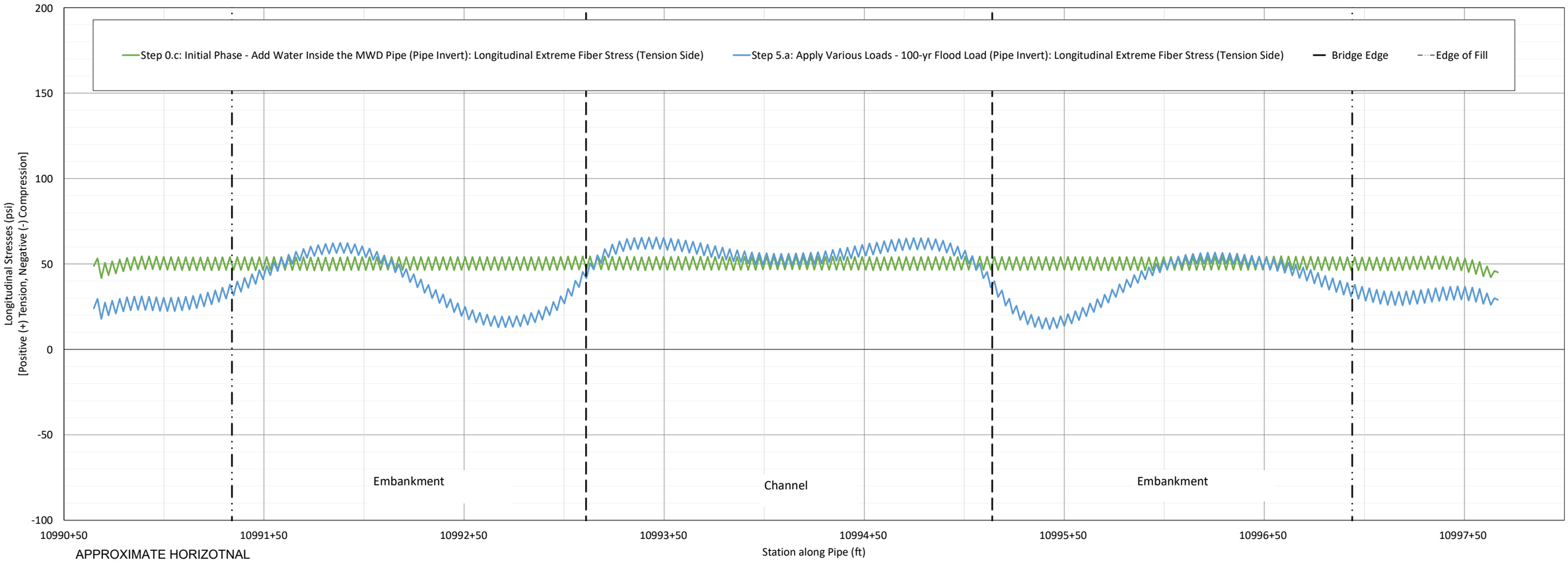

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0 25 50 100

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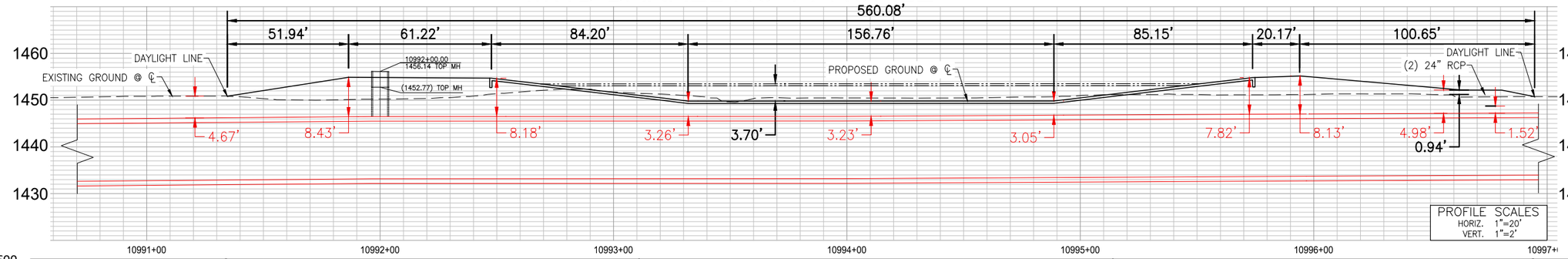
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Longitudinal Stress at Pipe Invert
Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E54

MWD BARREL NO 1 PROFILE



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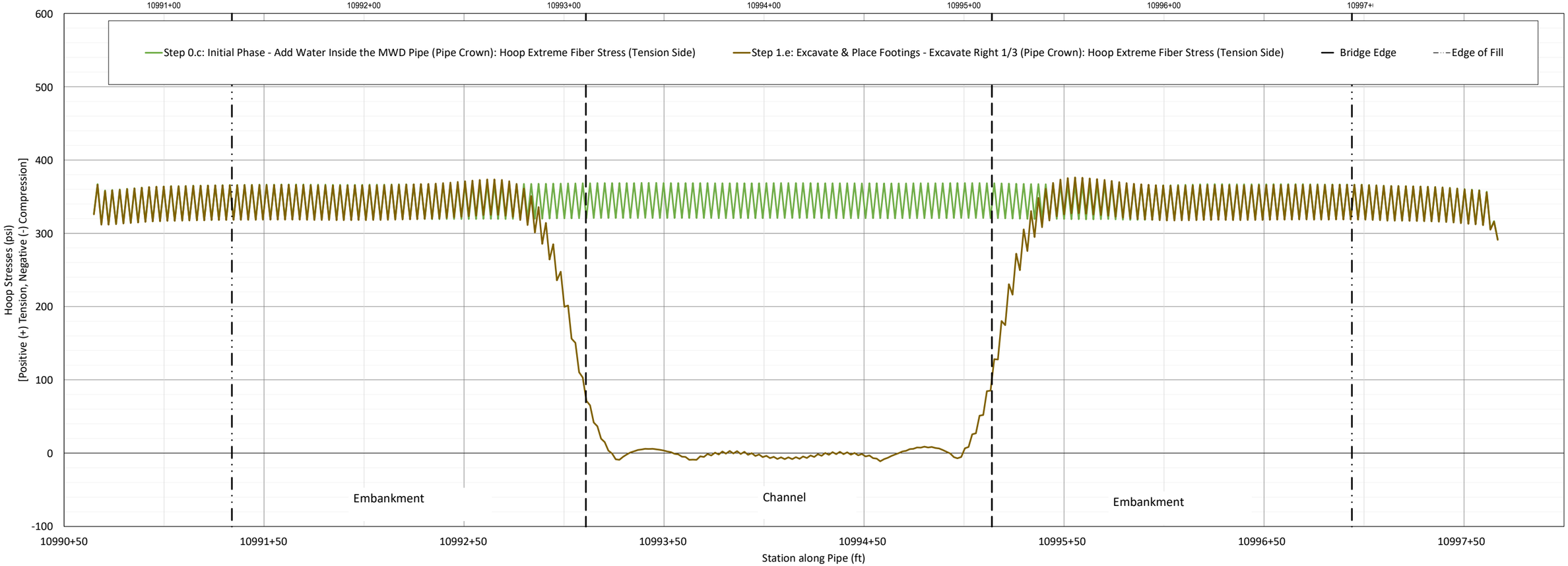

APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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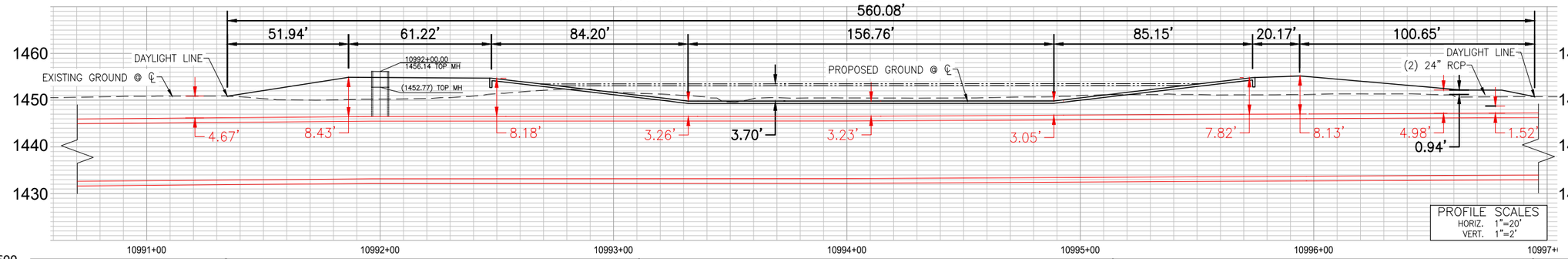
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E55

MWD BARREL NO 1 PROFILE



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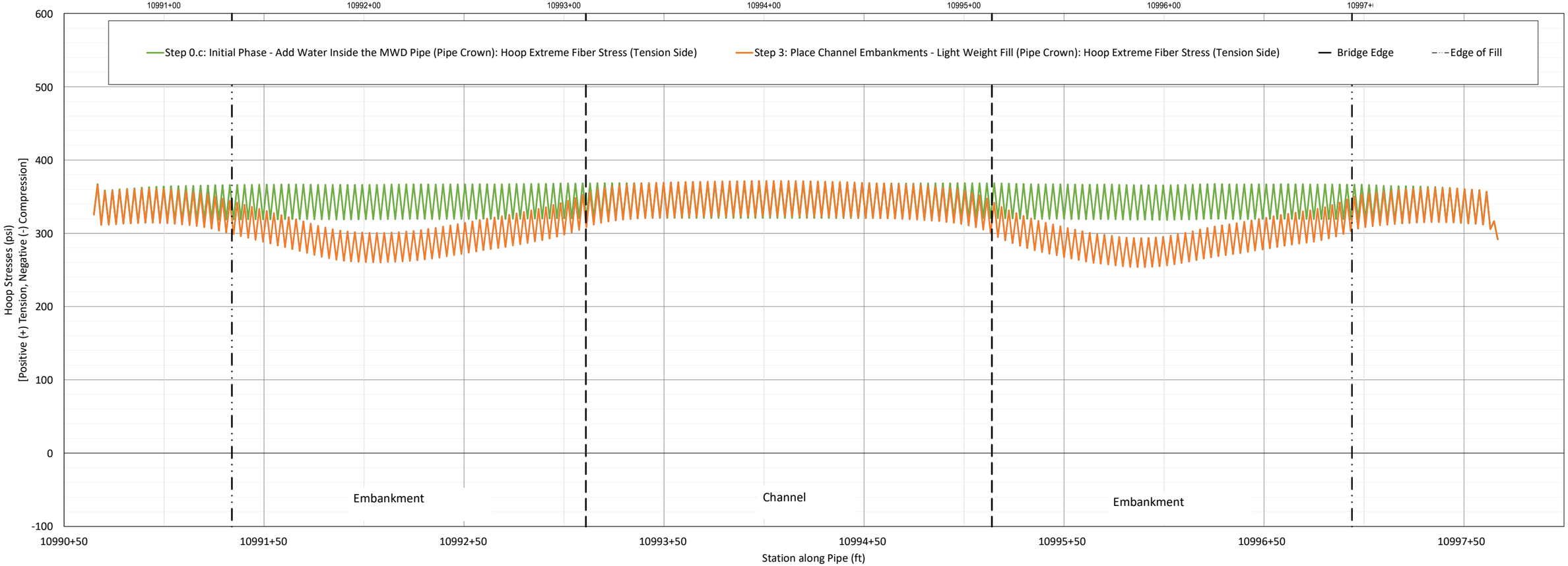

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SCALE (1" = 50')

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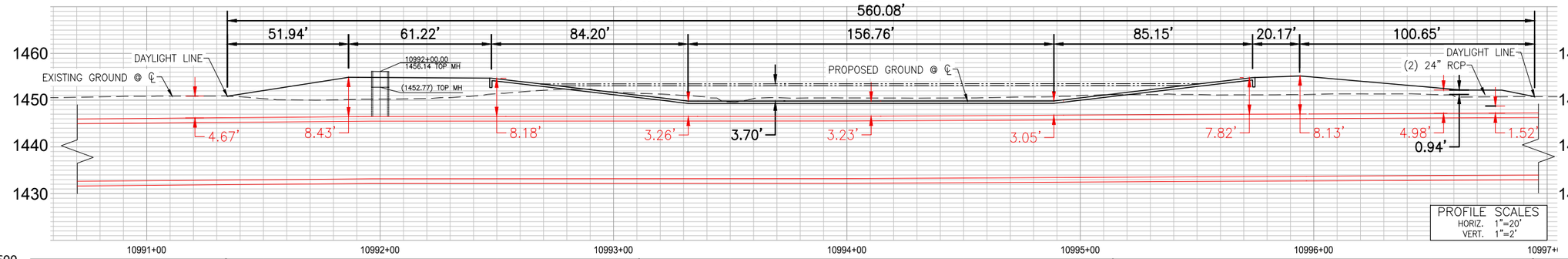
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown
Step 3: Place Channel Embankments

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E56

MWD BARREL NO 1 PROFILE



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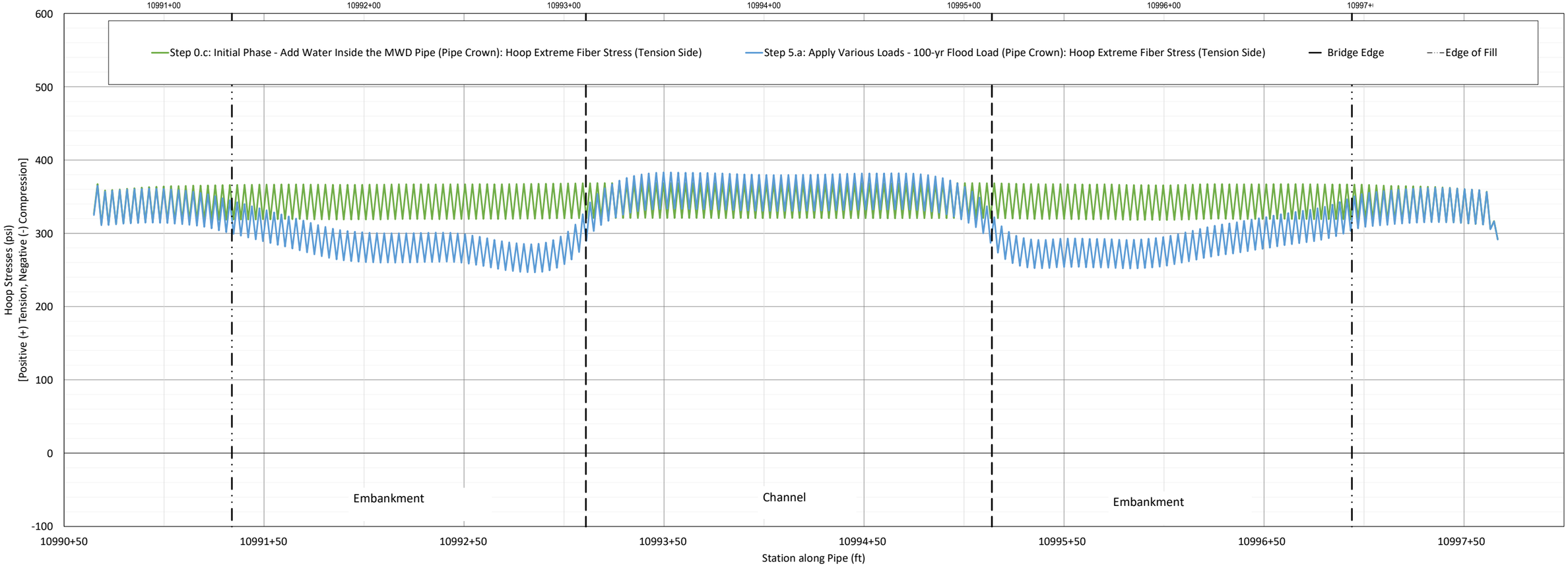

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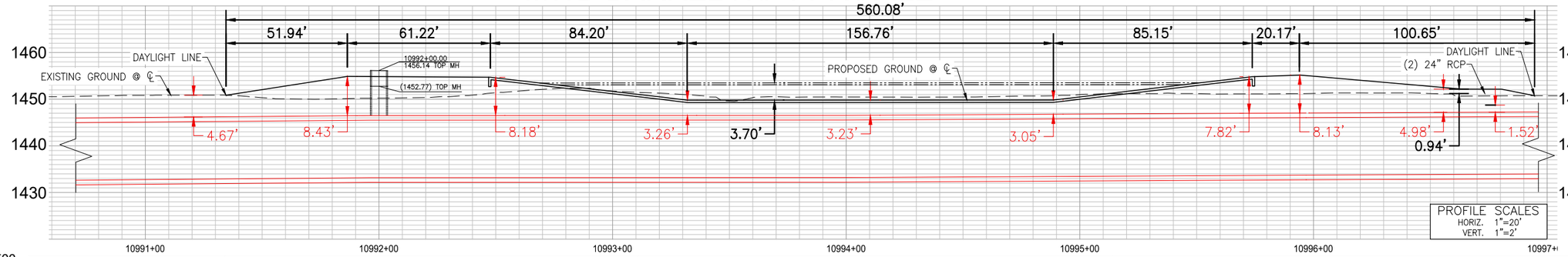
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E57

MWD BARREL NO 1 PROFILE



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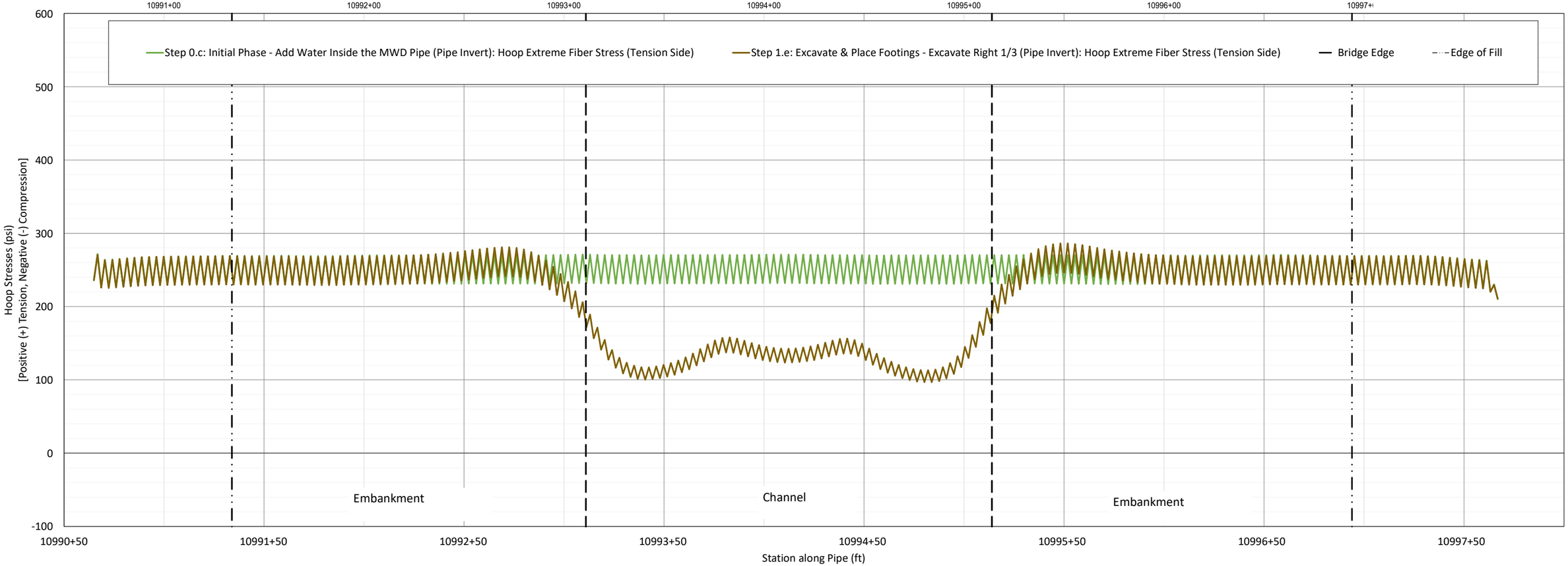

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SCALE (1" = 50')

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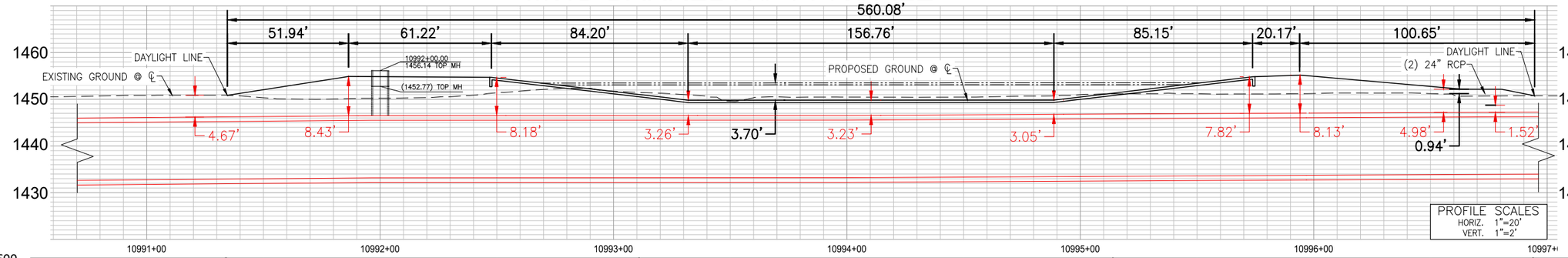
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Invert
Step 1e: Excavate and Place Footings

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E58

MWD BARREL NO 1 PROFILE



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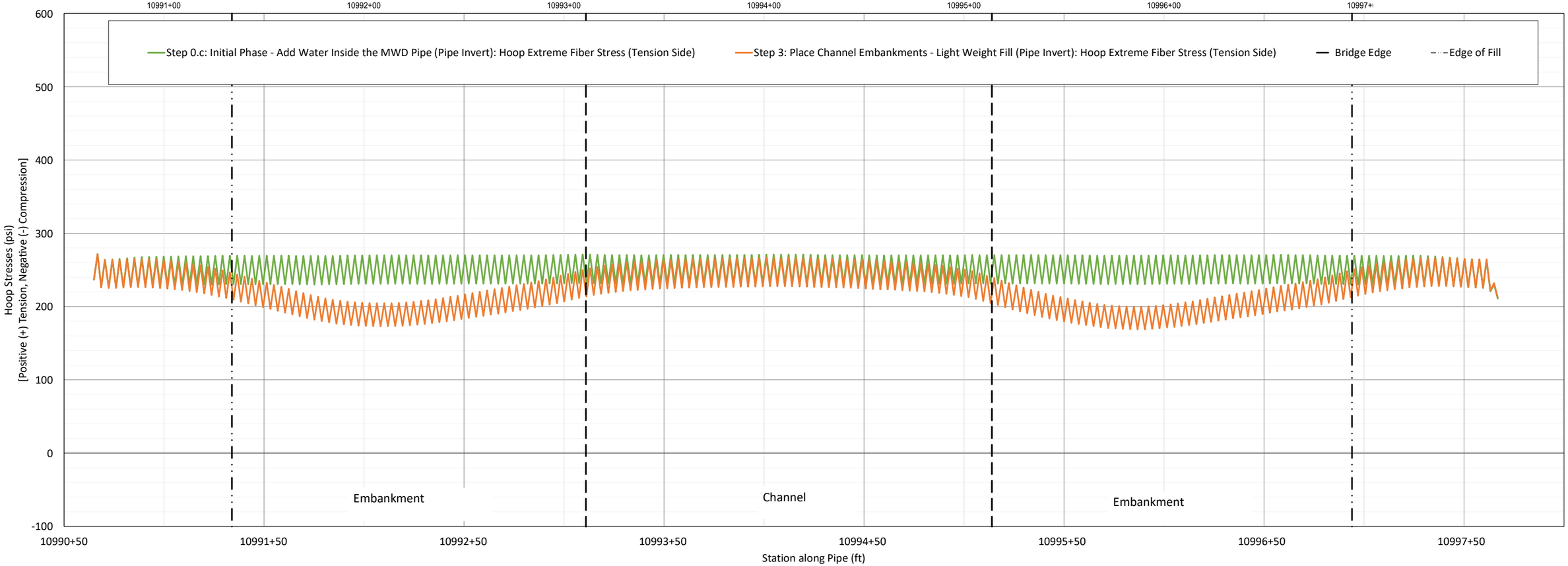

APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

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DRAWN:	02/2025
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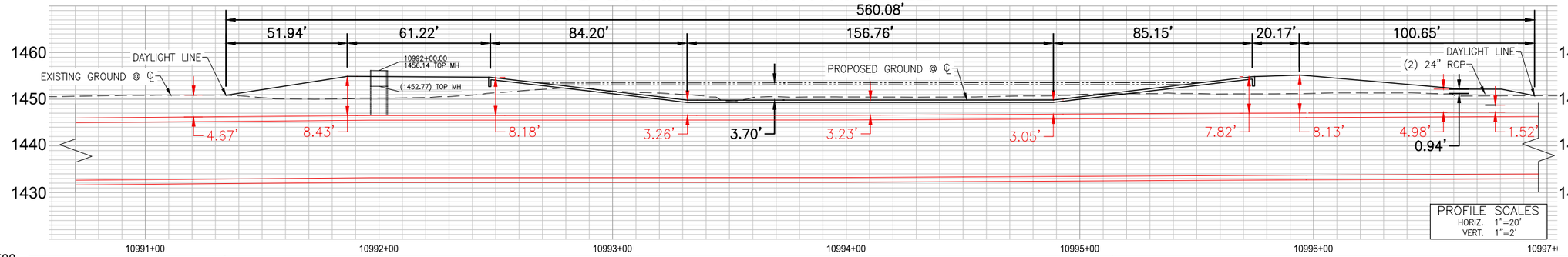
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Invert
Step 3: Place Channel Embankments

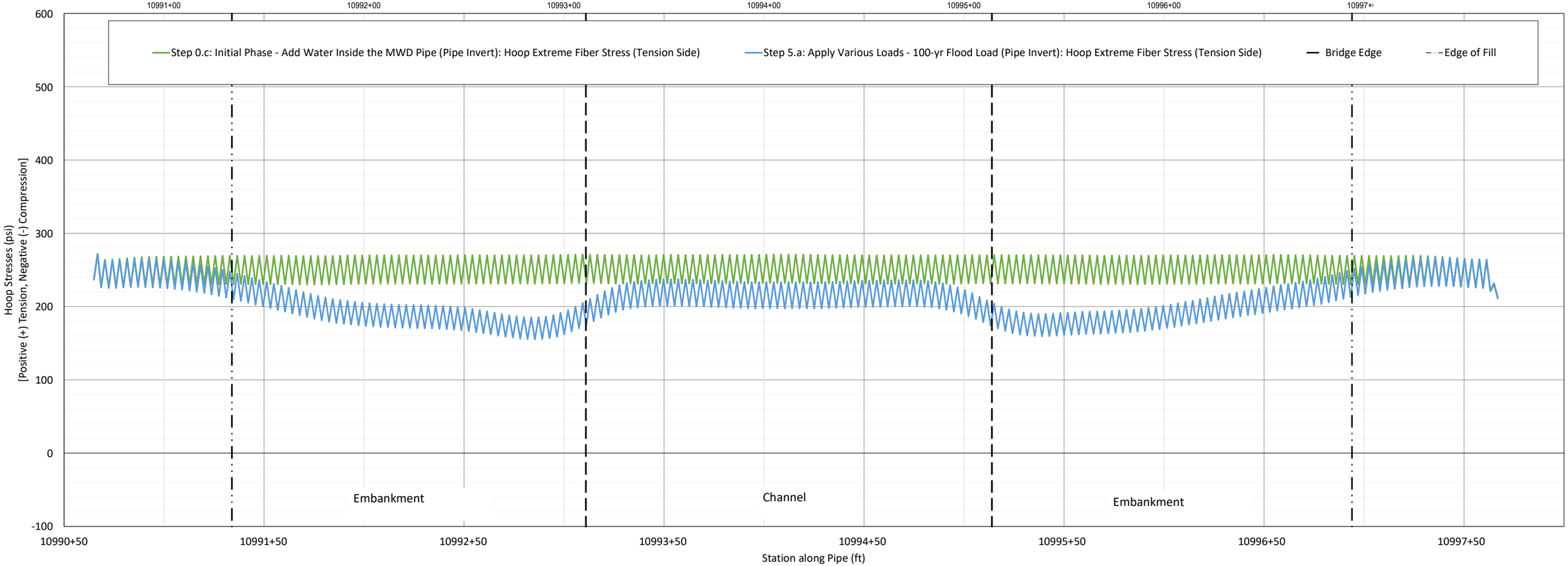
San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E59

MWD BARREL NO 1 PROFILE



Notes:
1. Original profile provided by Albert A. Webb Associates (Webb), dated 2/3/2025.
2. Scale is modified for reporting purposes (40% of original).
Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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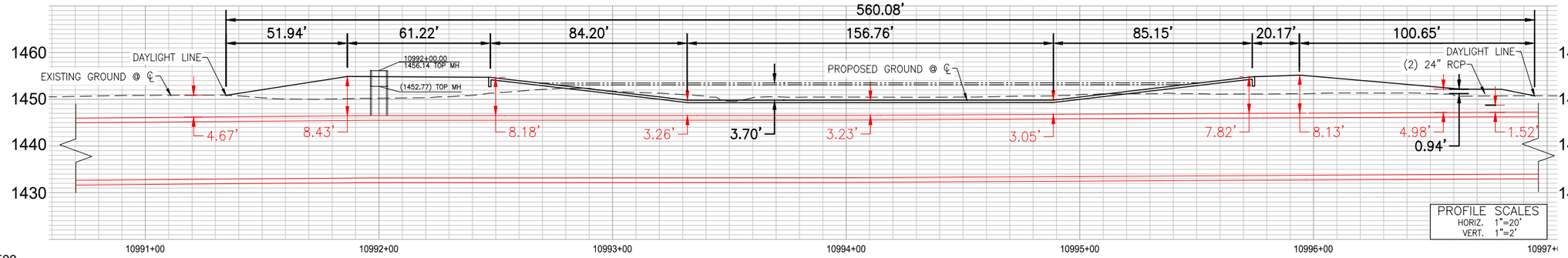
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress at Pipe Crown
Step 5a: Apply Various Loads - 100 yr Flood

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E60

MWD BARREL NO 1 PROFILE



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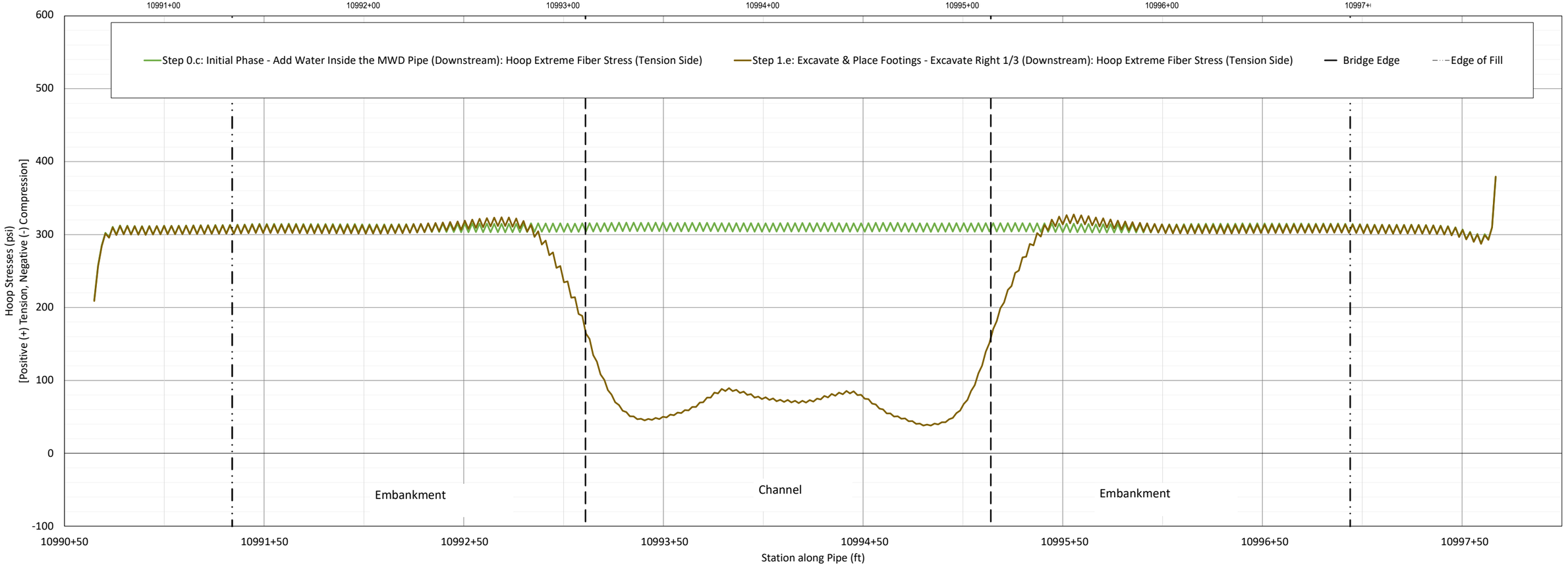

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0 25 50 100

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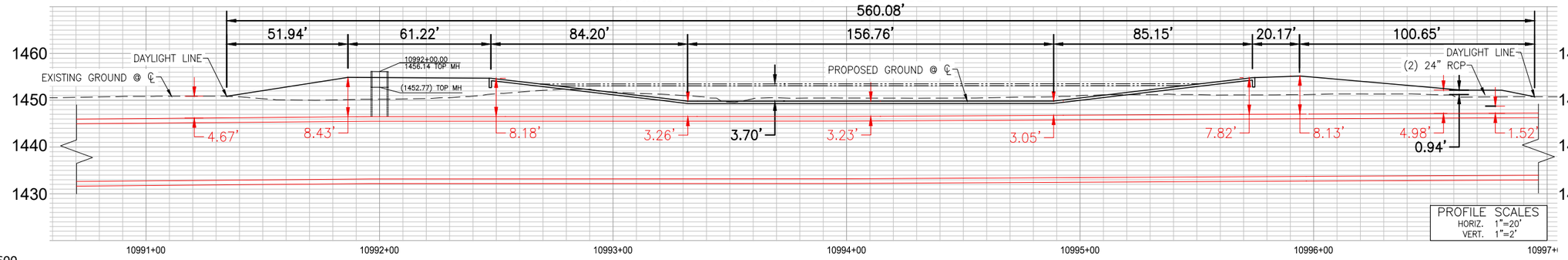
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 1.e: Excavate & Place Footings
Excavate Right 1/3 (Downstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E61

MWD BARREL NO 1 PROFILE



Notes:
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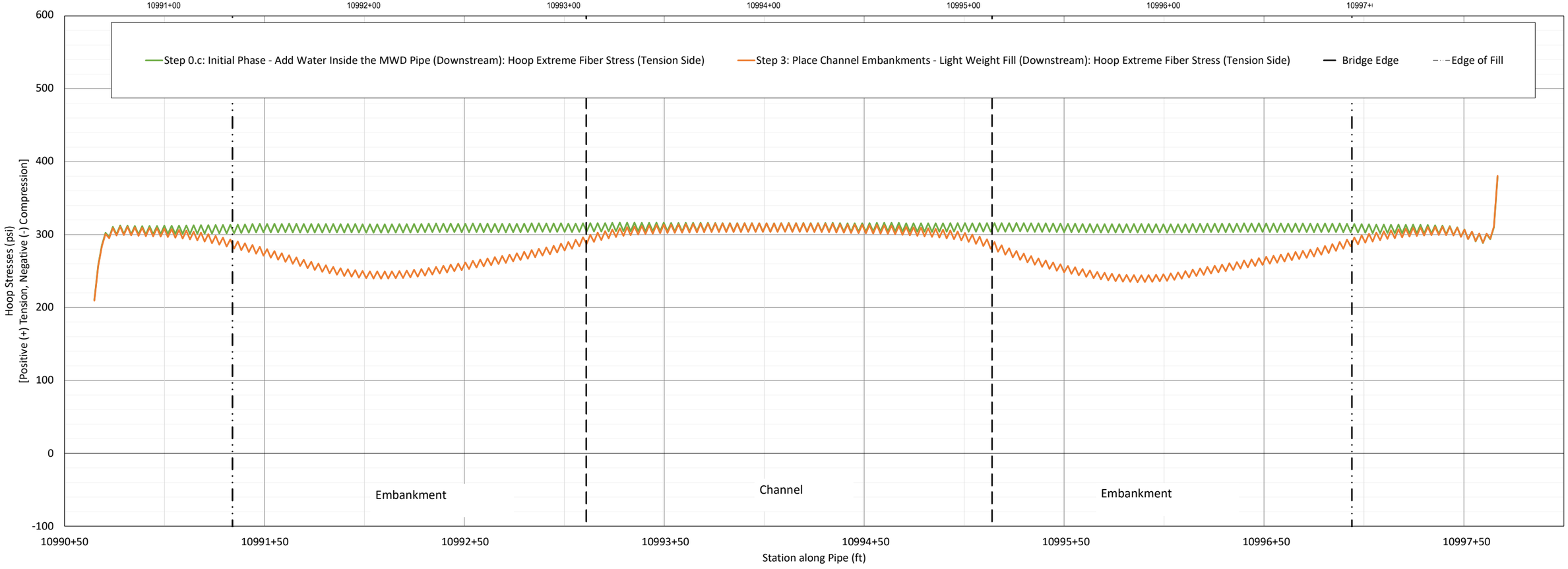

APPROXIMATE HORIZOTNAL
SCALE (1" = 50')

0 25 50 100

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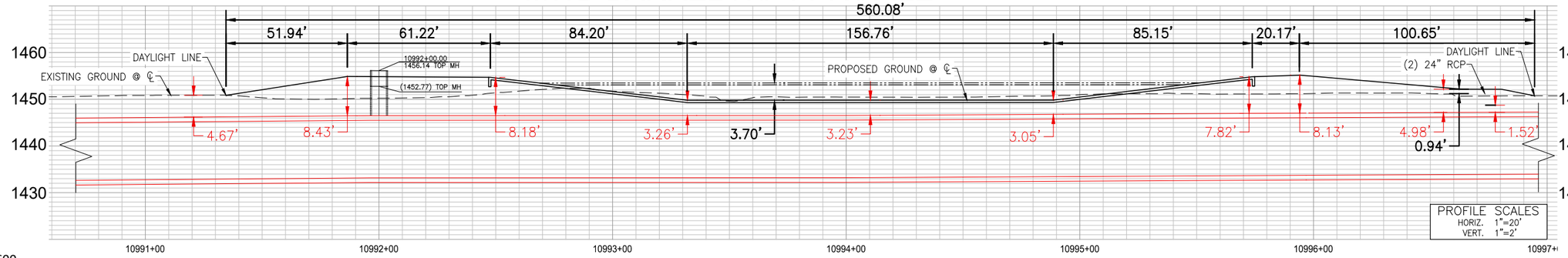
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 3: Place Channel Embankments
Light Weight Fill (Downstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E62

MWD BARREL NO 1 PROFILE



Notes:
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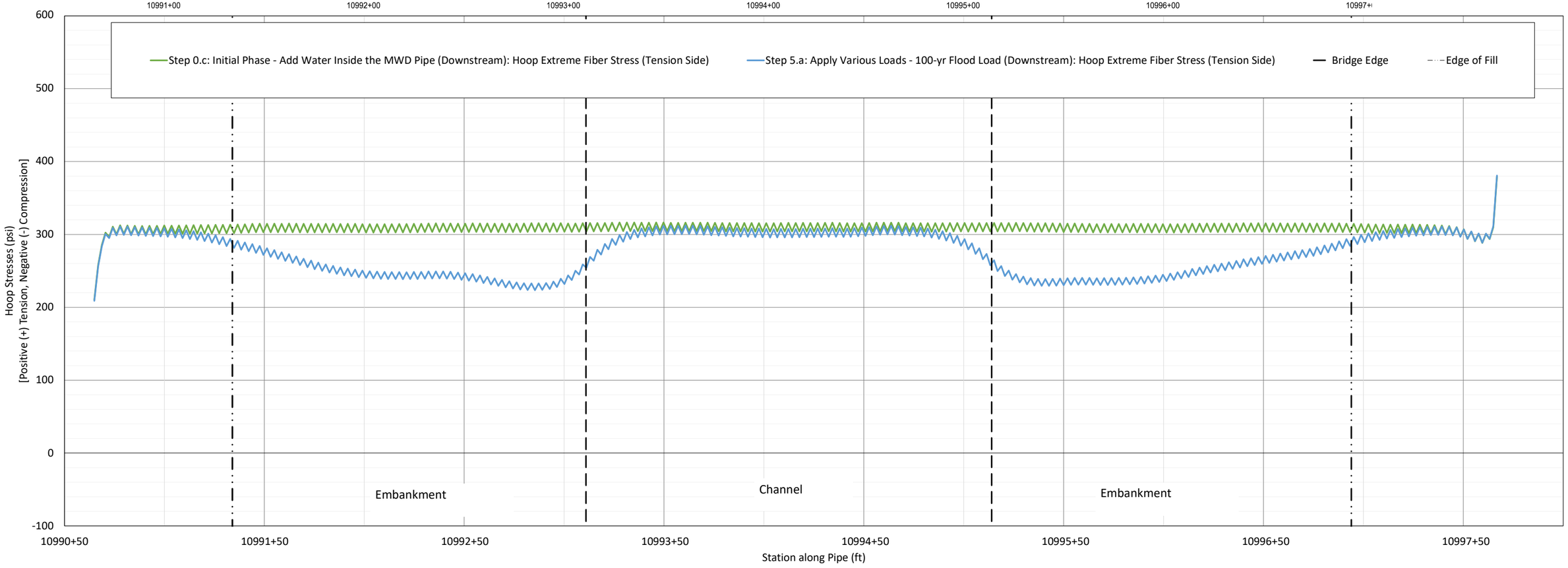
Vertical Scale: 1" = 5'



APPROXIMATE HORIZOTNAL SCALE (1" = 50')

0 25 50 100

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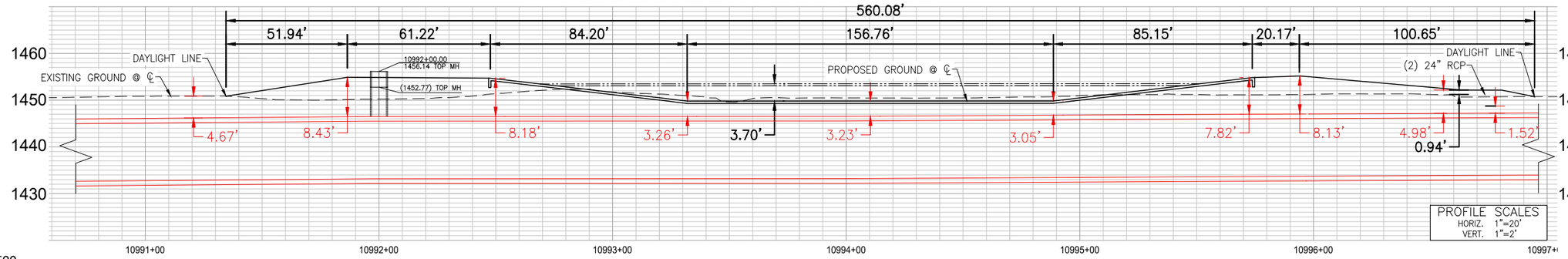
PROJECT NO.	24002328.001A
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 5a: Apply Various Loads
100-yr Flood Load (Downstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E63

MWD BARREL NO 1 PROFILE



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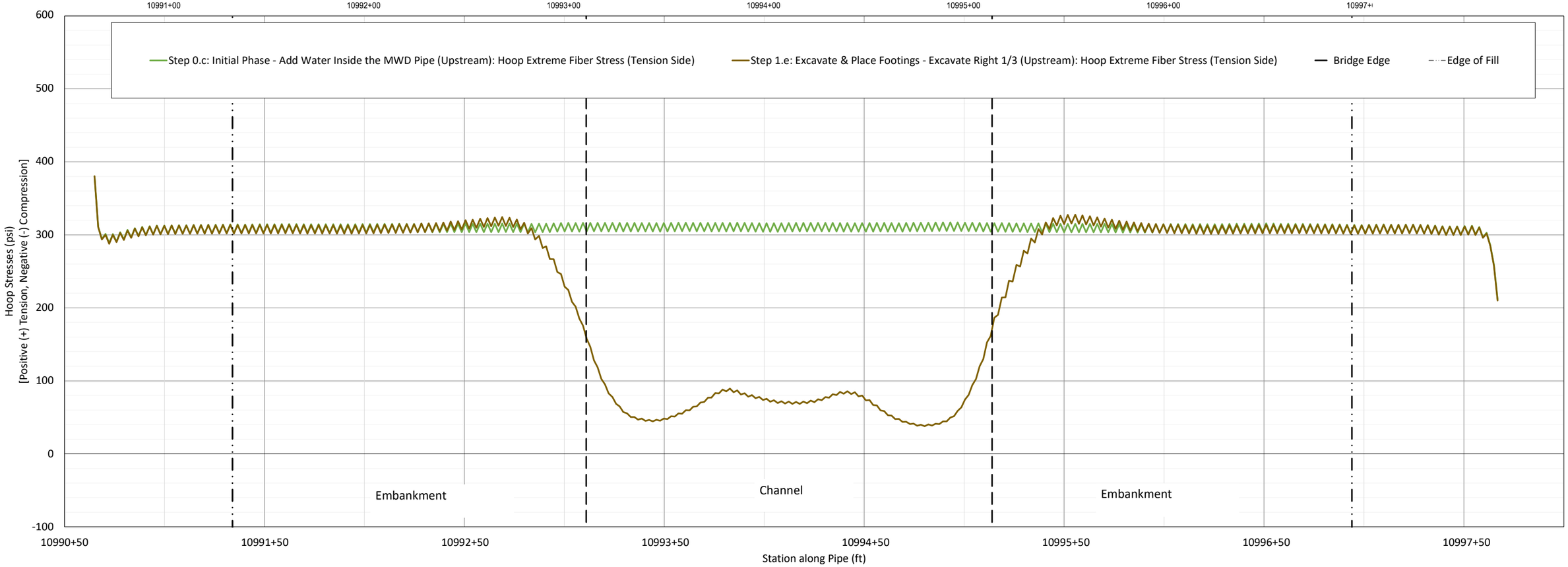

APPROXIMATE HORIZOTNAL SCALE (1" = 50')

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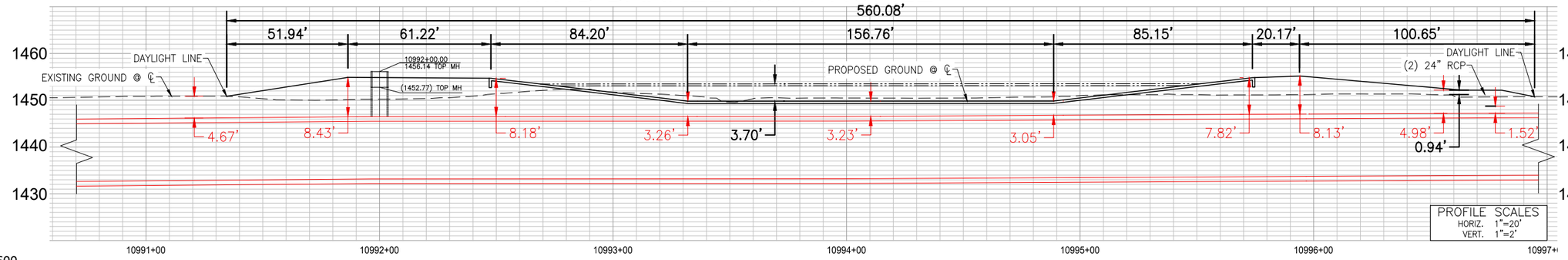
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 1.e: Excavate & Place Footings
Excavate Right 1/3 (Upstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E64

MWD BARREL NO 1 PROFILE



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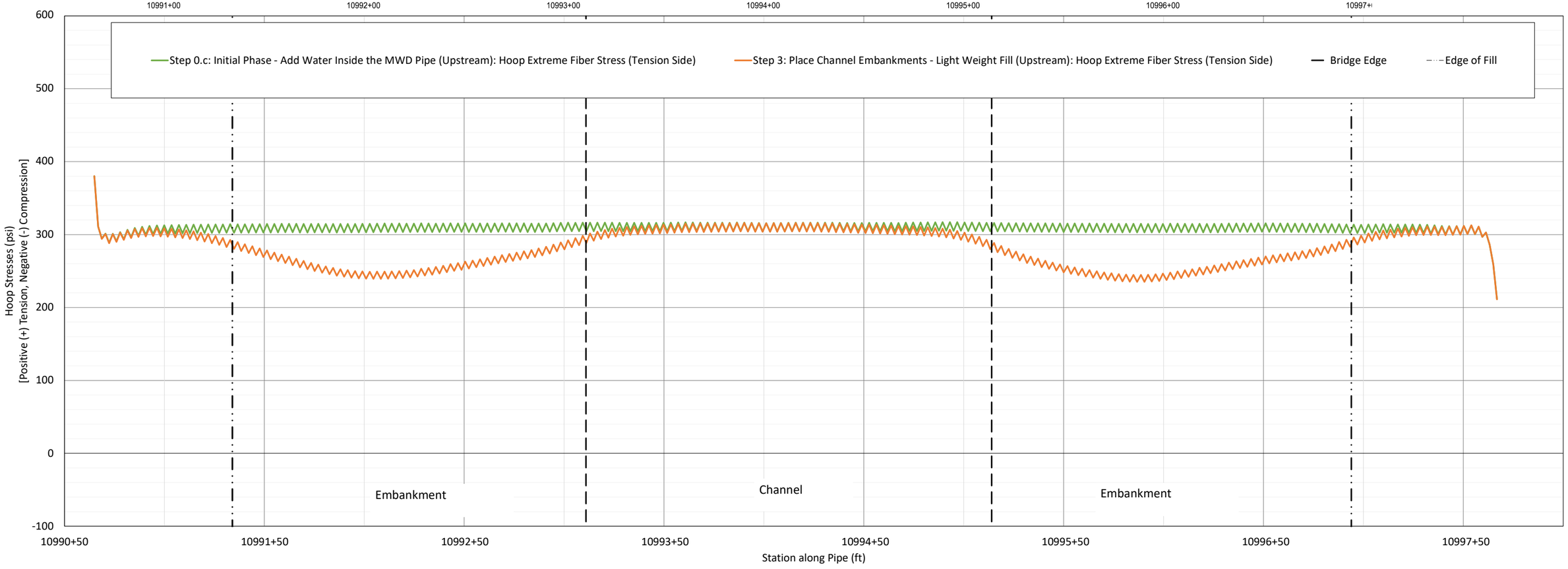

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SCALE (1" = 50')

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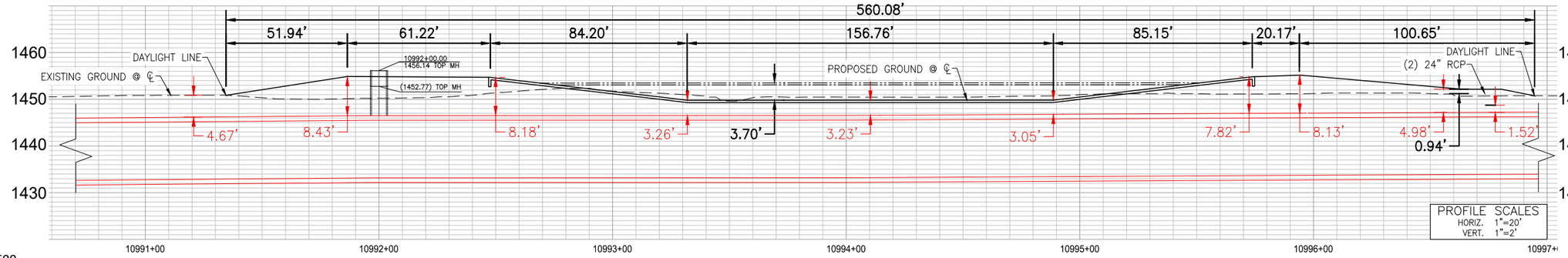
DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 3: Place Channel Embankments
Light Weight Fill (Upstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E65

MWD BARREL NO 1 PROFILE



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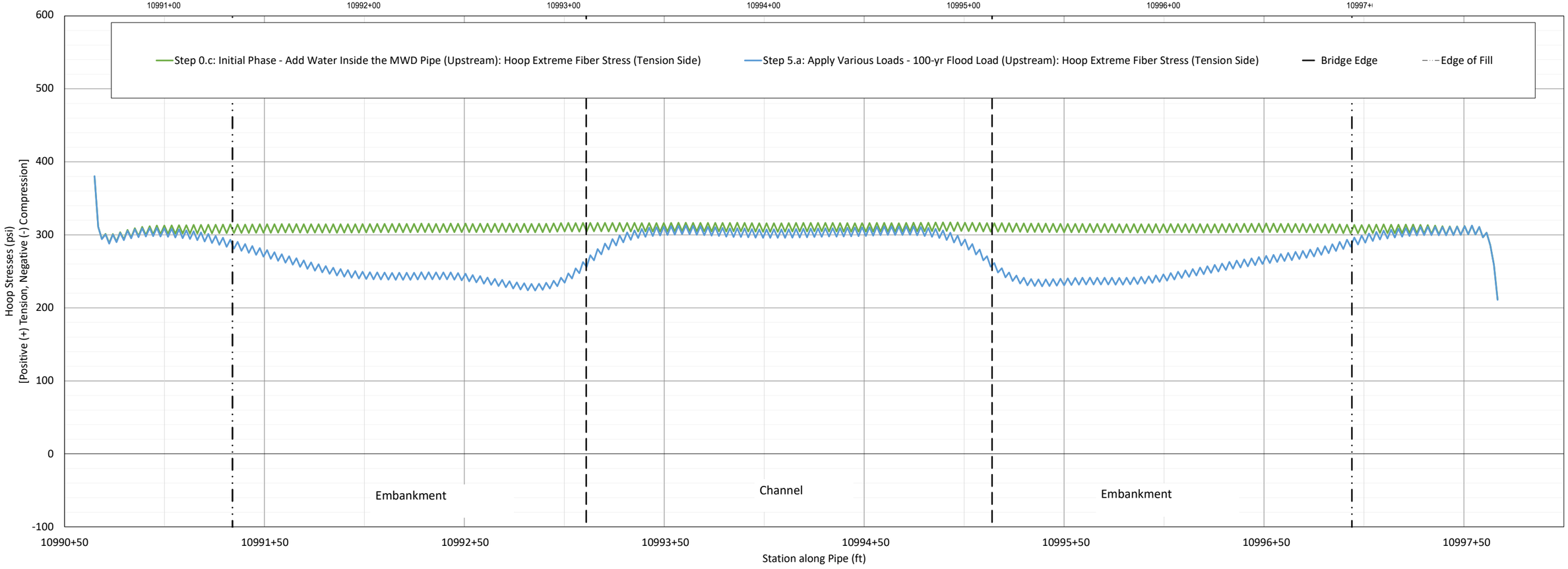

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DRAWN:	02/2025
DRAWN BY:	T. Covill
CHECKED BY:	M. Talebi
FILE NAME:	ANALYSIS FIGURES

Model Results - Hoop Stress
Step 5a: Apply Various Loads
100-yr Flood Load (Upstream)

San Jacinto Line E Storm Drain
Metropolitan Water District Casa Loma Barrel No. 1 Crossing
San Jacinto, California

FIGURE:
E66

STRUCTURES REPORT

February 14, 2025
Kleinfelder Project No.: 24002328.001A

Mr. Eric Hays
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506

Subject: Structural Design of Line E Channel Crossing over MWD Casa Loma Barrel No. 1
San Jacinto, California

Introduction

This report discusses the development of a preliminary crossing design for the proposed Line E channel over the existing Casa Loma Barrel No.1 Siphon operated by the Metropolitan Water District (MWD). This report discusses the concepts considered for this crossing and why one concept was ultimately chosen over the other. Additionally, this report presents the design criteria, plans for the preliminary crossing and the preliminary design calculations. Finally, construction restrictions and a preliminary construction work plan are discussed.

Crossing Concepts

Two concepts were developed for the proposed crossing. Both concepts support a reinforced concrete "relieving slab" isolated from the soil above the siphon by a 6-inch layer of polystyrene foam. The first concept is supported on shallow spread footing foundations, and the second concept is supported on cast-in-drilled-hole (CIDH) concrete piles. Preliminary geometries and dimensions for both concepts are presented in Attachment 1.

Concept 1: Relieving Slab on Spread Footings

This concept is more consistent with the MWD Detail SK-1 from the *Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Right-of-Way*. An advantage of this concept is that it simplifies the settlement analysis by limiting the effects of the crossing structure on the global settlement behavior. The primary drawback of this concept is that, due to the quality of the native soil, the local settlement beneath the crossing is higher than in Concept 2. One mitigation method for this issue is to stage the construction to allow foundation settlement due to backfill and dead load to

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occur prior to the placement of the channel liner. Using this methodology, differential settlement between the crossing structure and the channel liner can be limited to under 1 inch. Another drawback of this concept is that it requires greater excavation than Concept 2 which, in turn, can impose greater heave on the siphon during the construction sequence. The magnitude of this heave can be reduced by dividing up the footing excavation and placing segments of the footings prior to excavating the full length of the footing.

Concept 2: Relieving Slab on CIDH Concrete Piles

This concept is supported on CIDH concrete piles that rely on skin friction along the length of the pile. The top portion of these concrete piles are cased in a smooth steel casing to limit the transfer of the forces from the piles to the siphon. The main benefit of this concept is that the crossing settlement can be reduced by increasing the pile length. Also, the overall structure width of Concept 2 is 14 feet less than Concept 1, allowing more room in the right of way for future MWD projects. One disadvantage of this concept is that, because the concrete piles are supported on deeper soil layers, the crossing structure may not necessarily settle with the adjacent surface level structures. This means that if significant subsidence or liquefaction occurs, the crossing structure may settle less than the surrounding structures resulting in it ending higher than the adjacent liner. A transition slab was incorporated into this option to mitigate this potential. Additionally, the installation of these piles has the potential to impose significant vibrations on the existing siphon. Preliminary analysis using of Caltrans' Transportation Construction Vibration Guidance Manual (April 2020) showed that drilling shafts at this distance from the siphon without exceeding the sustained peak particle velocity limit of 0.5 in/sec set by MWD is feasible. It should be noted though, there is some uncertainty in this analysis given the variability of soils and equipment.

Proposed Crossing Design

Of the concepts considered, the relieving slab on shallow foundations (Concept 1) was chosen as the proposed crossing type. This crossing geometry was chosen because its main limitations, including large crossing settlements and heave during excavation, can be mitigated to acceptable levels through construction staging. The CIDH concrete piles in Concept 2 present greater risk to the siphon during construction. Additionally, the possibility of the crossing rising above the adjacent channel lining due to the surrounding soil subsiding could infringe on the functionality of the channel. Preliminary plans for the proposed crossing are provided in Attachment 4, and preliminary structural calculations supporting this design are provided in Attachment 5.

Design Criteria

The crossing is designed according to AASHTO LRFD Bridge Design Specifications 8th Edition with Caltrans Amendments, dated August 2019 and Errata dated June 2024 as modified by the project specific Design Criteria Memo dated 01-12-2024 (provided in Attachment 2). In addition to the H-20 design vehicle discussed in the Design Criteria Memo, the anticipated service vehicles used by Riverside County Flood Control, a Volvo EC300E Excavator (36.5 Ton) and a Caterpillar D6 Bulldozer (24.25 Ton), are also considered. These two additional vehicles are treated as typical design vehicles, and their demand is

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included in the live load envelopes for Strength IA and Service IA load combinations. The geometries for these vehicles are presented in Attachment 5.

Settlement Analysis

A preliminary global settlement analysis using PLAXIS 3D was conducted for both concepts and included the adjacent channel berms. This settlement analysis calculated the displacement imposed on the existing siphon due to the crossing structure and berm construction sequence along with the subsequent water and live loading on the crossing and the surrounding area. This analysis determined the necessity of using lightweight fill (preliminarily assumed 30 pcf maximum unit weight) for the channel berms within the vicinity of the siphon (see Attachment 3 for preliminary limits of lightweight fill). Based on this analysis the proposed crossing would satisfy the MWD limit of 0.25 inches of settlement over 100 feet. This settlement analysis is discussed in the Project Geotechnical Investigation Report.

Construction Restrictions and Methods

Restrictions must be placed on staging and methods of construction to mitigate detrimental effects on the siphon during the construction of the crossing structure. These restrictions will be introduced here. Additionally, a preliminary work plan for the construction of this crossing is presented in Attachment 6.

Excavation for the footings shall be conducted symmetrically on either side of the siphon. The excavation and placement of the footings shall be broken into three stages to prevent excessive heave on the siphon. Additionally, to limit vibrational impacts to the siphon, flowable backfill shall be used for backfilling the footing. Placement of this backfill is to be conducted simultaneously on either side of the siphon and in front and behind the footings. A maximum difference in backfill depth of 1 foot is allowable in both locations. Excavation and backfill restrictions are discussed in greater detail in the Project Geotechnical Investigation Report.

MWD requires any excavation within 2 feet of the siphon to be performed with hand equipment. The footings are located such that the 1.5H:1V excavation slope does not infringe in this 2-foot buffer zone. The final cover over directly over the siphon is less than 2 feet and will require infringing on this buffer zone. As discussed in the preliminary work plan (Attachment 5) it is proposed that a vacuum truck be used to safely remove the soil in this region.

The formwork for the stem of the footing shall be supported without bracing against the soil covering the siphon. This can be achieved by bracing against heel of the footing and across to the stem formwork on the opposite side of the siphon. The base of the footing may be poured neat against the sides of the excavation.

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List of Attachments

Attachment 1 – Conceptual Exhibits
Attachment 2 – Design Criteria Memo (Kleinfelder, 1-12-2024)
Attachment 3 – Preliminary Lightweight Fill Limits
Attachment 4 – Preliminary Crossing Plans
Attachment 5 – Preliminary Crossing Calculations
Attachment 6 – Preliminary Foundation Work Plan

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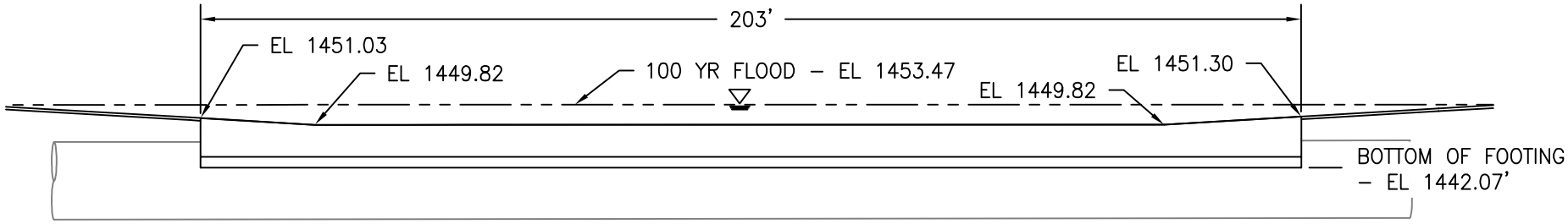
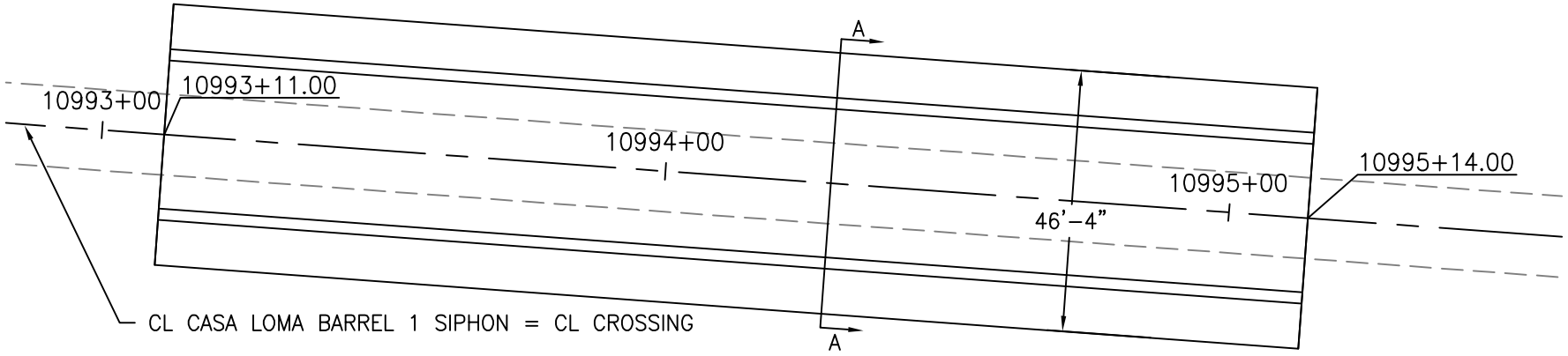
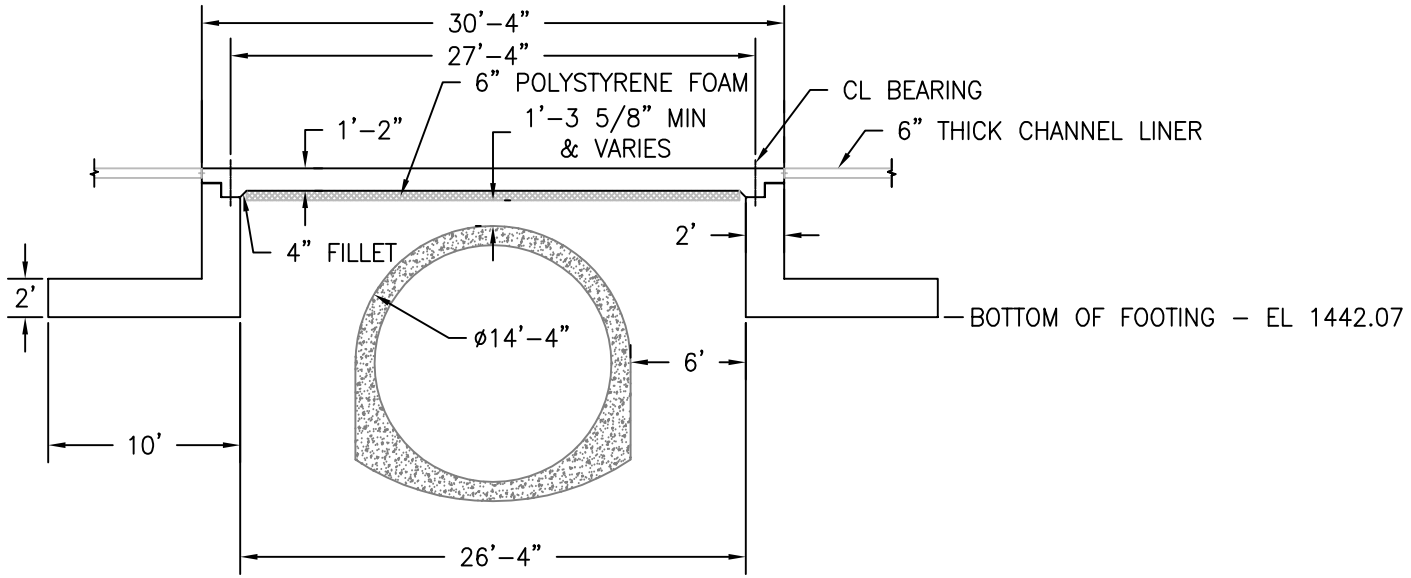


PROFILE – CONCEPT 1

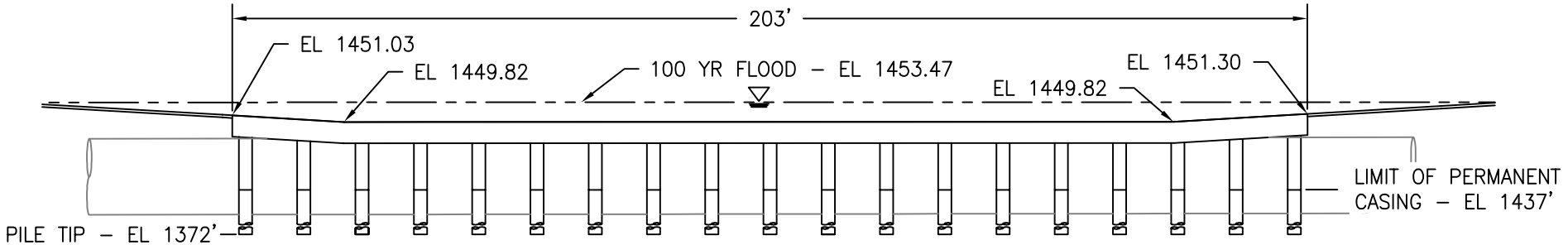


PLAN – CONCEPT 1

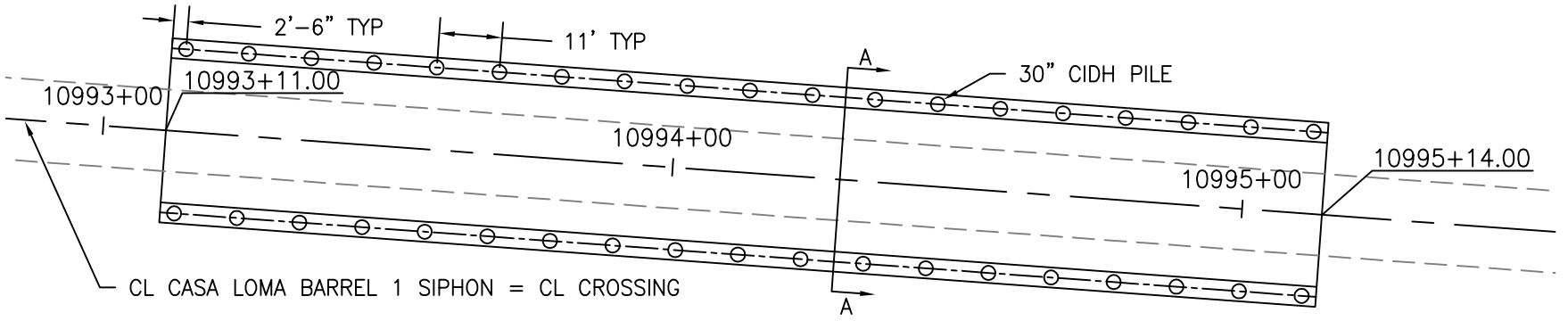


SECTION A–A – CONCEPT 1

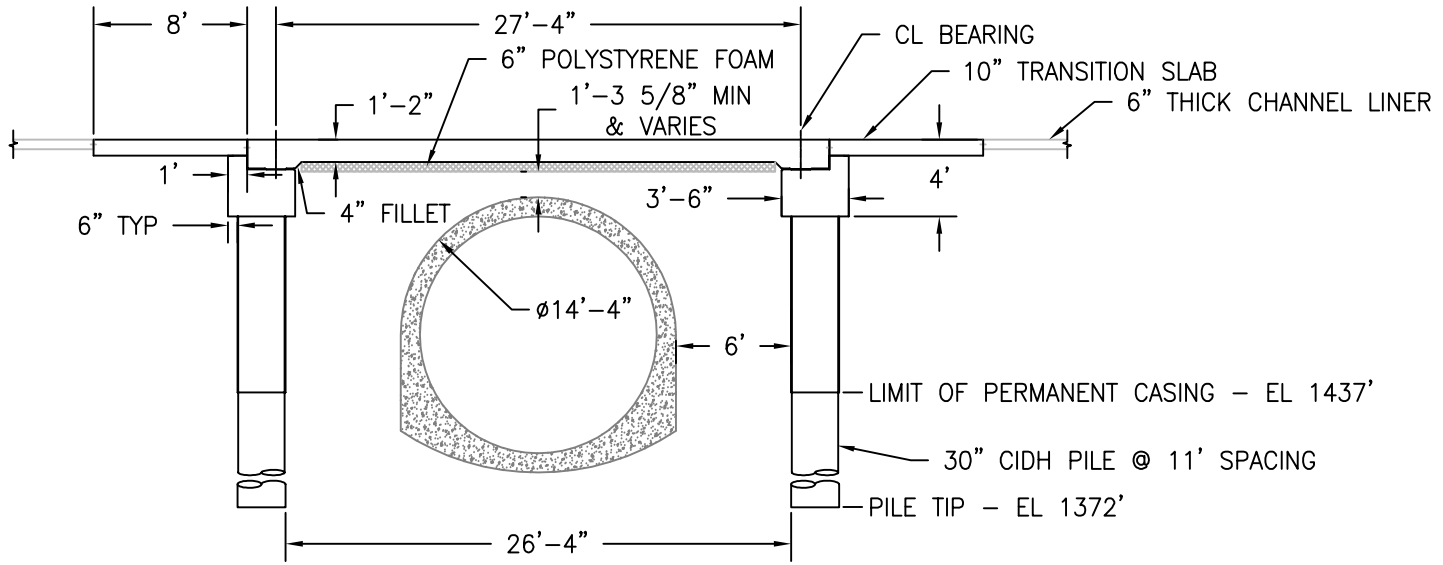
ATTACHMENT 1 - CONCEPT 1: SHALLOW FOUNDATION EXHIBIT



PROFILE – CONCEPT 2



PLAN – CONCEPT 2



SECTION A–A – CONCEPT 2

ATTACHMENT 1 - CONCEPT 2: DEEP FOUNDATION EXHIBIT

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M E M O R A N D U M

TO: Eric Hays | Albert A. Webb Associates

FROM: Keith Gazaway | Kleinfelder

Jake Montgomery | Kleinfelder

DATE : January 12, 2024

SUBJECT: Shea Properties – Line E

Design Criteria Memo

PROJECT DESCRIPTION

This design criteria memo pertains to the proposed crossing structure to span the existing Casa Loma Barrel No. 1 Siphon. The crossing is located just west of the city of San Jacinto in Riverside County, California where the proposed San Jacinto Valley Master Drainage Plan (MDP) Line E storm water channel crosses the existing siphon. The purpose of the crossing structure is to prevent additional loading on the existing siphon due to channel loads including potential maintenance vehicles and water loads. The crossing structure will be placed where soil cover over the existing siphon is reduced to under 4 feet or where warranted by the results of settlement analysis.

DESIGN METHODOLOGY

The crossing will be designed according to AASHTO LRFD Bridge Design Specifications 8th Edition with Caltrans Amendments, dated August 2019 and Errata, dated October 2019 (AASHTO LRFD). Project specific requirements and modifications will be listed in the following sections. The Municipal Water District's (MWD) "Improvement and Construction Guidelines" (dated July 2018) is incorporated into this design criteria.

DESIGN LOAD

The crossing structure will be designed to support a single H-20 truck design vehicle with a multiple presence factor of 1.0. The crossing will be designed to resist the weight of water loading; the water height will match the height of the adjacent canal berms for strength loads cases and will match the 100-year flood level for service load cases. Vehicle loading and water loading will not be considered concurrently. Seismic loading will be checked to ensure the crossing structure does not impart additional seismic surcharge on the existing siphon. The applicable load combinations from the tables below will be used for the design of the crossing structures:

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CROSSING LOAD COMBINATIONS

Load Combination	DC, DD, DW, EH, EV, ES, EL, PS, CR & SH *	LL, IM, CE, BR, PL & LS	WA	TU	EQ
Strength IA	Υ_p	1.75	0	0.5/1.2	0
Strength IB	Υ_p	0	1	0.5/1.2	0
Service IA	1	1	0	1.0/1.2	0
Service IB	1	0	1	1.0/1.2	0
Extreme I	1	0	0	0	1

*Load factors for permanent loads are based on AASTHTO LRFD Table 3.4.1-2

GEOMETRIC LIMITS

The crossing structure will be designed to provide a minimum of 6 inches of undisturbed soil over the top of the Casa Loma Barrel No. 1 Siphon. Additionally, the crossing structure will be designed to allow for a compressible blanket, consisting of 6 inches of expanded polystyrene foam, to be placed between the bottom of the structure and top of the undisturbed soil. This compressible blanket will extend a minimum 1 foot past the edge of the existing siphon. If footings are used for the crossing structure, the edge of the footing will be offset a minimum of 5 feet from the outside of the existing siphon and placed so that a line running at a 45-degree angle from the toe of footing does not intersect the outside circumference of the existing siphon. If driven pile foundations are used to support the crossing structure no portion of the pile will infringe on a region within 20 feet of the center of the existing siphon. If drilled micropile or cast-in-place pile foundations are used, no portion of the pile will be placed within 5 feet of the outside of the existing siphon. If pile foundations are used, the piles will be detailed to prevent down drag forces from being developed above the centerline of the existing siphon.

DISPLACEMENT LIMITS

The maximum allowable differential settlement along the length of the existing siphon will not exceed ¼ inch over 100 feet. Differential settlement between the crossing structure and the adjacent channel liner will not exceed 1 inch. The combined crossing long-term structural deformation, short-term structural deformations and soil settlement will not exceed the thickness of the compressible blanket. Service load combinations will be used for the calculation of displacements.

CONCRETE COVER

AASHTO LRFD-CA Table 5.10.1-1 provides minimum concrete cover over reinforcement depending on the components and site conditions. Based on the geotechnical investigation this site is considered a non-marine environment with non-corrosive soil. Therefore, where concrete components are adjacent to soil, a minimum concrete cover of 3 inches will be used. A minimum of 2 inches of cover will be used for any surface exposed to the channel flow. A minimum of 1.5 inches of cover will be used for surfaces adjacent to the polystyrene foam. Where necessary, according to Caltrans Memo to Designer 10-5, these minimum

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covers may be reduced by utilizing epoxy coated rebar (ECR) and/or supplementary cementitious materials (SCM). Cover may be reduced by ½ inch when using post-fabricated ECRs and 1 inch when using pre-fabricated ECRs and/or SCM. By no means will clear cover be reduced below 1 inch.

CRACK CONTROL

AASHTO LRFD Article 5.6.7 provides a check to limit crack width under service level loading. Two design levels are given: Class 1 applies to conditions where a wider crack width is acceptable due to reduced concerns of appearance and corrosion. Class 2 applies where reducing crack width is desirable to improve appearance and corrosion resistance. A Class 2 exposure factor will be used for an surfaces exposed to the channel flow. A Class 1 exposure factor will be used elsewhere.

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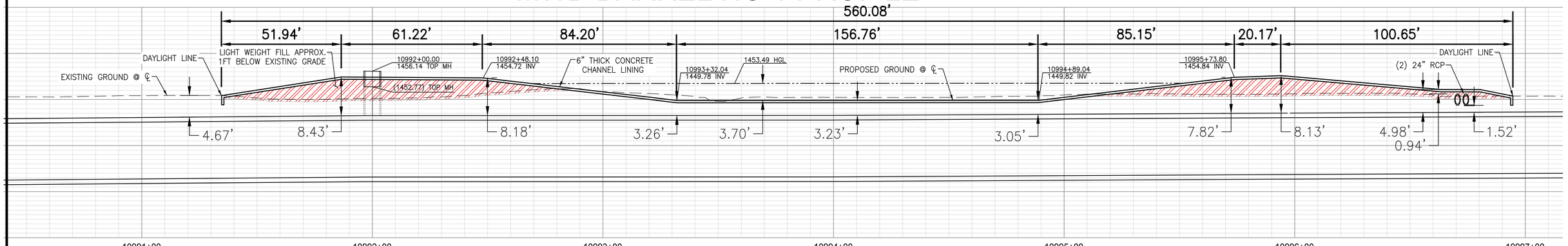
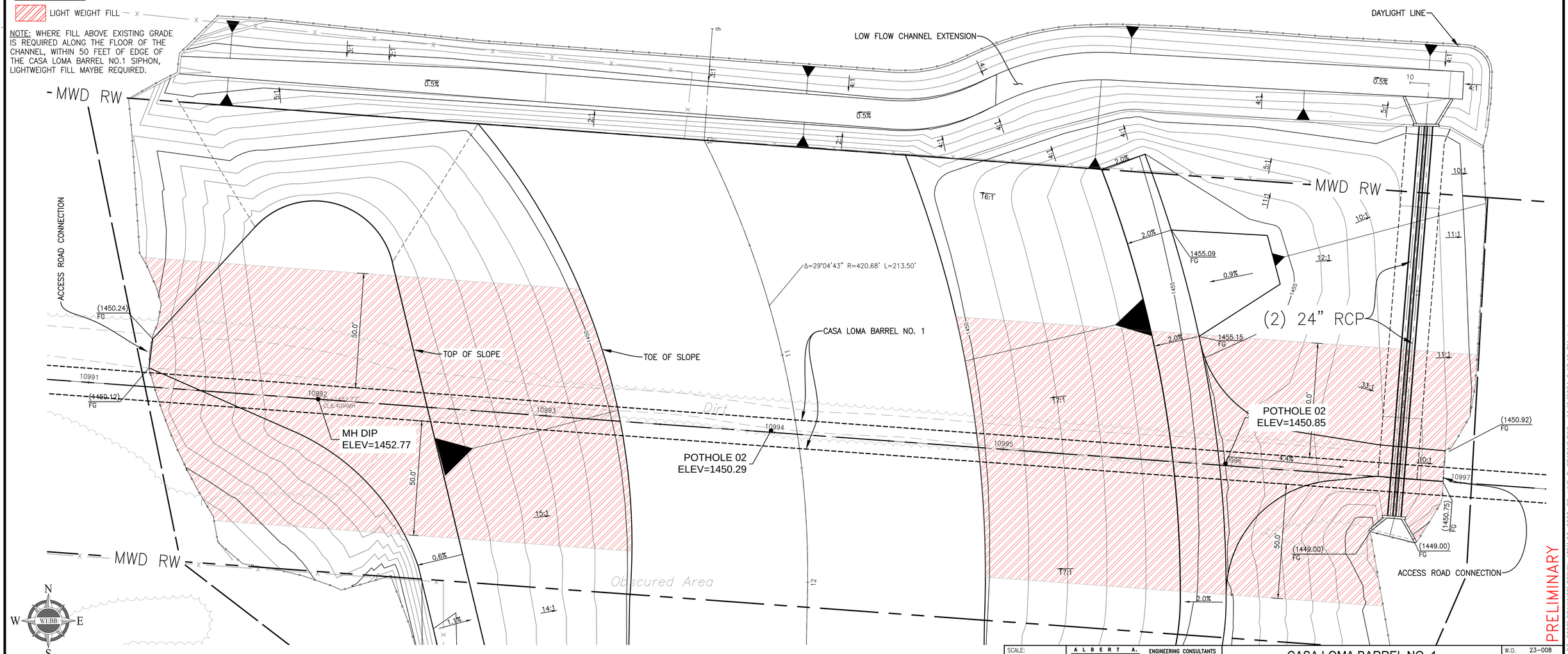
MWD BARREL NO 1 PROFILE



HATCH LEGEND

LIGHT WEIGHT FILL

NOTE: WHERE FILL ABOVE EXISTING GRADE IS REQUIRED ALONG THE FLOOR OF THE CHANNEL, WITHIN 50 FEET OF EDGE OF THE CASA LOMA BARREL NO.1 SIPHON, LIGHTWEIGHT FILL MAYBE REQUIRED.



ATTACHMENT 3 - PRELIMINARY LIGHTWEIGHT FILL LIMITS

SCALE:	
DATE:	11/7/2024
DESIGNED:	JJO
CHECKED:	EH
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

PLOT DATE: 07/11/2024

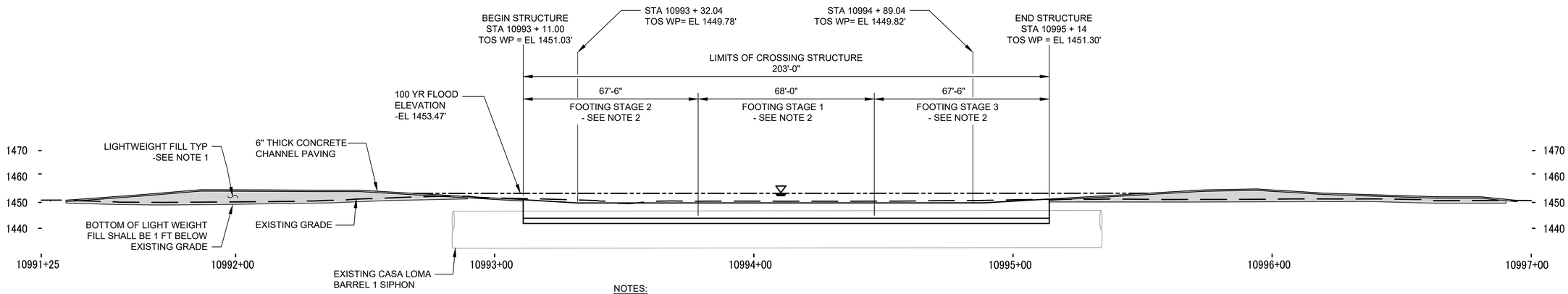
CASA LOMA BARREL NO. 1
MDP LINE E CONCRETE CHANNEL
CROSSING EXHIBIT

W.O.	23-008
SHEET	
OF	1 SHEETS
DWG. NO.	1

PRELIMINARY

H:\2023\23-0008\DRAWINGS\DESIGN (3D)\23-0008-SD-LINE_E_GRADING.DWG 11/6/2024 5:47:46 PM Joshuab

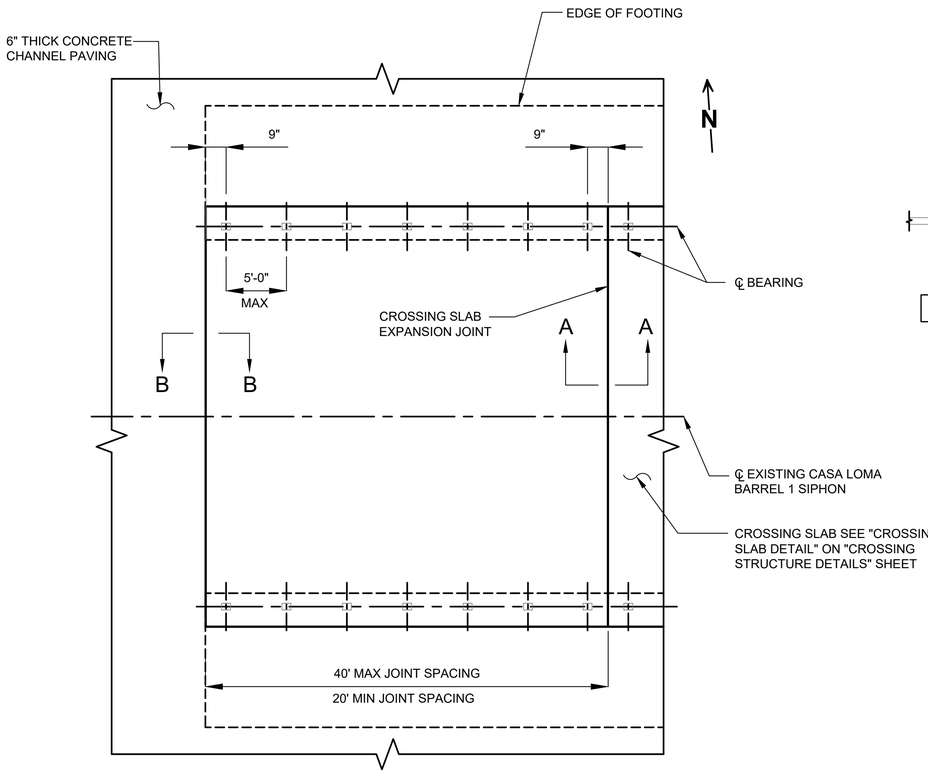
ATTACHMENT 4 - PRELIMINARY CROSSING PLANS



NOTES:
1) LIGHTWEIGHT FILL SHALL BE USED WHERE FILL ABOVE EXISTING GRADE IS REQUIRED WITHIN 50 FEET OF THE EDGE OF THE CASA LOMA BARREL 1 SIPHON.
2) THE FULL FOOTING SHALL BE PLACED IN EACH STAGE PRIOR TO BEGINNING EXCAVATION ON THE SUBSEQUENT STAGE.

CROSSING ELEVATION

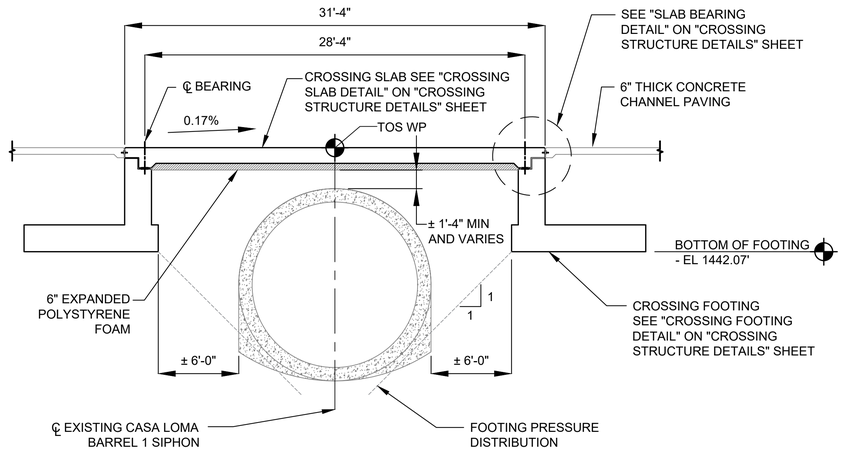
SCALE: 1"=20'-0"



NOTE: FOR "SECTION A-A" AND "SECTION B-B" SEE "CROSSING STRUCTURE DETAILS" SHEET

PARTIAL PLAN VIEW

SCALE: 3/16"=1'-0"



TYPICAL SECTION

SCALE: 3/16"=1'-0"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION 2017, AND THE CALIFORNIA AMENDMENTS, PREFACE DATED APRIL 2019 WITH JUNE 2024 ERRATA

CONSTRUCTION SPECIFICATIONS:

EXISTING CONDITIONS:
BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL REVIEW EXISTING SITE CONDITIONS, VERIFY ALL DIMENSIONS AND VERIFY THE EXACT LOCATION OF EXISTING UTILITIES.

CONCRETE:
SLAB CONCRETE SHALL BE F'C = 5 KSI COMPRESSIVE STRENGTH @ 28 DAYS.
FOOTING CONCRETE SHALL BE F'C =3.6 KSI COMPRESSIVE STRENGTH @ 28 DAYS.

REINFORCING STEEL:
ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60

CONSTRUCTION STAGING:
EXCAVATION, FOOTING PLACEMENT AND BACKFILL SHALL BE CONDUCTED CONCURRENTLY AND SYMMETRICALLY ON EITHER SIDE OF THE SIPHON. A MAXIMUM DIFFERENCE OF 1 FOOT IS ALLOWED BETWEEN THE EXCAVATION, CONCRETE AND BACKFILL ON EITHER SIDE OF THE SIPHON. THE PLACEMENT OF THE ADJACENT CONCRETE LINER SHALL OCCUR NO LESS THAN 1 WEEK AFTER THE PLACEMENT OF THE CROSSING SLAB.

BACKFILL:
BACKFILL SHALL CONSIST OF MEDIUM WEIGHT FLOWABLE FILL (UNIT WEIGHT OF 85 PCF ±). BACKFILL ON EITHER SIDE OF THE FOOTING SHALL BE PLACED CONCURRENTLY AND SYMETRICALLY SO THAT THE DIFFERENCE IN FILL DEPTH IS NOT GREATER THAN 1 FOOT.

NOT FOR CONSTRUCTION

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770 First Ave, Suite 400 San Diego, CA 92101
Tel. (619) 831-4600 Kleinfelder.com

ENGINEER OF WORK _____ DATE _____

DESIGNED:	JRM
DRAWN:	FH
CHECKED:	KG
DATE:	11/8/2024

PLAN REVISION

REVISION	BY	DATE	APPROVAL
FOR REVIEW	JRM	11/8/2024	

MDP LINE E CONCRETE CHANNEL
CROSSING STRUCTURE LAYOUT

S1

OF XX SHEETS

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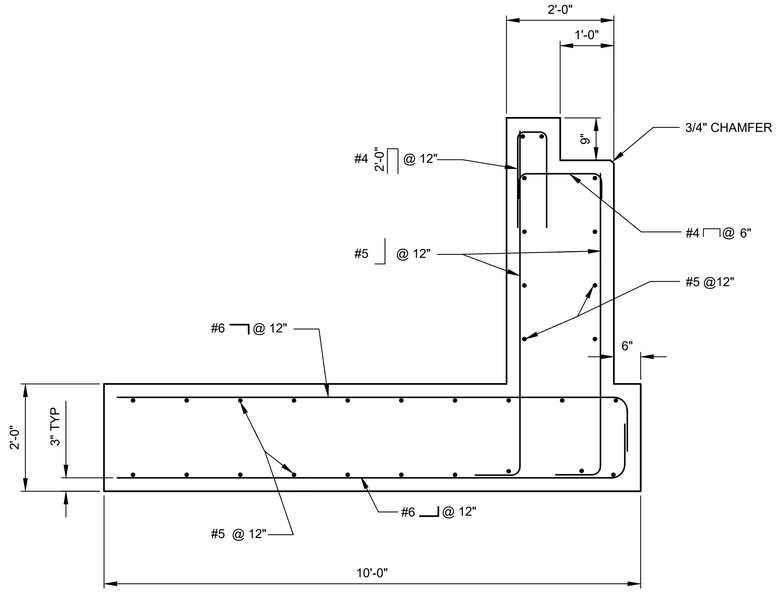
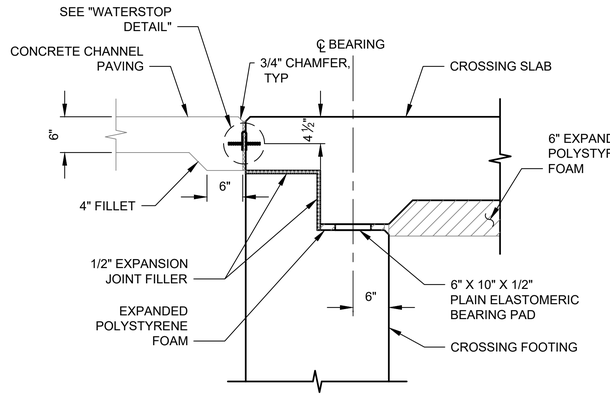
Date: Nov 07, 2024 - 9:54am SCALE: 1/1 Drawn:FHie

ATTACHMENT 4 - PRELIMINARY CROSSING PLANS



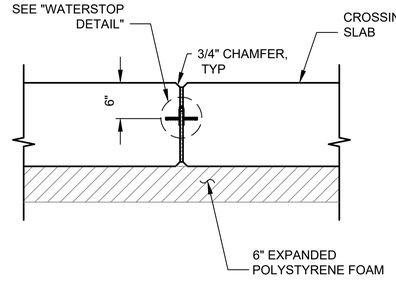
CROSSING FOOTING DETAIL

SCALE: 3/4"=1'-0"



SLAB BEARING DETAIL

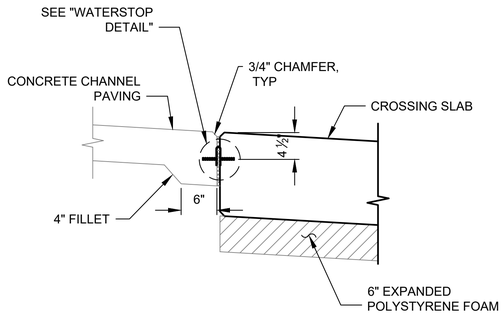
SCALE: 1"=1'-0"



NOTE: FOR LOCATION OF "SECTION A-A" SEE "PARTIAL PLAN VIEW" DETAIL ON "CROSSING STRUCTURE LAYOUT" SHEET

SECTION A-A

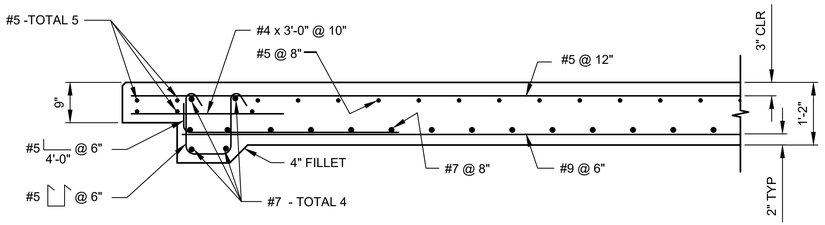
SCALE: 1"=1'-0"



NOTE: FOR LOCATION OF "SECTION B-B" SEE "PARTIAL PLAN VIEW" DETAIL ON "CROSSING STRUCTURE LAYOUT" SHEET

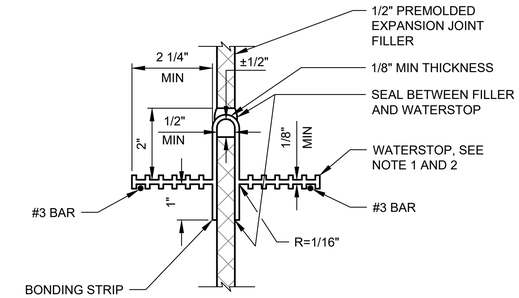
SECTION B-B

SCALE: 1"=1'-0"



CROSSING SLAB DETAIL

SCALE: 3/4"=1'-0"



NOTES:

1) HOLES WILL BE PERMITTED IN THE OUTER 1/2" OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #3 REINFORCING BARS @ 12" MAXIMUM INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED FOR APPROVAL OF THE ENGINEER.
2) WATERSTOP TO HAVE 5 OR MORE PARS OF RAISED RIBS TO PROVIDE 0.1 SQUARE INCH MINIMUM RIB CROSS-SECTION AREA ON EACH HALF OF THE WATERSTOP.

WATERSTOP DETAIL

NO SCALE

NOT FOR CONSTRUCTION

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Tel. (619) 831-4600 Kleinfelder.com

ENGINEER OF WORK _____ DATE _____

DESIGNED:	JRM
DRAWN:	FH
CHECKED:	KG
DATE:	11/8/2024

PLAN REVISION

REVISION	BY	DATE	APPROVAL
FOR REVIEW	JRM	11/8/2024	

MDP LINE E CONCRETE CHANNEL

CROSSING STRUCTURE DETAILS

S2

OF XX SHEETS

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Date: Nov 07, 2024 - 9:54am SCALE: 1/1 Drawn:FHie

Preliminary Design Calculations for the Line E Crossing Structure Over Casa Loma Barrel No.1 Siphon

Line E Storm Drain - San Jacinto, CA

02/14/2025

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PROJECT San Jacinto Line E Storm Drain
BRIDGE NAME Crossing Over Casa Loma Barrel 1 Siphon

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PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

1 Project Information

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 20242328
Subject: Project Information

Originator: JRM
Date: 11/07/2024

Project Information

Project Discussion:
The San Jacinto Line E Storm Drain Project involves the design of approximately 3-miles of storm drain channel in the City of San Jacinto, California. Near the end of this proposed storm drain channel it crosses the existing Casa Loma Barrel No. 1 Siphon operated by the Metropolitan Water District (MWD). The construction of this channel requires the removal of some cover over the existing siphon. MWD requires a relieving slab to be constructed over this siphon if the cover is reduced below 4 feet. In order to construct the proposed channel a crossing over this existing siphon must be designed to support both the channel water loading and channel service vehicles.

Location:
San Jacinto, California

Structure Type:
28'-4" Single span 1'-2" deep reinforced concrete slab supported on spread footings.

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

2 Design Criteria

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 20242328
Subject: Design Criteria

Originator: JRM
Date: 11/07/2024

Design Criteria

- Project Design Criteria Memo Dated January 12, 2024
- AASHTO LRFD Bridge Design Specifications, 8th Edition and the California amendments. Preface Dated April 2019 with June 2024 Errata.
- Caltrans Seismic Design Criteria, Version 2.0 Dated April 2019 with October 2019 Interim Revisions (SDC)
- Caltrans Bridge Design Manuals
    - Memo to Designers (MTD)
    - Bridge Design Aids (BDA)
    - Bridge Design Practice (BDP)
    - Bridge Design Details (BDD)
    - Bridge Design Memos (BDM)
    - Structure Technical Policies (STPS)

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

3 Materials

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 20242328
Subject: Materials

Originator: JRM
Date: 11/07/2024

Materials

Concrete:

Superstructure:

$$f_c' = 5\ ksi$$

Substructure:

$$f_c' = 3.6\ ksi$$

Reinforcing Steel:

Grade 60:

$$f_y = 60\ ksi$$

$$E_s = 29000\ ksi$$

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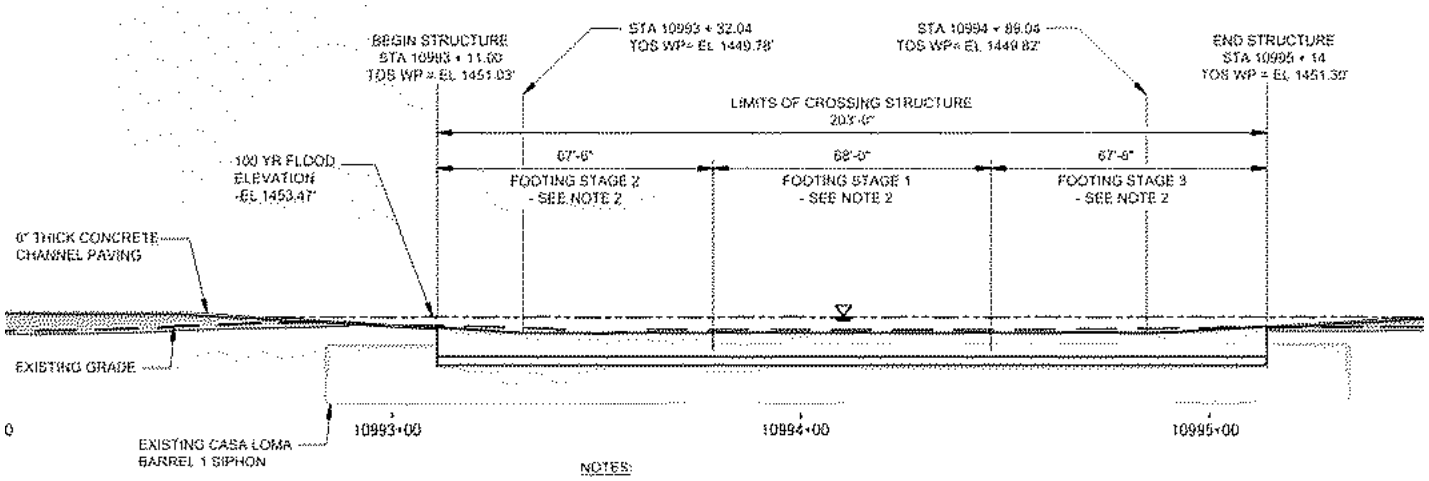
PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

4 Geometry

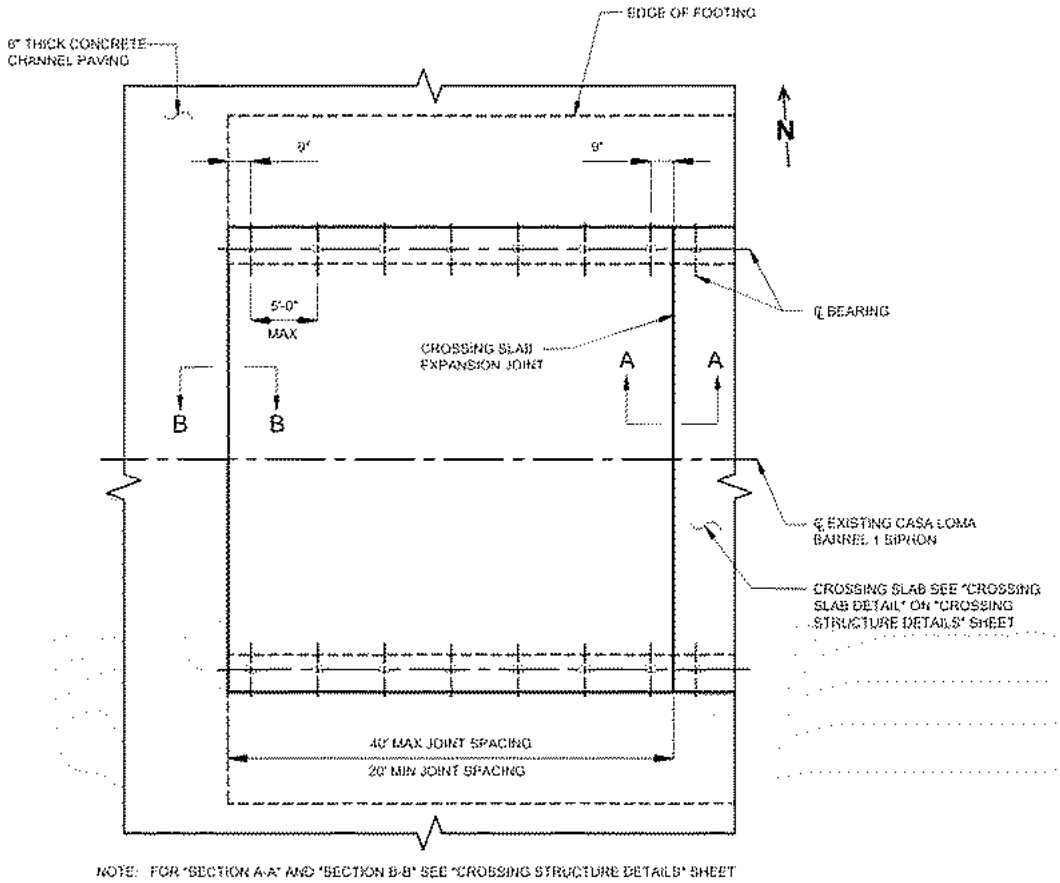
770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Geometry

Originator:JRM
Date: 11/7/2024



NOTES:



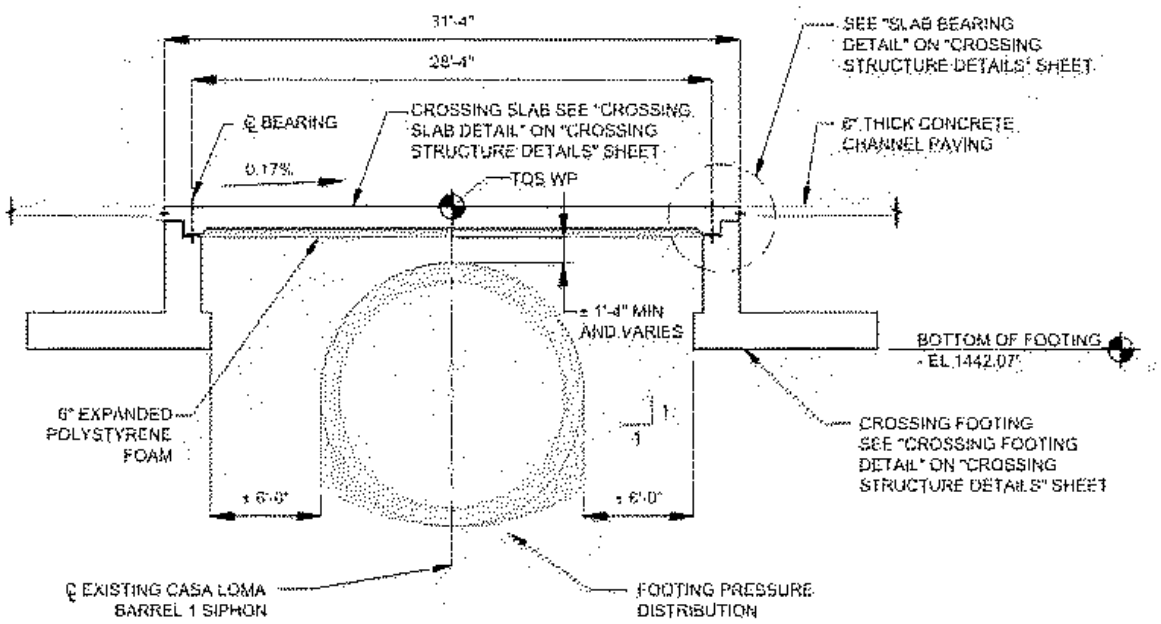
NOTE: FOR "SECTION A-A" AND "SECTION B-B" SEE "CROSSING STRUCTURE DETAILS" SHEET

PARTIAL PLAN VIEW

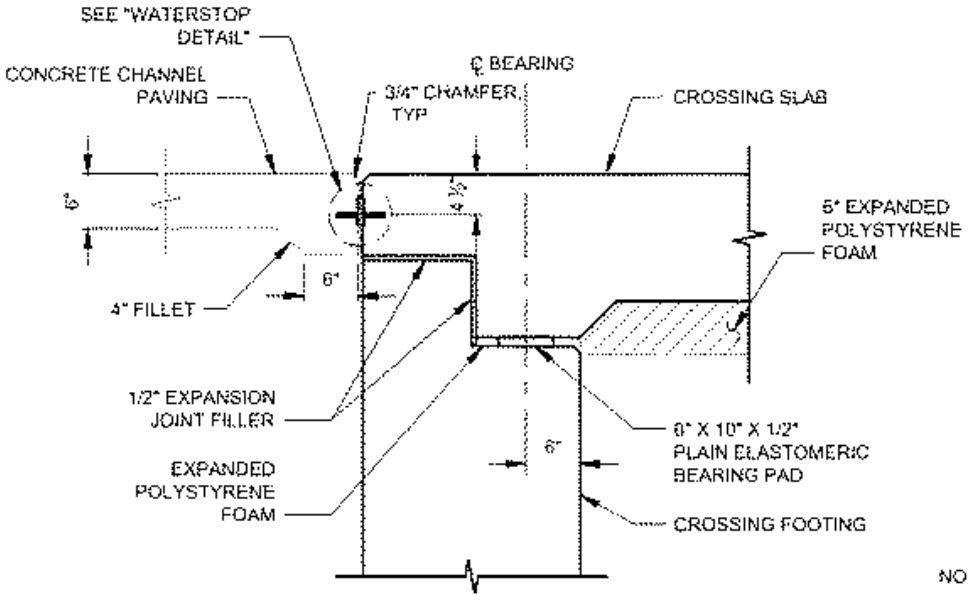
770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Geometry

Originator:JRM
Date: 11/7/2024



TYPICAL SECTION



SLAB BEARING DETAIL

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

5 Superstructure Design

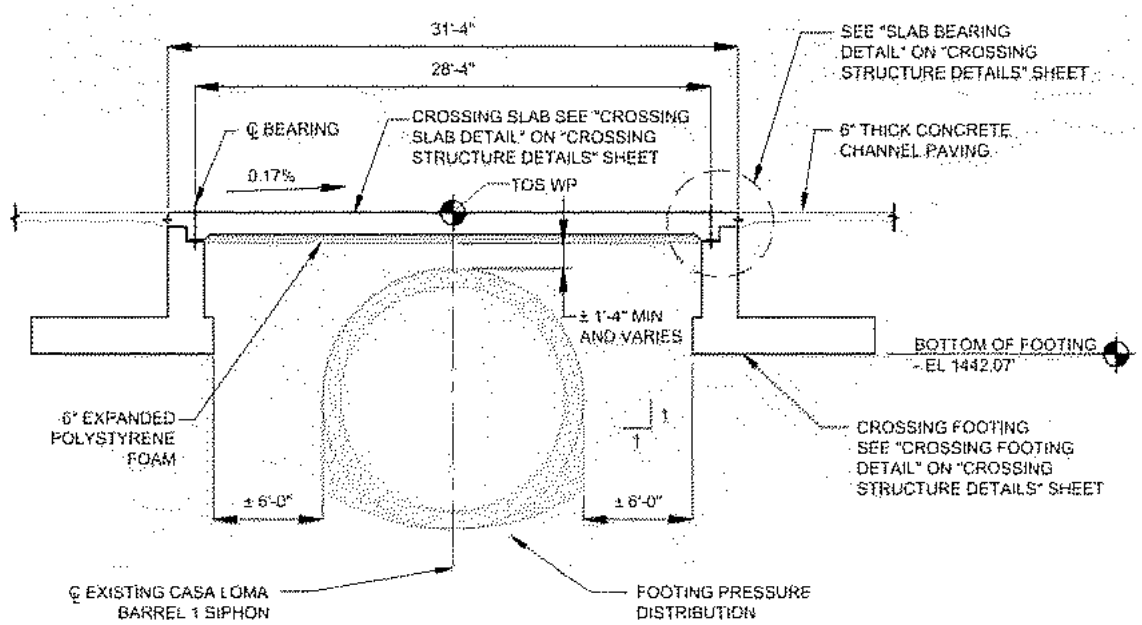
PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

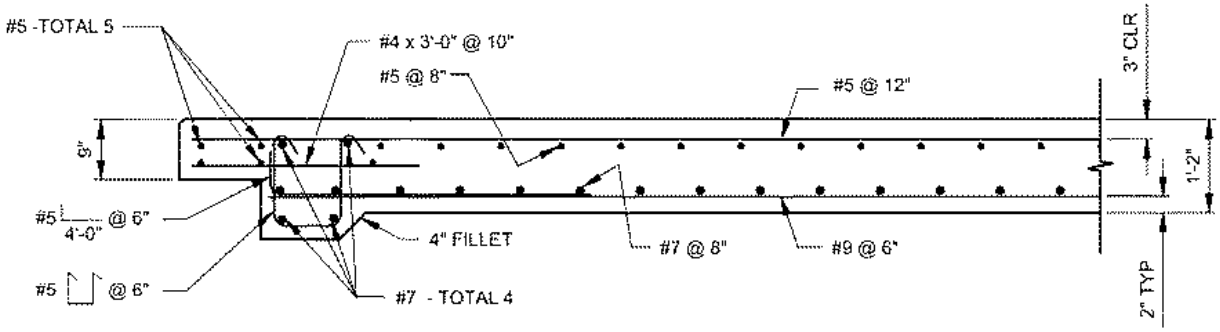
5.1 Typical Sections

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Typical Sections

Originator:JRM
Date: 11/7/2024





CROSSING SLAB DETAIL

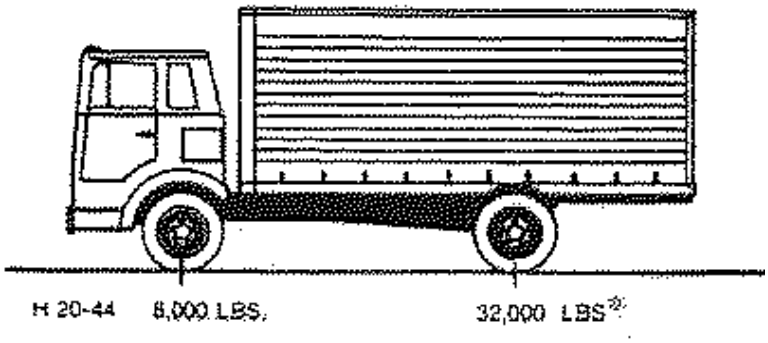
PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

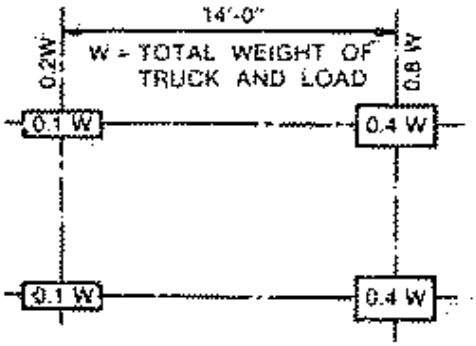
5.2 Superstructure Loads

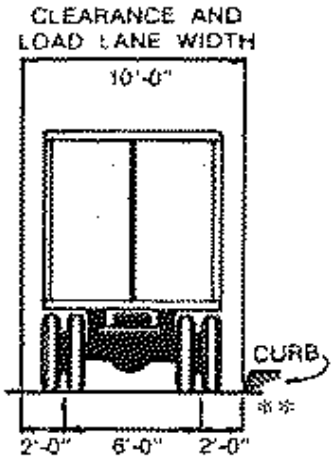
Design Vehicles

H-20 Design Vehicle

Figure 1: AASHTO H-20 Loading







Design Vehicles

Excavator:





Description	Unit		EC300EL												EC300ELR	
Boom	m, ft in		6.2, 20'4"						6.2, 20'4" 2-piece						10.2, 33'6"	
Arm	m	ft in	2.55	8'4"	3.05	10'0"	3.7	12'2"	2.55	8'4"	3.05	10'0"	3.7	12'2"	7.9	25'11"
A. Overall width of upper structure	mm	ft in	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"	2,890	9'6"
B. Overall width	mm	ft in	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"	3,190	10'6"
C. Overall height of cab	mm	ft in	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"	3,110	10'2"
D. Overall height of handrail	mm	ft in	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"	3,360	11'0"
E. Overall height of guardrail (Unfolded)	mm	ft in	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"	3,570	11'9"
E'. Overall height of handrail/ guardrail (Folded)	mm	ft in	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"	3,090	10'2"
F. Tail swing radius	mm	ft in	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,155	10'4"
G. Overall height of diffuser	mm	ft in	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"	3,200	10'6"
H. Counterweight clearance *	mm	ft in	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"	1,105	3'8"
I. Tumbler length	mm	ft in	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"	4,015	13'2"
J. Track length	mm	ft in	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"	4,865	16'0"
K. Track gauge	mm	ft in	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"	2,590	8'6"
L. Shoe width	mm	ft in	600	24"	600	24"	600	24"	600	24"	600	24"	600	24"	600	24"

Specifications

MACHINE WEIGHTS AND GROUND PRESSURE

Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	in	kg	lb	kPa	psi	mm	in
EC300EL			6.2 m (20'4") boom (GP), 3.05 m (10'0") arm (GP), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight						6.2 m (20'4") boom (HD), 3.05 m (10'0") arm (HD), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight					
Triple grouser	600	24	30,640	67,560	59.1	8.6	3,190	10'6"	30,840	68,220	59.7	8.7	3,190	10'6"
	600 (HD)	24	30,860	68,050	59.5	8.6	3,190	10'6"	31,150	68,690	60.1	8.7	3,190	10'6"
	700	28	31,330	69,040	51.8	7.5	3,290	10'10"	31,520	69,500	52.1	7.6	3,290	10'10"
	800	31	31,590	69,660	45.7	6.6	3,390	11'1"	31,880	70,300	46.1	6.7	3,390	11'1"
	900	35	31,960	70,450	41.1	6.0	3,490	11'5"	32,240	71,090	41.5	6.0	3,490	11'5"
Double grouser	700	28	31,420	69,280	52.0	7.5	3,290	10'10"	31,710	69,920	52.4	7.6	3,290	10'10"
			6.2 m (20'4") boom (2-piece), 3.05 m (10'0") arm (GP), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight						6.2 m (20'4") boom (2-piece), 3.05 m (10'0") arm (HD), 1,209 kg (2,670 lb) / 1.32 m³ (349 gal) bucket, 6,200 kg (13,670 lb) counterweight					
Triple grouser	600	24	31,230	68,860	60.3	9.7	3,190	10'6"	31,610	69,700	61.0	8.8	3,190	10'6"
	600 (HD)	24	31,450	69,350	60.7	8.8	3,190	10'6"	31,820	70,160	61.4	8.9	3,190	10'6"
	700	28	31,820	70,160	52.6	7.6	3,290	10'10"	32,190	70,980	53.2	7.7	3,290	10'10"
	800	31	32,180	70,960	46.6	6.7	3,390	11'1"	32,550	71,770	47.1	6.8	3,390	11'1"
	900	35	32,540	71,750	41.9	6.1	3,490	11'5"	32,910	72,570	42.3	6.1	3,490	11'5"
Double grouser	700	28	32,010	70,580	52.9	7.7	3,290	10'10"	32,380	71,400	53.5	7.8	3,290	10'10"
EC300ELR			10.2 m (33'6") boom (LR), 7.9 m (25'11") arm (LR), 478 kg (1,050 lb) / 0.57 m³ (150 gal) bucket, 6,900 kg (15,210 lb) counterweight											
Triple grouser	600	24	31,770	70,050	61.3	8.9	3,190	10'6"						
	600 (HD)	24	31,980	70,520	61.7	8.9	3,290	10'10"						
	800	31	32,740	72,190	47.3	6.9	3,390	11'1"						
	900	35	33,080	72,940	42.5	6.2	3,490	11'5"						

Design Vehicles

Bulldozer:

D6/D6 XE Track-Type Tractors Specifications

Configuration Tables – D6/D6 XE

	Configuration	D6/D6 XE*	
	Operating Weight**	22 000 kg	48,500 lb
	Shipping Weight***	19 060 kg	42,020 lb
	Ground Pressure (ISO 16754)	54 kPa	7.9 psi
	Undercarriage (Standard)	42 Section with 7 Bottom Rollers	
1	Track Gauge	1.930 m	76 in
2	Width of Maximum Track Shoe	0.610 m	24 in
3	Width over Tracks	2.540 m	100 in
	Width over Trunnions	2.692 m	106 in
4	Length of Track on Ground	2.964 m	116.7 in
	Ground Contact Area (ISO 16754)	3.992 m²	6188 in²
	Track Pitch	0.2028 m	7.9 in
	Grouser Height (Moderate Service)	0.065 m	2.6 in
	Ground Clearance	0.361 m	14.2 in
	Oscillation at Front Idler	0.103 m	4.0 in
5	Machine Height****	3.172 m	124.9 in
6	Length of Machine without Blade	4.730 m	186.2 in

All dimensions above with Heavy Duty undercarriage with Moderate Service shoes of maximum width for configuration, 6 SU blade, and calculated per ISO 16754 unless otherwise specified.

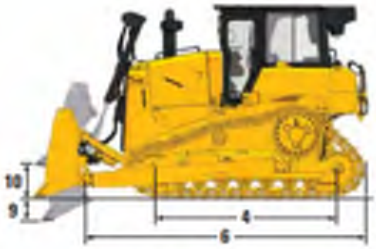
*XE power train adds 0.7 kPA (0.1 psi) and 273 kg (600 lb) to the published ground pressure and weights.

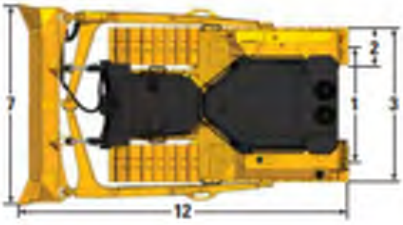
**Operating weight includes blade, lubricants, coolant, full fuel tank, ROPS/FOPS cab, drawbar, and 75 kg (165 lb) operator.

***Shipping weight includes blade lift cylinders, lubricants, coolant, 10% fuel, ROPS/FOPS cab, and drawbar.

****Machine height from tip of grouser to top of Product Link™ Antenna. For sweeps, add 66 mm (2.6 in) to overall machine height. For forestry sweeps, add 122 mm (4.4 in). With Extreme Service Track Shoes add 12 mm (0.5 in). When Cat GRADE with 3D antennas are installed there is no addition to machine height.



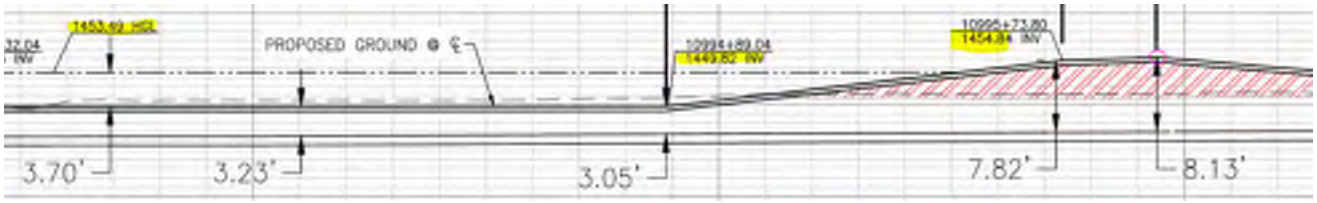




770 First Avenue, Suite 400
San Diego, CA 92101

Project: Shea Properties
Project #: 24002328
By: JRM
Date: Nov-24

Water Loading



EL_{HGL}	1453.5 ft	100 yr flood hydraulic grade line	
$EL_{tp,channel}$	1455.2 ft	Elevation at top of the channel berm	
$EL_{btm,channel}$	1449.8 ft	Elevation at bottom of the channel	
$h_{w,ser}$	3.7 ft	EL_{HGL} - $EL_{btm,channel}$	Water level for service level load cases
$h_{w,str}$	5.3 ft	EL_{HGL} - $EL_{tp,channel}$	Water level for strength level load cases

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

5.3 Superstructure Design

Slab Design - H20 - Longitudinal

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)
+Deflection
+Distribution Reinforcement
+Temperature and Shrinkage

Section:

$W := 40\ ft$ — Max expansion joint spacing

$S := 28\ ft + 4\ in = 28.33\ ft$ — Span length

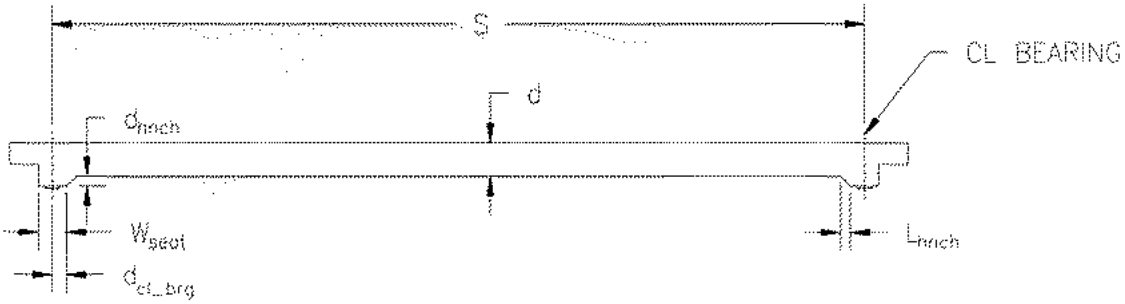
$d_{cl\_brg} := 6\ in$ — Distance to bearing CL

$d := 14\ in$ — Slab depth

$d_{hnch} := 4\ in$ — Haunch depth

$L_{hnch} := d_{hnch} = 0.333\ ft$ — Length haunch

$W_{seat} := 1\ ft$ — Seat width



Equivalent strip width For Box Culverts, AASHTO 4.6.2.10.2:

$E := 96\ in + 1.44 \frac{S}{ft} \cdot in = 11.4\ ft$

$b := E = 11.4\ ft$ — Section width

Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

$E_s := 29000\ ksi$ Steel modulus of elasticity

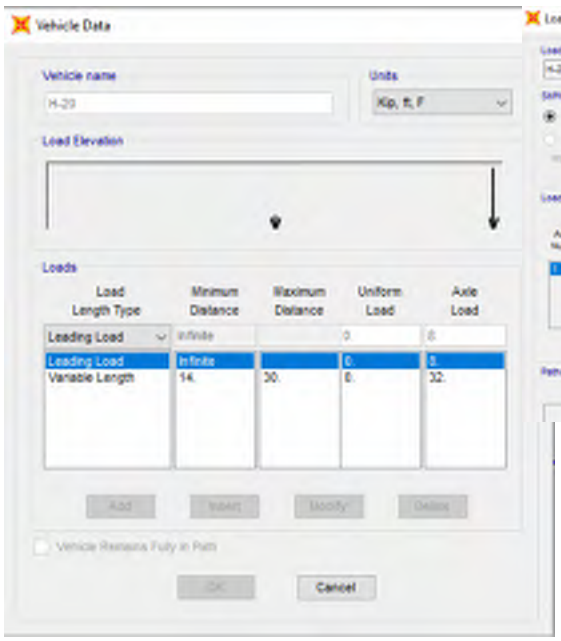
$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

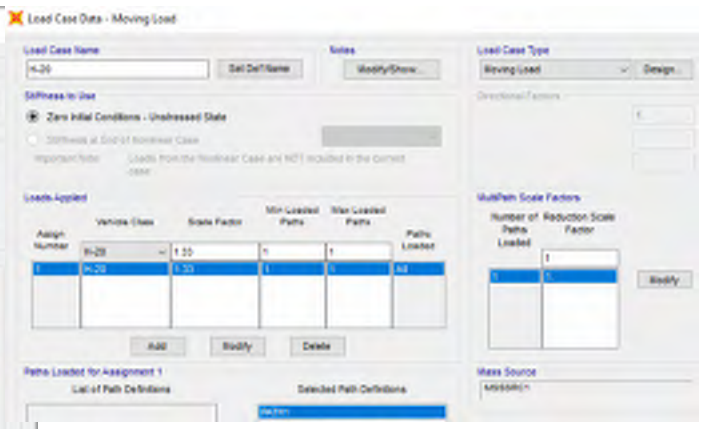
$\gamma_w := 62.4\ pcf$

$\gamma_s := 125\ pcf$

SAP2000 Model







Slab Demands:

+Live Load Demand:

$M_{H20\_IM} := 306\ kip \cdot ft$ Max moment at mid-span of slab

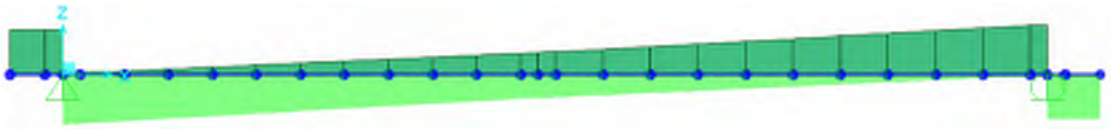
$V_{H20\_IM} := 47.0\ kip$ Max shear

$M_p := 1.0$ Multiple presence factor (1 per design criteria report)

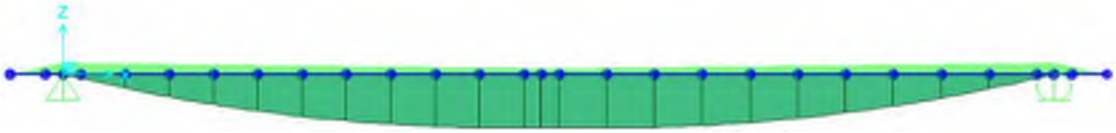
$M_{LL\_IM} := M_p \cdot \max\left(M_{H20\_IM}\right) = 306\ kip \cdot ft$

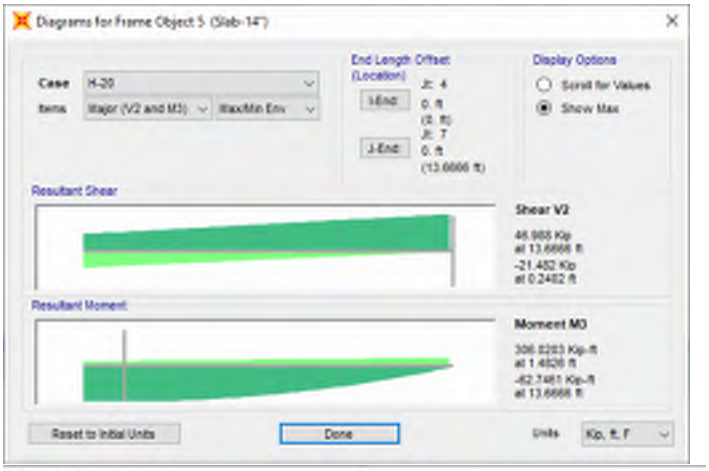
$V_{LL\_IM} := M_p \cdot \max\left(V_{H20\_IM}\right) = 47\ kip$

Shear Diagram from SAP2000:

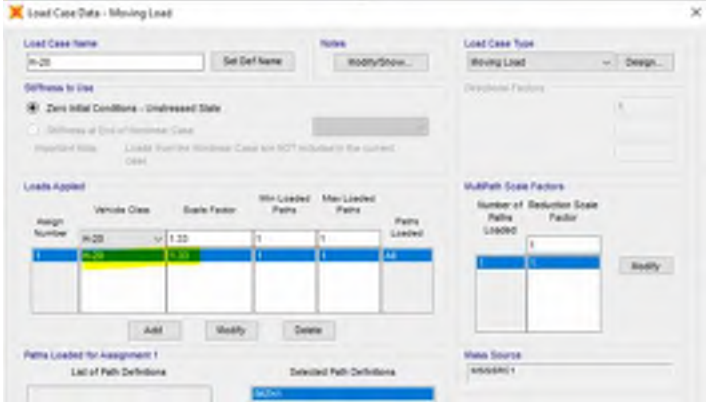


Moment Diagram from SAP2000:









+Dead Load Demand:

$w_{DC} := d \cdot E \cdot \gamma_c = 1.995$ **klf**

$V_{slab} := d \cdot E \cdot \gamma_c \cdot (0.5 \cdot S) = 28.263$ **kip**

$V_{hnch} := 0.5 \ d_{hnch} \cdot E \cdot \gamma_c \cdot L_{hnch} = 0.095$ **kip**

$V_{end} := d_{hnch} \cdot E \cdot \gamma_c \cdot d_{cl\_brg} = 0.285$ **kip**

$V_{DC} := V_{slab} + V_{hnch} + V_{end} = 28.643$ **kip**

$M_{DC} := V_{slab} \cdot \left(\frac{S}{4}\right) + V_{hnch} \cdot \left(\frac{L_{hnch}}{3} + d_{cl\_brg}\right) + V_{end} \cdot \left(\frac{d_{cl\_brg}}{2}\right) = 200.32$ **kip·ft**

+Water Demand:

$h_{w\_ser} := 3.7$ **ft**

$h_{w\_str} := 5.3$ **ft**

$w_{w\_ser} := h_{w\_ser} \cdot E \cdot \gamma_w = 2.632$ **klf**

$w_{w\_str} := h_{w\_str} \cdot E \cdot \gamma_w = 3.77$ **klf**

$M_{WA\_ser} := \frac{w_{w\_ser} \cdot S^2}{8} = 264.117$ **kip·ft**

$M_{WA\_str} := \frac{w_{w\_str} \cdot S^2}{8} = 378.33$ **kip·ft**

$V_{WA\_str} := \frac{w_{w\_str} \cdot S}{2} = 53.411$ **kip**

Load Combinations:

$M_{sA} := M_{LL\_IM} + M_{DC} = 506.3 \ kip \cdot ft$

$M_{sB} := M_{WA\_ser} + M_{DC} = 464.4 \ kip \cdot ft$

$M_{uA} := 1.75 \cdot M_{LL\_IM} + 1.25 \cdot M_{DC} = 785.9 \ kip \cdot ft$

$M_{uB} := 1.0 \cdot M_{WA\_str} + 1.25 \cdot M_{DC} = 628.7 \ kip \cdot ft$

$N_u := 0 \ kip$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 118.1 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 89.2 \ kip$

$M_u := \max\left(M_{uA}, M_{uB}\right) = 785.9 \ kip \cdot ft$

$M_s := \max\left(M_{sA}, M_{sB}\right) = 506.3 \ kip \cdot ft$

$V_u := \max\left(V_{uA}, V_{uB}\right) = 118.1 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#9s @ 6":

$b_{sz} := 9$ — Bar size

$s := 6\ in$ — Bar spacing

$n_b := 1$ — Bars per bundle

$A_s := E \cdot \frac{n_b\ A_{bar}(b_{sz})}{s} = 22.8\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 2\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 11.375\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.0086$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 2.35\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 1163\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.751$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.167\ ft \quad b = 11.4\ ft \quad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 4469\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 240\ kip \cdot ft$

$M_u = 785.9\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 240\ kip \cdot ft$

$\phi_f \cdot M_n = 1046\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.229$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7) - Negative Flexure:

$s_1 := s = 6\ in$ Spacing of flexure steel

$M_s = 506.322\ kip \cdot ft$
$d_s = 11.375\ in$
$b = 136.8\ in$
$n = 7$
$d_c := d - d_s = 2.625\ in$
$h := d = 1.167\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.33$$

$\gamma_e := 0.75$ Assume Exposure Class 2, corrosion potential

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$$a_o := \frac{-b}{2}$$
$b_o := -n \cdot A_s$ $A_s = 22.8\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 4.116\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 11590\ in^4$$

$$f_{ss} := \mathrm{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 26.64\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 9.571\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.627$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 118.053$ *kip* Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60$ *ksi* $A_s = 22.8$ *in*^{2} $d_s = 11.375$ *in*

$d_{v1} := 0.72 \cdot (d) = 10.08$ *in*

$d_{v2} := 0.9 \cdot (d_s) = 10.24$ *in*

$d_v := \max(d_{v1}, d_{v2}) = 10.24$ *in*

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5$ *ksi*
$b_v := b = 136.8$ *in*

$\theta := 45$ *deg*

$\beta := 2.0$

$V_s := 0$ *kip* AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 198$ *kip* AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 1576$ *kip*

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 178$ *kip*

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 178.1$ *kip*

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.663$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

The span is simply supported, the longitudinal reinforcement equation at the end is modified according to 5.7.3.5-2

Shear/Torsion Component:

$V_u = 118.053\ kip$ $V_s = 0\ kip$ $V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 131\ kip$$

Capacity Check:

$A_s = 22.8\ in^2$ $f_y = 60\ ksi$

$$C := A_s \cdot f_y = 1368\ kip$$

$\frac{D_V}{C} = 0.096$ <1, OK

+Deflections:

Effective Moment of Inertia AASHTO LRFD 5.6.3.5.2

$I_g := \frac{b \cdot d^3}{12} = (3.128 \cdot 10^4)\ in^4$

$y_t := 0.5 \cdot d = 7\ in$

$f_r = 536.656\ psi$

$M_{cr} := f_r \cdot \frac{I_g}{y_t} = 199.851\ kip \cdot ft$

$\frac{I_{eff}}{I_g} = 0.37$

$M_a := M_s = 506.322\ kip \cdot ft$

$I_{cr} := I_{eff} = 11589.551\ in^4$

$I_e := min\left(\left(\frac{M_{cr}}{M_a}\right) \cdot I_g + \left(1 - \left(\frac{M_{cr}}{M_a}\right)\right) I_{cr}, I_g\right) = (1.936 \cdot 10^4)\ in^4$

$I_{mod} := \frac{I_e}{I_g} = 0.619$

$b'_{sz} := 5$

$s' := 12\ in$

$A'_s := E \cdot \frac{A_{bar}(b'_{sz})}{s'} = 3.53\ in^2$

$\delta_{DL} := 0.367\ in$ Instantaneous dead load deflections based on effective section properties

$\delta_{LL} := 0.462\ in$ Live load deflections based on effective section properties H-20

$\delta_{WA\_ser} := 0.484\ in$ Water load deflections based on effective section properties

$n_{mag} := \max\left(3 - 1.2\left(\frac{A'_s}{A_s}\right), 1.6\right) = 2.814$

$\delta_{Total\_LT} := \max(\delta_{LL} + n_{mag} \cdot \delta_{DL}, \delta_{WA\_ser} + n_{mag} \cdot \delta_{DL}) = 1.517\ in$

$\delta_{settle\_Net} := 1\ in$ Settlement after placement of foundation and backfill

$\delta_{Total} := \delta_{Total\_LT} + \delta_{settle\_Net} = 2.517\ in$ <6 in, OK

Distribution Reinforcement (AASHTO 2017, 9.7.3.2):

Primary reinforcement is perpendicular to traffic:

$$P_{dist} := min\left(\frac{220}{100\ \sqrt{S \cdot ft^{-1}}}, 67\%\right) = 41.33\%$$

$$A_{dist\_req} := P_{dist} \cdot \frac{(A_s)}{E} = 0.827\ \frac{in^2}{ft}$$

Use #7 @ 9"

$$A_{bar\_dist} := A_{bar}(7) = 0.6\ in^2$$

$$s_{dist} := 8\ in$$

$$A_{dist} := \frac{A_{bar\_dist}}{s_{dist}} = 0.9\ \frac{in^2}{ft}$$

$$DCR_{dist} := \frac{A_{dist\_req}}{A_{dist}} = 0.918$$ <1, OK

Temperature and Shrinkage (AASHTO LRFD 2017, 5.10.6):

By inspection the #5@12 T&S in the 12" slab over the 14" fuel line will control, check this case.

$d_{cl\_brg} = 0.5\ ft$

$L_{slb} := S + 2 \cdot (2\ ft - d_{cl\_brg}) = 31.333\ ft$

$b_0 := min(W, L_{slb}) \cdot in^{-1} = 376$ Slab width (inches)

$h_0 := d \cdot in^{-1} = 14$ Slab thickness (inches)

$f_{y0} := 60$

$$A_{s\_min} := \left(\frac{1.3 \cdot b_0 \cdot h_0}{2 \cdot (b_0 + h_0) \cdot f_{y0}} \right) \frac{in^2}{ft} = 0.146\ \frac{in^2}{ft}$$

Transverse reinforcement (#5s @ 12" spacing)

$b_{sz} := 5$

$A_{s\_0} := A_{bar}(b_{sz}) = 0.31\ in^2$

$s_0 := 12\ in$

$$A_{s0} := \frac{A_{s\_0}}{s_0} = 0.31\ \frac{in^2}{ft}$$

$\frac{A_{s\_min}}{A_{s0}} = 0.472$ <1, OK

Slab Design - H20 - Transverse

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)
+Deflection

Section:

$S := 28\ ft + 4\ in = 28.33\ ft$ Span length

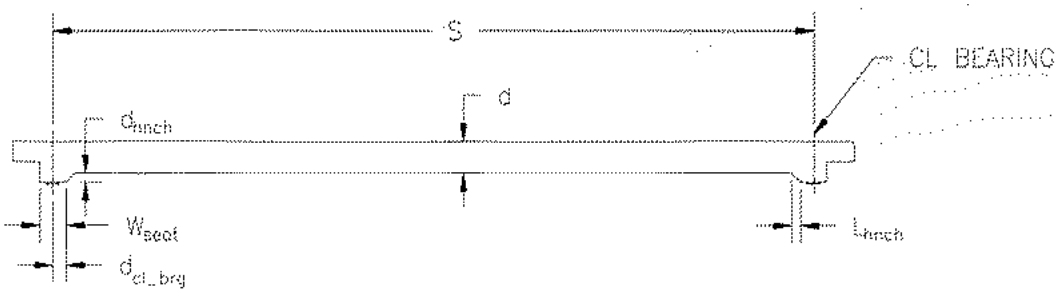
$d_{cl\_brg} := 6\ in$ Distance to bearing CL

$d := 14\ in$ Slab depth

$d_{hnch} := 4\ in$ Haunch depth

$L_{hnch} := d_{hnch} = 4\ in$ Length haunch

$W_{seat} := 1\ ft$ Seat width



Equivalent strip width, per AASHTO Article 4.6.2.10.3, when traffic travels perpendicular to the span the provisions of Article 4.6.2.1 should be used. due to its length it is assumed he slab will be placed in sections creating joints perpendicular to the direction of traffic. To account for this only half the effective width is used per 4.6.2.1.4c.

$$E_p := 0.5 \left(26\ in + 6.6 \frac{S}{ft} \cdot in\right) = 8.875\ ft$$

$b := E_p = 8.875\ ft$ Section width

Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

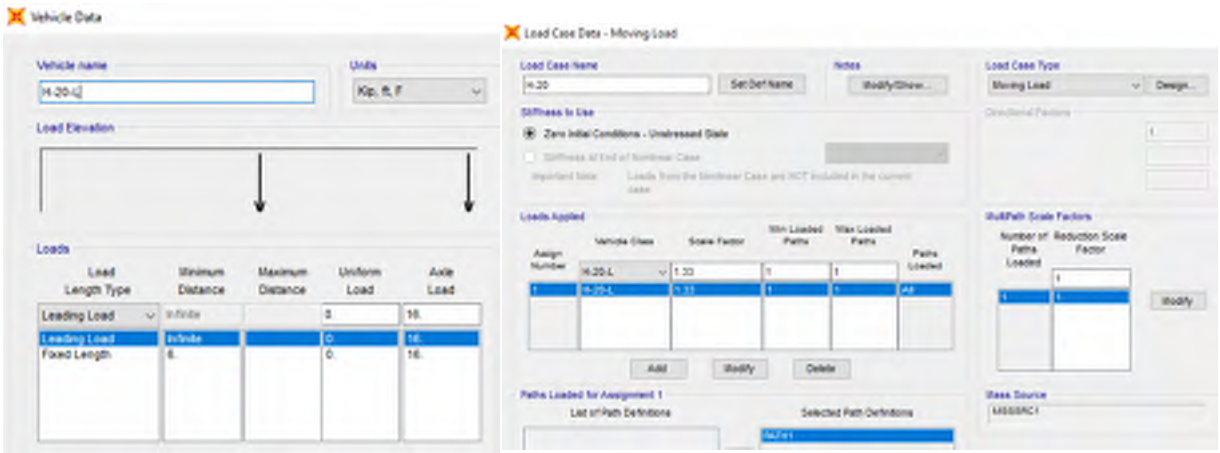
$E_s := 29000\ ksi$ Steel modulus of elasticity

$\gamma_w := 62.4\ pcf$

$\gamma_s := 125\ pcf$

SAP2000 Model





Demands Positive Reinforcement:

+Live Load Demand:

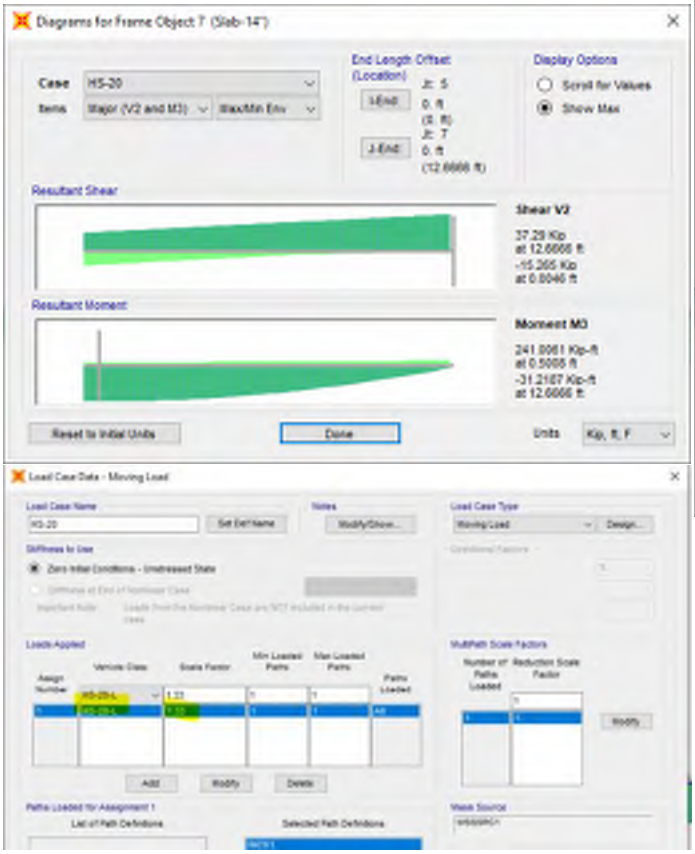
$M_{H20\_IM} := 241\ kip \cdot ft$ Max moment at mid-span of slab

$V_{H20\_IM} := 37.3\ kip$ Max shear

$M_p := 1.0$ Multiple presence factor (1 per design criteria report)

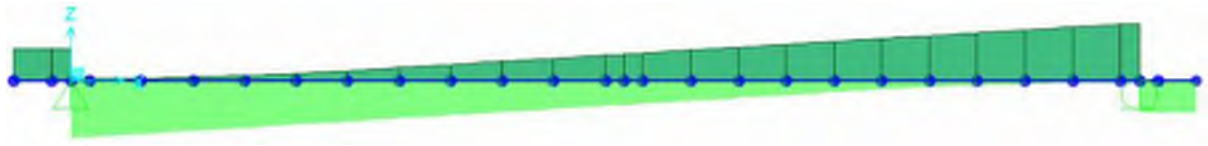
$M_{LL\_IM} := M_p \cdot \max\left(M_{H20\_IM}\right) = 241\ kip \cdot ft$

$V_{LL\_IM} := M_p \cdot \max\left(V_{H20\_IM}\right) = 37.3\ kip$

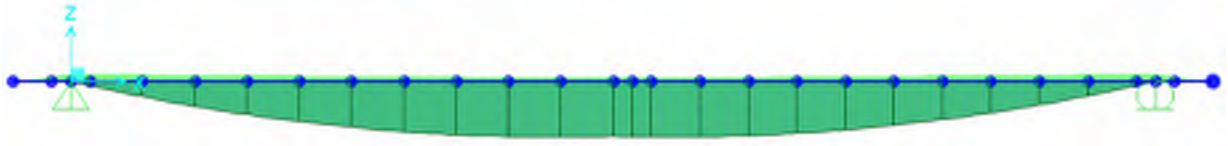




Shear Diagram from SAP2000:



Moment Diagram from SAP2000:



+Dead Load Demand:

$w_{DC} := d \cdot E_p \cdot \gamma_c = 1.553$ **klf**

$V_{slab} := d \cdot E_p \cdot \gamma_c \cdot (0.5 \cdot S) = 22.003$ **kip**

$V_{hnch} := 0.5 \ d_{hnch} \cdot E_p \cdot \gamma_c \cdot L_{hnch} = 0.074$ **kip**

$V_{end} := d_{hnch} \cdot E_p \cdot \gamma_c \cdot d_{cl\_brg} = 0.222$ **kip**

$V_{DC} := V_{slab} + V_{hnch} + V_{end} = 22.298$ **kip**

$M_{DC} := V_{slab} \cdot \left(\frac{S}{4}\right) + V_{hnch} \cdot \left(\frac{L_{hnch}}{3} + d_{cl\_brg}\right) + V_{end} \cdot \left(\frac{d_{cl\_brg}}{2}\right) = 155.952$ **kip·ft**

+Water Demand:

$h_{w\_ser} := 3.7$ **ft**

$h_{w\_str} := 5.3$ **ft**

$w_{w\_ser} := h_{w\_ser} \cdot E_p \cdot \gamma_w = 2.049$ **klf**

$w_{w\_str} := h_{w\_str} \cdot E_p \cdot \gamma_w = 2.935$ **klf**

$M_{WA\_ser} := \frac{w_{w\_ser} \cdot S^2}{8} = 205.617$ **kip·ft**

$M_{WA\_str} := \frac{w_{w\_str} \cdot S^2}{8} = 294.533$ **kip·ft**

$V_{WA\_str} := \frac{w_{w\_str} \cdot S}{2} = 41.581$ **kip**

Load Combinations:

$M_{sA} := M_{LL\_IM} + M_{DC} = 397 \ kip \cdot ft$

$M_{sB} := M_{WA\_ser} + M_{DC} = 361.6 \ kip \cdot ft$

$M_{uA} := 1.75 \cdot M_{LL\_IM} + 1.25 \cdot M_{DC} = 616.7 \ kip \cdot ft$

$M_{uB} := 1.0 \cdot M_{WA\_str} + 1.25 \cdot M_{DC} = 489.5 \ kip \cdot ft$

$N_u := 0 \ kip$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 93.1 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 69.5 \ kip$

$M_u := \max\left(M_{uA}, M_{uB}\right) = 616.691 \ kip \cdot ft$

$M_s := \max\left(M_{sA}, M_{sB}\right) = 396.952 \ kip \cdot ft$

$V_{u\_max} := \max\left(V_{uA}, V_{uB}\right) = 93.148 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
9s @ 6":

$b_{sz} := 9$ — Bar size

$s := 6\ in$ — Bar spacing

$n_b := 1$ — Bars per bundle

$A_s := E_p \cdot \frac{n_b\ A_{bar}(b_{sz})}{s} = 17.75\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 2\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 11.375\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.0086$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 2.35\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 905\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.757$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.167\ ft \quad b = 8.875\ ft \quad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.75)

$S_c := \frac{d^2 \cdot b}{6} = 3479\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 187\ kip \cdot ft$

$M_u = 616.7\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 187\ kip \cdot ft$

$\phi_f \cdot M_n = 815\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.229$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7) - Negative Flexure:

$s_1 := s = 6\ in$ Spacing of flexure steel

$M_s = 396.952\ kip \cdot ft$

$d_s = 11.375\ in$

$b = 106.5\ in$

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

$n = 7$

$d_c := d - d_s = 2.625\ in$

$h := d = 1.167\ ft$

$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.33$

$\gamma_e := 1.0$ Assume Exposure Class 2, corrosion potential

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$

$b_o := -n \cdot A_s$

$c_o := n \cdot \left(A_s \cdot d_s\right)$

$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 4.116\ in$

$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 9023\ in^4$

$f_{ss} := \text{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 26.828\ ksi$ Stress in flexure steel at service loading

$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 14.373\ in$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.417$ <1, OK

Maximum Shear:

Demands at Section:

$V_{u\_max} = 93.148\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 17.75\ in^2$ $d_s = 11.375\ in$

$d_{v1} := 0.72 \cdot (d) = 10.08\ in$

$d_{v2} := 0.9 \cdot (d_s) = 10.24\ in$

$d_v := \max(d_{v1}, d_{v2}) = 10.24\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5\ ksi$
$b_v := b = 106.5\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 154\ kip$ AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 1227\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 139\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 138.7\ kip$

$DCR := \frac{\text{abs}(V_{u\_max})}{\phi V_n} = 0.672$ <1, OK

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

The span is simply supported, the longitudinal reinforcement equation at the end is modified according to 5.7.3.5-2

Shear/Torsion Component:

$V_{u\_max} = 93.148\ kip \quad V_s = 0\ kip \qquad V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}\left(V_{u\_max}\right)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_{u\_max}}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 103\ kip$$

Capacity Check:

$A_s = 17.75\ in^2 \qquad f_y = 60\ ksi$

$C := A_s \cdot f_y = 1065\ kip$

$\frac{D_V}{C} = 0.097$ <1, OK

+Deflections:

Effective Moment of Inertia AASHTO LRFD 5.6.3.5.2

$I_g := \frac{b \cdot d^3}{12} = (2.435 \cdot 10^4)\ in^4$

$y_t := 0.5 \cdot d = 7\ in$

$f_r = 536.656\ psi$

$M_{cr} := f_r \cdot \frac{I_g}{y_t} = 155.586\ kip \cdot ft$

$\frac{I_{eff}}{I_g} = 0.37$

$M_a := M_s = 396.952\ kip \cdot ft$

$I_{cr} := I_{eff} = 9022.567\ in^4$

$I_e := min\left(\left(\frac{M_{cr}}{M_a}\right) \cdot I_g + \left(1 - \left(\frac{M_{cr}}{M_a}\right)\right) I_{cr}, I_g\right) = (1.503 \cdot 10^4)\ in^4$

$I_{mod} := \frac{I_e}{I_g} = 0.617$

$b'_{sz} := 5$

$s' := 12\ in$

$A'_s := E_p \cdot \frac{A_{bar}(b'_{sz})}{s'} = 2.75\ in^2$

$\delta_{DL} := 0.367\ in$ Instantaneous dead load deflections based on effective section properties

$\delta_{LL} := 0.540\ in$ Live load deflections based on effective section properties

$\delta_{WA\_ser} := 0.484\ in$ Water load deflections based on effective section properties

$n_{mag} := \max\left(3 - 1.2\left(\frac{A'_s}{A_s}\right), 1.6\right) = 2.814$

$\delta_{Total\_LT} := \max(\delta_{LL} + n_{mag} \cdot \delta_{DL}, \delta_{WA\_ser} + n_{mag} \cdot \delta_{DL}) = 1.573\ in$

$\delta_{settle\_Net} := 1\ in$ Settlement after placement of foundation and backfill

$\delta_{Total} := \delta_{Total\_LT} + \delta_{settle\_Net} = 2.573\ in$ <6 in, OK

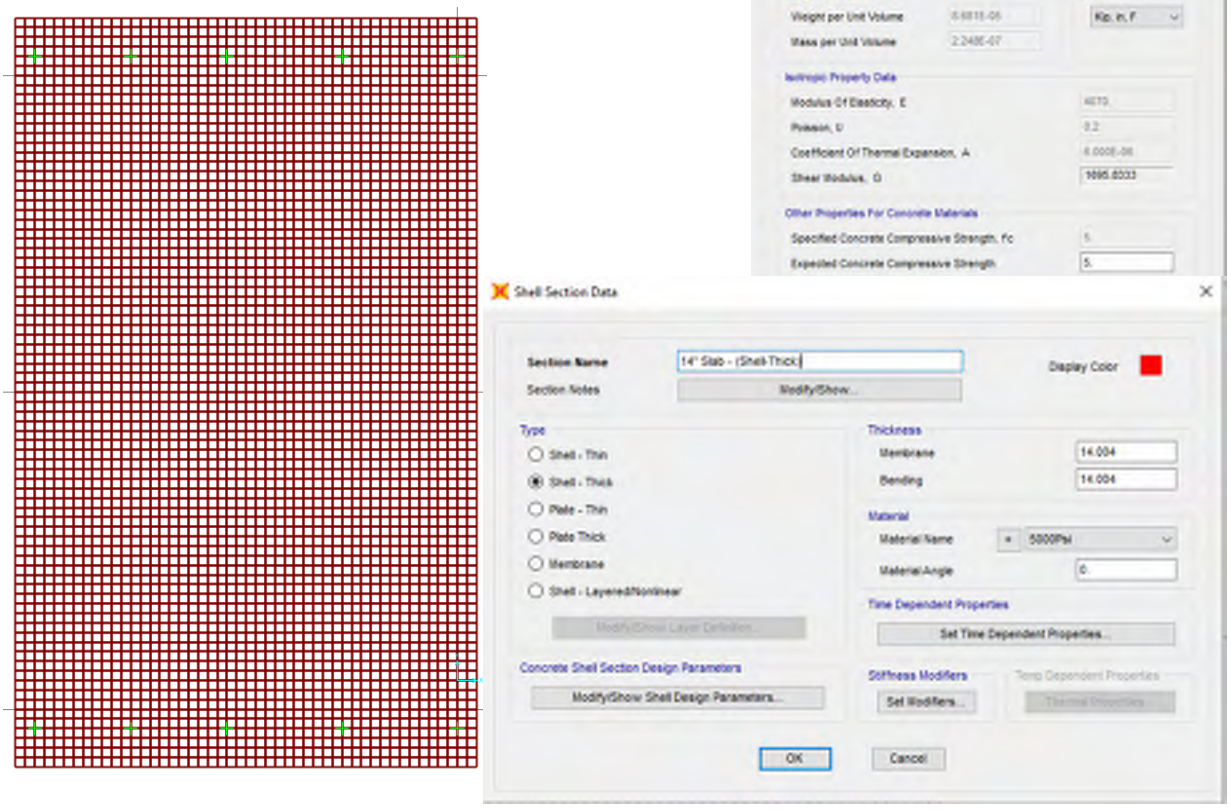
Slab Design - Excavator and Bulldozer

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Analysis:

The excavator and bulldozer vehicles that will be used to service this channel have a axle widths and patch loadings inconsistent with the standard AASHTO design vehicles. Because of this the equivalent strip width methodolgy used elsewhere in these calculations is not appropriate. To analyze the force effects of these vehicles an shell model is created in SAP2000. This model uses thick shell elements with a 5" mesh size. The slab is supported by pins at the center of the bearings. Area loads are applied on the slab over the area of the track. The excavator and bulldozer are placed longitudinally and tranversely on the slab as shown on the following sheets.



Section:

$S := 28\ ft + 4\ in = 28.33\ ft$ Span length

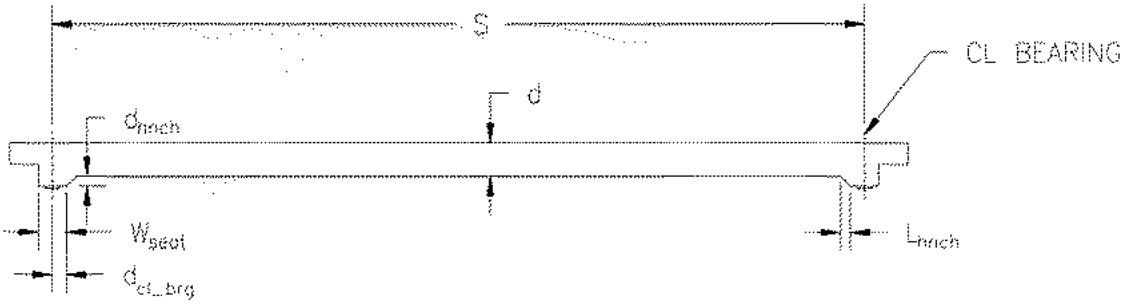
$d_{cl\_brg} := 6\ in$ Distance to bearing CL

$d := 14\ in$ Slab depth

$d_{hnch} := 4\ in$ Haunch depth

$L_{hnch} := d_{hnch} = 4\ in$ Length haunch

$W_{seat} := 1\ ft$ Seat width



$E := 1\ ft$ Design strip width

$b := E = 1\ ft$ Section width

Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

$\gamma_w := 62.4\ pcf$

$\gamma_s := 125\ pcf$

Vehicle Pressures:

Excavator Track Pressures:

$P_{ex} := 72.94\ kip$

$W_{trac} := 24\ in$

$L_{trac\_ex} := 158\ in$

$$p_{ex} := \frac{P_{ex}}{2\ W_{trac} \cdot L_{trac\_ex}} = 1.385\ ksf$$

Bulldozer Track Pressures:

$P_{bd} := 48.5\ kip$

$W_{trac} = 24\ in$

$L_{trac\_bd} := 116.7\ in$

$$p_{bd} := \frac{P_{bd}}{2\ W_{trac} \cdot L_{trac\_bd}} = 1.247\ ksf$$

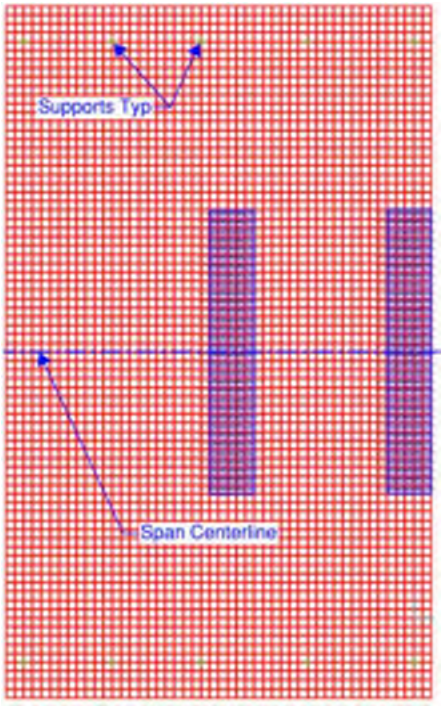
Maximum Moment - Excavator Patch Loads:

Calculate the distance from the centerline of bearing to the centerline of track producing the maximum moment for the transverse loading scenerio.

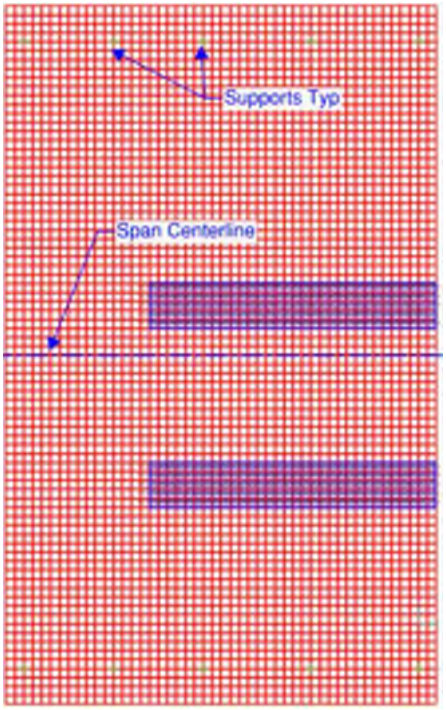
$S = 28.333\ ft$

$d_{axle\_ex} := 8.5\ ft$

$d_{track1} := \frac{d_{axle\_ex} - 2 \cdot S}{-4} = 12.042\ ft$



Excavator - Longitudinal



Excavator - Transverse

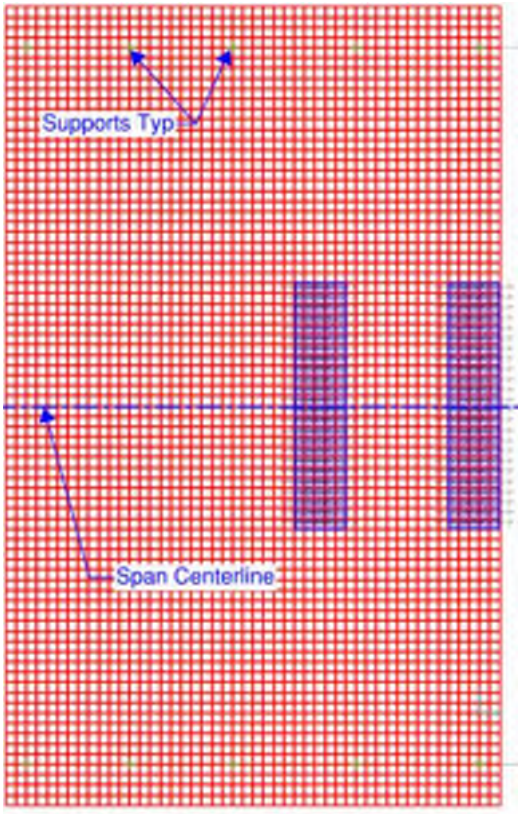
Maximum Moment - Bulldozer Patch Loads:

Calculate the distance from the centerline of bearing to the centerline of track producing the maximum moment for the transverse loading scenerio.

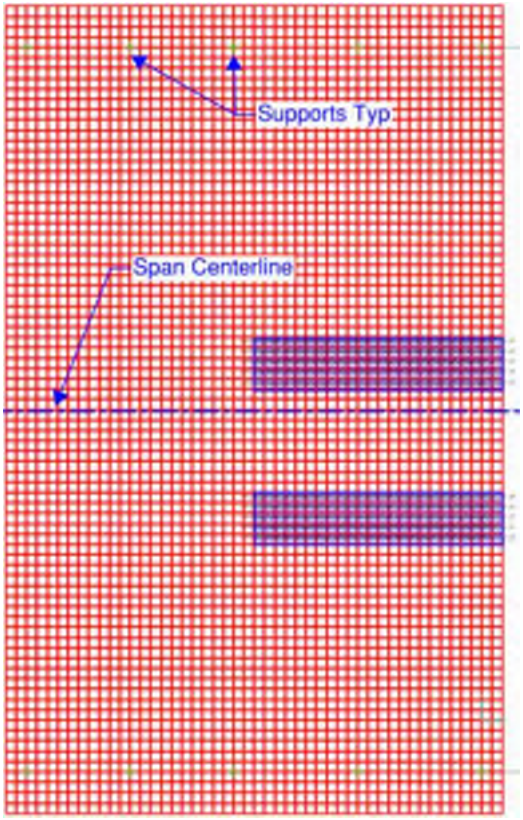
$S = 28.333\ ft$

$d_{axle\_bd} := 6.33\ ft$

$d_{track1\_bd} := \frac{d_{axle\_bd} - 2 \cdot S}{-4} = 12.584\ ft$

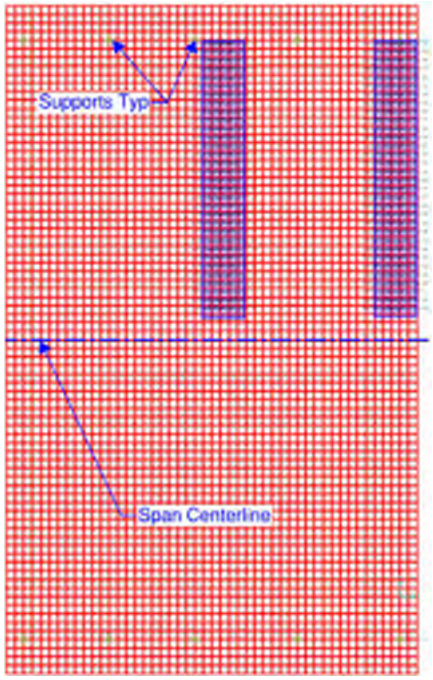


Bulldozer - Longitudinal

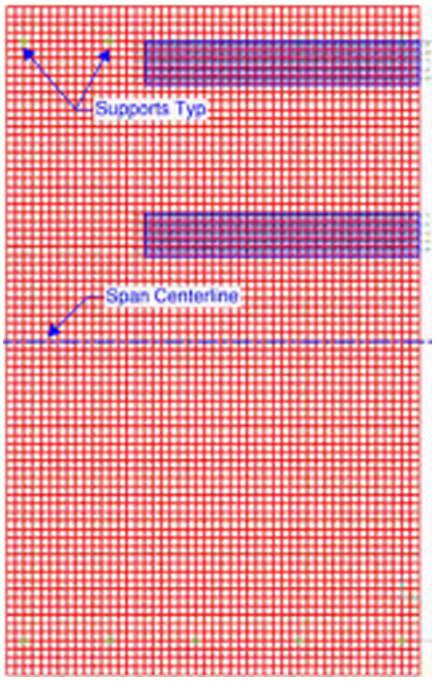


Bulldozer - Transverse
First Track ~12'-6" from CL Bearing

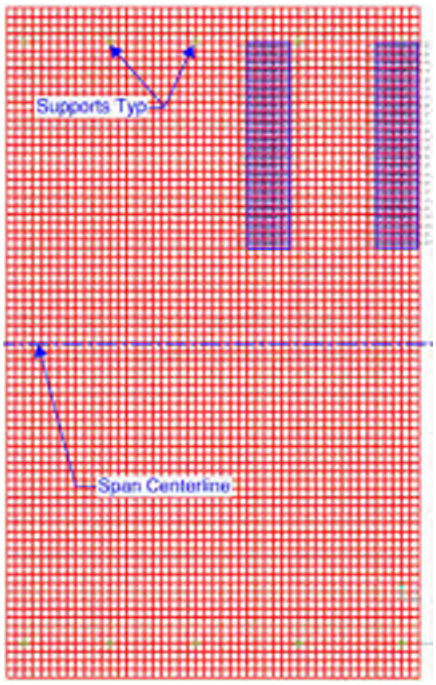
Maximum Shear - Excavator and Bulldozer Patch Loads:



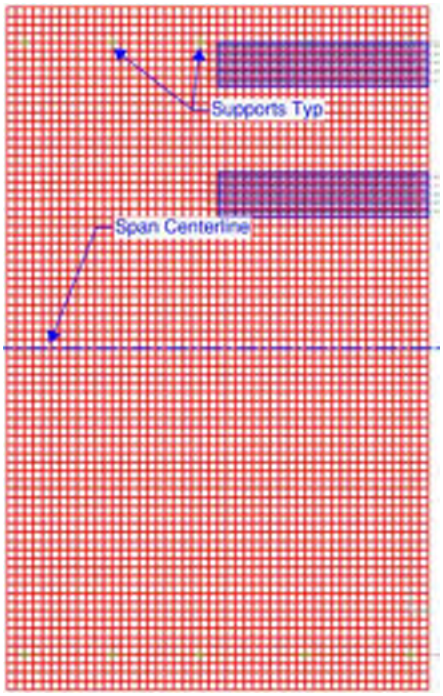
Excavator - Longitudinal - Max Shear



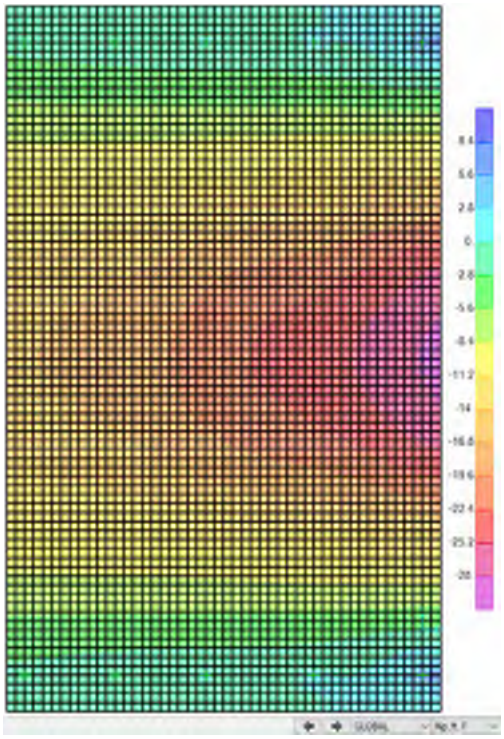
Excavator - Transverse - Max Shear



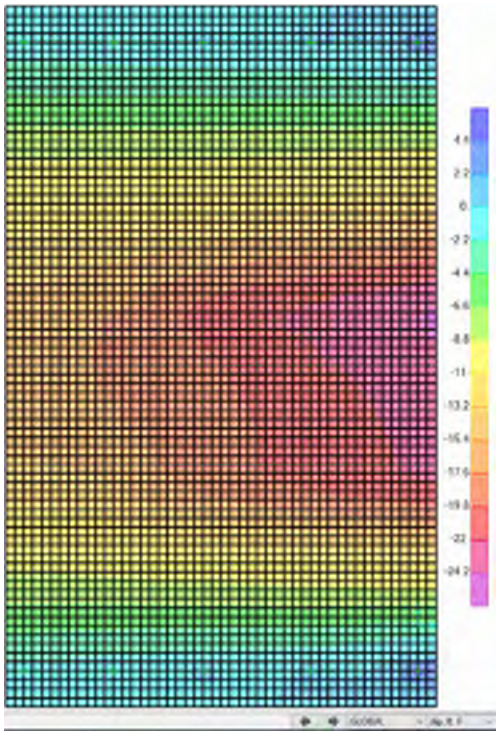
Bulldozer - Longitudinal - Max Shear



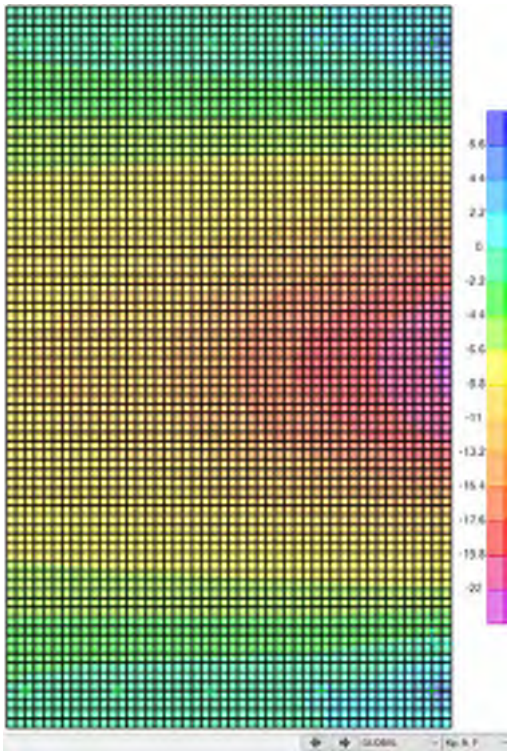
Bulldozer - Transverse - Max Shear



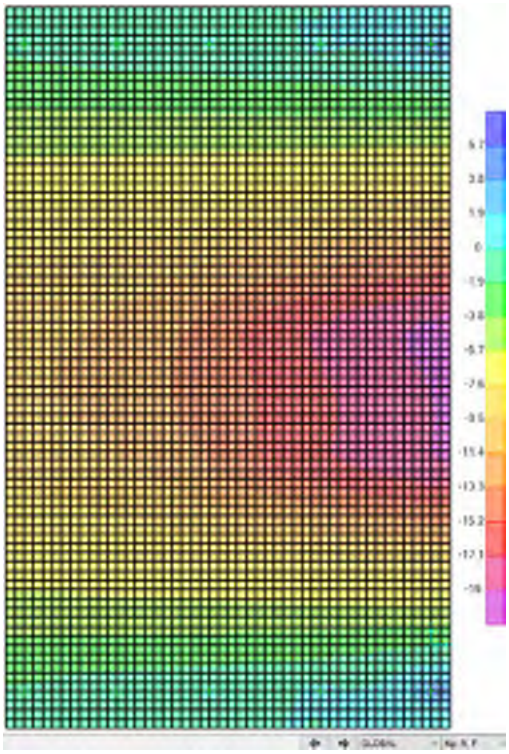
Excavator - Longitudinal - Moment



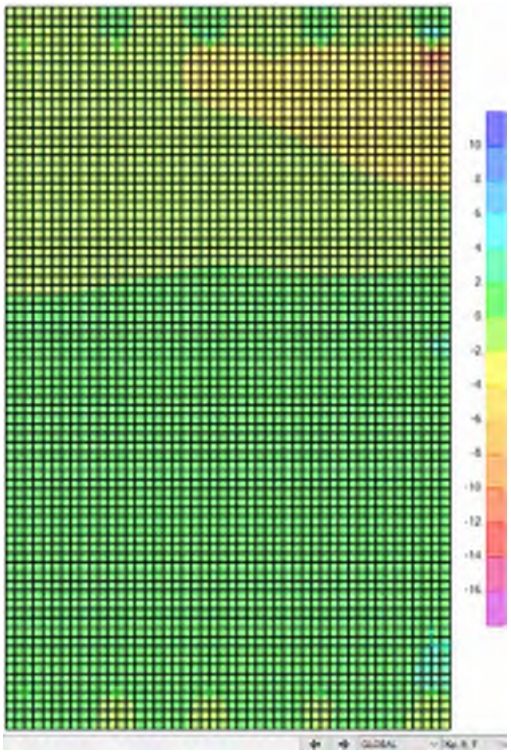
Excavator - Transverse - Moment



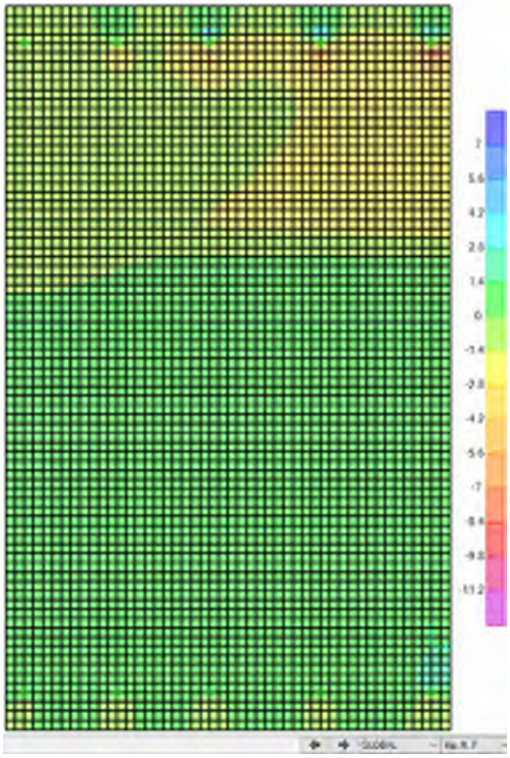
Bulldozer - Longitudinal - Moment



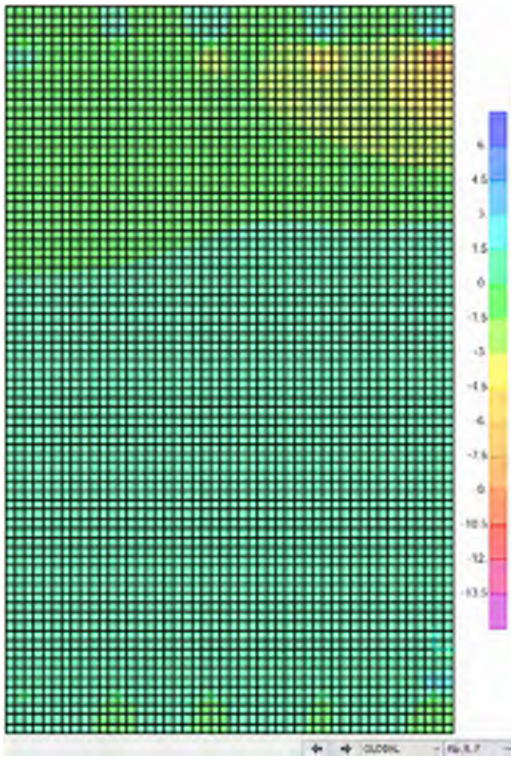
Bulldozer - Transverse - Moment



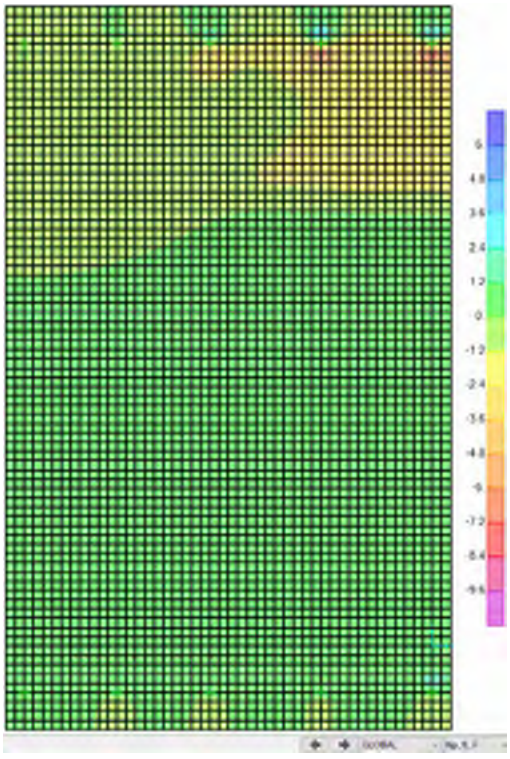
Excavator - Longitudinal - Shear



Excavator - Transverse - Shear



Bulldozer - Longitudinal - Shear



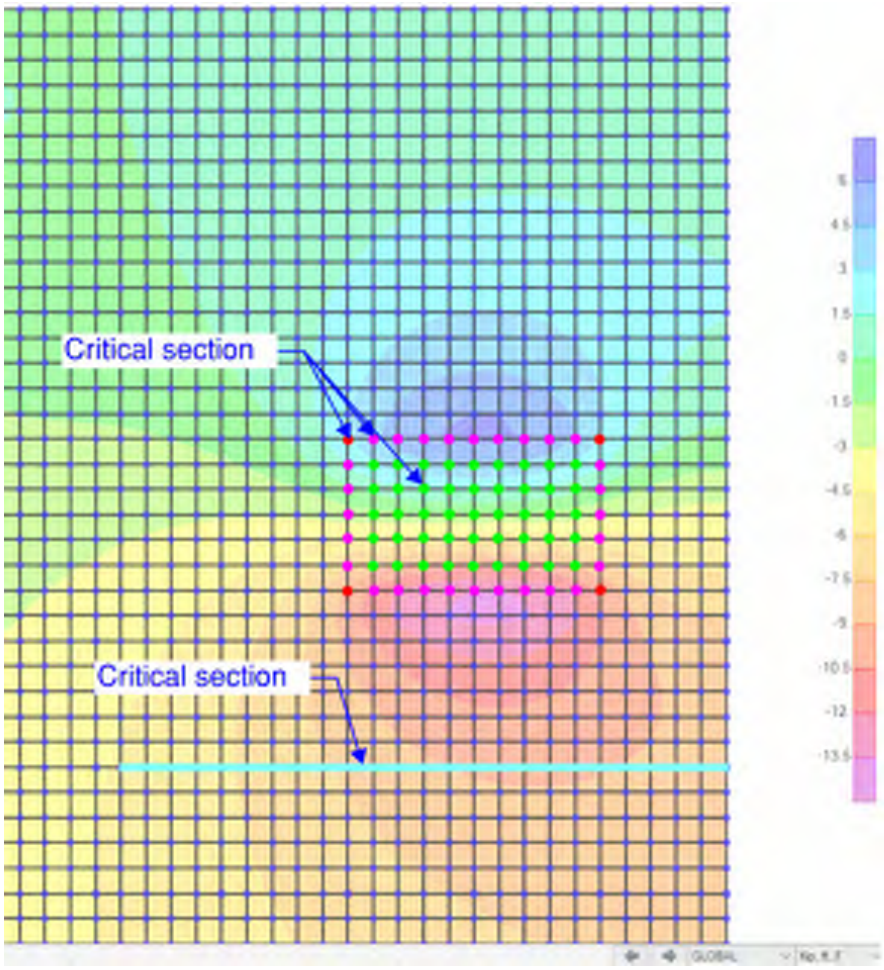
Bulldozer - Transverse - Shear

A shear stress concentration was observed near the bearings in all three shear load cases with the maximum magnitude shown in the longitudinal excavator load case.

To determine a clearer demand a model was refined with 1"x1" mesh in the vicinity of the bearing and with the bearing modelled by a number of springs with a realistic total stiffness based on the bearing design. The stress concentration is located within the end diaphragm so demand is taken at the edge of fillet 10" from the CL of bearing.

Spring Stiffness

$\varepsilon_{brg} := 6.95\%$	Bearing compressive strain (see bearing design)
$\sigma_{brg} := 703\ psi$	Bearing compressive stress (see bearing design)
$E_{brg} := \frac{\sigma_{brg}}{\varepsilon_{brg}} = 10115\ psi$	Effective bearing elastic modulus
$w_{brg} := 6\ in$	Bearing width
$l_{brg} := 10\ in$	Bearing length
$t_{brg} := 0.5\ in$	Bearing thickness
$A_{brg} := w_{brg} \cdot l_{brg} = 60\ in^2$	Bearing area
$k_{brg} := \frac{E_{brg} \cdot A_{brg}}{t_{brg}} = 14566\ \frac{kip}{ft}$	Total bearing stiffness
$A_{trb\_spr1} := 1\ in^2$	Tributary area of spring 1 type (green)
$A_{trb\_spr2} := 0.5\ in^2$	Tributary area of spring 2 type (magenta)
$A_{trb\_spr3} := 0.25\ in^2$	Tributary area of spring 3 type (red)
$k_{spr1} := k_{brg} \cdot \frac{A_{trb\_spr1}}{A_{brg}} = 242.8\ \frac{kip}{ft}$	Stiffness of spring 1 type (green)
$k_{spr2} := k_{brg} \cdot \frac{A_{trb\_spr2}}{A_{brg}} = 121.4\ \frac{kip}{ft}$	Stiffness of spring 3 type (magenta)
$k_{spr3} := k_{brg} \cdot \frac{A_{trb\_spr3}}{A_{brg}} = 60.7\ \frac{kip}{ft}$	Stiffness of spring 3 type (red)



Shear near edge bearing in refined model, Load case: Excavator Longitudinal Max Shear

Demands:

$IM := 1.33$

Excavator Moment Demand:

$M_{ex\_L} := 28.9\ kip \cdot ft$

$M_{ex\_T} := 24.7\ kip \cdot ft$

Bulldozer Moment Demand:

$M_{bd\_L} := 22.6\ kip \cdot ft$

$M_{bd\_T} := 20.0\ kip \cdot ft$

Average shear along the width of the track (By inspection longitudinal Excavator load case controls):

$$V_{ex\_L} := \frac{4.8 \cdot kip + 2 \cdot (6.2\ kip + 7.4\ kip + 9.1\ kip + 9.1\ kip) + 9.1\ kip}{10} = 7.75\ kip$$

Base the maximum shear on the

$C_{MPF} := 1.0$

$M_{LL\_IM} := C_{MPF} \cdot IM \cdot \max(M_{ex\_L}, M_{ex\_T}, M_{bd\_L}, M_{bd\_T}) = 38.44\ kip \cdot ft$

$V_{LL\_IM} := C_{MPF} \cdot IM \cdot V_{ex\_L} = 10.31\ kip$

+Dead Load Demand:

$w_{DC} := d \cdot E \cdot \gamma_c = 0.175$ ***klf***

$V_{slab} := d \cdot E \cdot \gamma_c \cdot (0.5 \cdot S) = 2.479$ ***kip***

$V_{hnch} := 0.5 \; d_{hnch} \cdot E \cdot \gamma_c \cdot L_{hnch} = 0.008$ ***kip***

$V_{end} := d_{hnch} \cdot E \cdot \gamma_c \cdot d_{cl\_brg} = 0.025$ ***kip***

$V_{DC} := V_{slab} + V_{hnch} + V_{end} = 2.513$ ***kip***

$M_{DC} := V_{slab} \cdot \left(\frac{S}{4}\right) + V_{hnch} \cdot \left(\frac{L_{hnch}}{3} + d_{cl\_brg}\right) + V_{end} \cdot \left(\frac{d_{cl\_brg}}{2}\right) = 17.572$ ***kip·ft***

+Water Demand:

$h_{w\_ser} := 4.5$ ***ft***

$h_{w\_str} := 5.75$ ***ft***

$w_{w\_ser} := h_{w\_ser} \cdot E \cdot \gamma_w = 0.281$ ***klf***

$w_{w\_str} := h_{w\_str} \cdot E \cdot \gamma_w = 0.359$ ***klf***

$M_{WA\_ser} := \frac{w_{w\_ser} \cdot S^2}{8} = 28.178$ ***kip·ft***

$M_{WA\_str} := \frac{w_{w\_str} \cdot S^2}{8} = 36.005$ ***kip·ft***

$V_{WA\_str} := \frac{w_{w\_str} \cdot S}{2} = 5.083$ ***kip***

Load Combinations:

$M_{sA} := M_{LL\_IM} + M_{DC} = 56 \ kip \cdot ft$

$M_{sB} := M_{WA\_ser} + M_{DC} = 45.7 \ kip \cdot ft$

$M_{uA} := 1.75 \cdot M_{LL\_IM} + 1.25 \cdot M_{DC} = 89.2 \ kip \cdot ft$

$M_{uB} := 1.0 \cdot M_{WA\_str} + 1.25 \cdot M_{DC} = 58 \ kip \cdot ft$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 21.2 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 8.2 \ kip$

$N_u := 0 \ kip$

$M_s := \max\left(M_{sA}, M_{sB}\right) = 56.009 \ kip \cdot ft$

$M_u := \max\left(M_{uA}, M_{uB}\right) = 89.23 \ kip \cdot ft$

$V_u := \max\left(V_{uA}, V_{uB}\right) = 21.179 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
9s @ 6":

$b_{sz} := 9$ — Bar size

$n_b := 1$ — Number of bars per bundle

$s := 6\ in$

$A_s := \frac{n_b\ A_{bar}(b_{sz})}{s} \cdot b = 2\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_c := 2\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_c + 0.5\ d_{ba}(b_{sz})) = 11.375\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 2.94\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.009$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 2.35\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{\langle f_y - 60\ ksi \rangle}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{\langle f_y - 75\ ksi \rangle}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ \langle \varepsilon_t - \varepsilon_{cl} \rangle}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 102\ kip \cdot ft$$

$$\phi_f \cdot M_n = 91.79\ kip \cdot ft$$

$$M_u = 89.23\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}\langle M_u \rangle}{\phi_f \cdot M_n} = 0.972$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.167\ ft \quad b = 1\ ft \qquad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.80$ Yield:Ultimate Ratio (A706, Gr.80)

$S_c := \frac{d^2 \cdot b}{6} = 392\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 22\ kip \cdot ft$

$M_u = 89.2\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 22\ kip \cdot ft$

$\phi_f \cdot M_n = 92\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.244$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7) - Negative Flexure:

$s_1 := 6 \cdot in$ Spacing of flexure steel

$M_s = 56.009\ kip \cdot ft$
$d_s = 11.375\ in$

$b = 12\ in$
$n = 7$
$d_c := d - d_s = 2.625\ in$
$h := d = 1.167\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ \left(h - d_c\right)} = 1.33$$

$\gamma_e := 1$ Assume Exposure Class 1, low visibility

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$
$b_o := -n \cdot A_s$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 4.116\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 1017\ in^4$$

$$f_{ss} := \operatorname{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 33.595\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 10.42\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.576$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 21.179\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

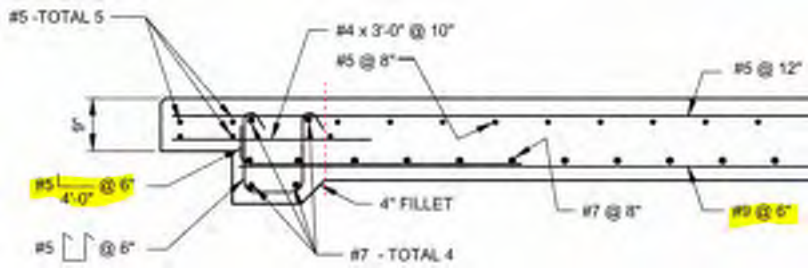
$f_y = 60\ ksi$ $A_s = 2\ in^2$ $d_s = 11.375\ in$

$d_{v1} := 0.72 \cdot (d) = 10.08\ in$

$d_{v2} := 0.9 \cdot (d_s) = 10.24\ in$

$d_v := \max(d_{v1}, d_{v2}) = 10.24\ in$

Effective Longitudinal Steel:



$s_{l\_v} := 5\ in$

$A_{l\_v} := A_{bar}(5) = 0.31\ in^2$ Hooked number #5 bars

$l_{av} := 13.5\ in$ Available Development Length

$l_{dl\_9} := 2.55\ ft$ #9 Development Length

$$A_{s\_Veff} := \left(\frac{A_{l\_v}}{s_{l\_v}} + \frac{A_s}{s} \cdot \left(\frac{l_{av}}{l_{dl\_9}}\right)\right) \cdot b = 2.509\ in^2$$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5\ ksi$

$b_v := b = 12\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$a_g := 1\ in$

Table B5.2-2—Values of θ and β for Sections with Less than Minimum Transverse Reinforcement

s_{xe}, in.	$\varepsilon_x \times 1{,}000$								
	≤ −0.20	≤ −0.10	≤ −0.05	≤ 0	≤ 0.125	≤ 0.25	≤ 0.50	≤ 0.75	≤ 1.00
≤5	25.4 6.36	25.5 6.06	25.9 5.56	26.4 5.15	27.7 4.41	28.9 3.91	30.9 3.26	32.4 2.86	33.7 2.58
≤10	27.6 5.78	27.6 5.78	28.3 5.38	29.3 4.89	31.6 4.05	33.5 3.52	36.3 2.88	38.4 2.50	40.1 2.23

Assumed max aggregate size

$$s_{xe} := d_v \cdot \frac{1.38\ in}{a_g + 0.63\ in} = 8.667\ in$$

$M_{u\_v} := V_u \cdot d_v = 18.068\ kip \cdot ft$

$$\frac{\frac{M_{u\_v}}{d_v} + 0.5 \cdot V_u \cdot \cot(\theta)}{E_s \cdot A_{s\_Veff}} \cdot 1000 = 0.437$$

$\theta := 36.3\ deg$

$$\frac{\frac{M_{u\_v}}{d_v} + 0.5 \cdot V_u \cdot \cot(\theta)}{E_s \cdot A_{s\_Veff}} \cdot 1000 = 0.489$$

$\beta := 2.88$

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 25\ kip$ AASHTO 2017, (5.7.3.3-3)

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 138\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 22\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 22.5\ kip$

$DCR := \frac{abs(V_u)}{\phi V_n} = 0.941$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

The span is simply supported, the longitudinal reinforcement equation at the end is modified according to 5.7.3.5-2

Shear/Torsion Component:

$V_u = 21.179\ kip$ $V_s = 0\ kip$ $V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 32\ kip$$

Capacity Check:

$A_{s\_Veff} = 2.509\ in^2$ $f_y = 60\ ksi$

$C := A_{s\_Veff} \cdot f_y = 151\ kip$

$\frac{D_V}{C} = 0.213$ <1, OK

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Project: San Dieguito DT
Project #: 5600400.003A
By: JRM
Date: Nov-24

Reinforcing Development (AASHTO 2017, 5.10.8.2.1a)

Bar Location: #9 Main Bars

Bar Size	#9		
A_{bar}	1	in^2	Area of Bar
d_b	1.13	in	Diameter of Bar
N_{bundle}	1		Number of Bars in Bundle
A_{total}	1	in^2	Total Bundle Area
$d_{b,eq}$	1.13	in	Equivalent Diameter
f_y	60	ksi	Rebar Yield Stress
f'_c	5	ksi	Concrete Ultimate Stress
l_{db} (ft)	**6.05**	ft	Basic Development Length
λ	**1.0**		Concrete Density Factor (5.4.2.8)
λ_{rl}	**1.0**		Reinforcement Location factor
λ_{cf}	**1.0**		Coating Factor
λ_{rc}	**0.40**		Confinement Factor
l_d	**2.42**	ft	Modified Development Length
c_b	4.56	in	<- Note this is the average cover withing the fillet
k_{tr}	0.00		Transverse Reinforcement Index (0 is conservative)

$$l_{db} = \frac{2.4 * d_b * f_y}{\sqrt{f'_c}}$$

$$\lambda_{rc} = \frac{d_b}{c_b + k_{tr}}$$

$$l_d = l_{db} * \frac{\lambda_{rl} * \lambda_{cf} * \lambda_{rc}}{\lambda}$$

$$k_{tr} = \frac{40 * A_{tr}}{s * n}$$

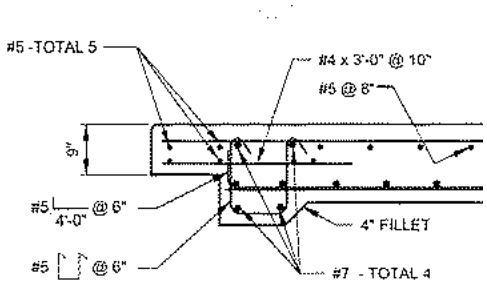
PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

5.4 Diaphragms

End Diaphragm Check

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)



Section:

$d := 18\ in$ Slab depth

$b := 11.5\ in$ Section width

$s_{brg} := 5\ ft$ Max bearing spacing

Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 4074\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$\gamma_c := \max\left(\gamma_{c\_ur} + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 7$

$\gamma_w := 62.4\ pcf$

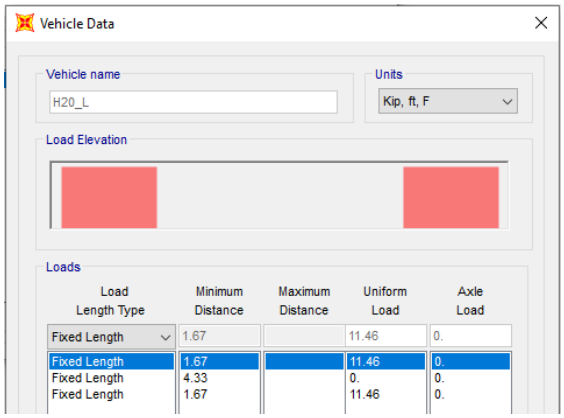
$\gamma_s := 125\ pcf$

SAP2000 Model:

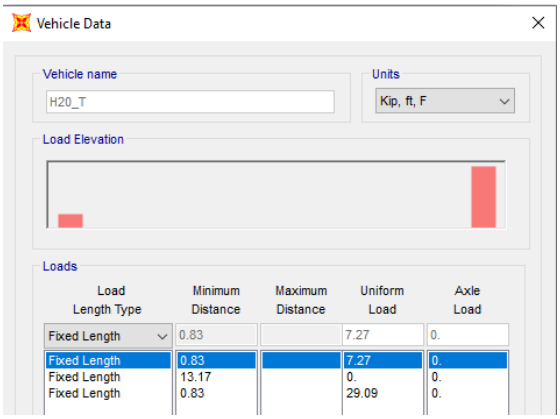


Moving Loads:

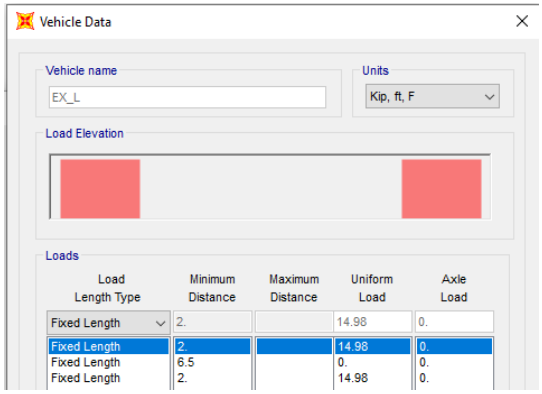
H20 - Longitudinal Load Case:



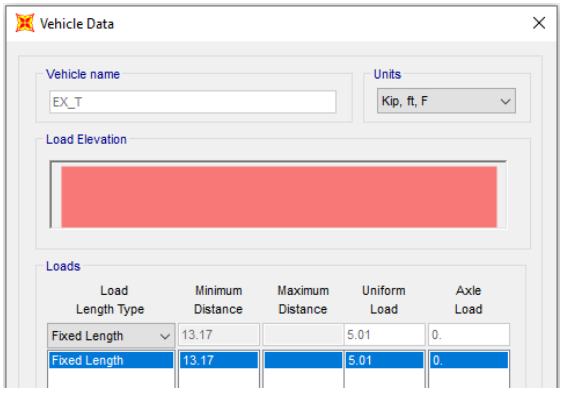
H20 - Transverse Load Case:



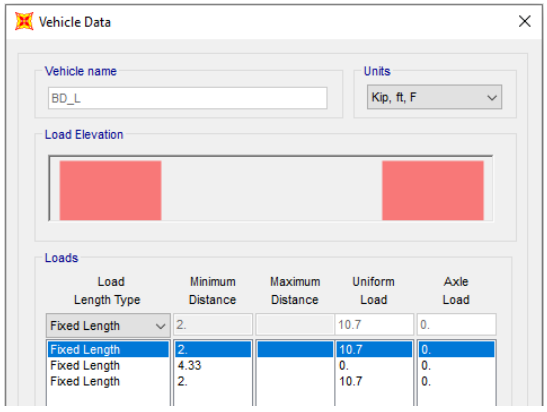
Excavator - Longitudinal Load Case:



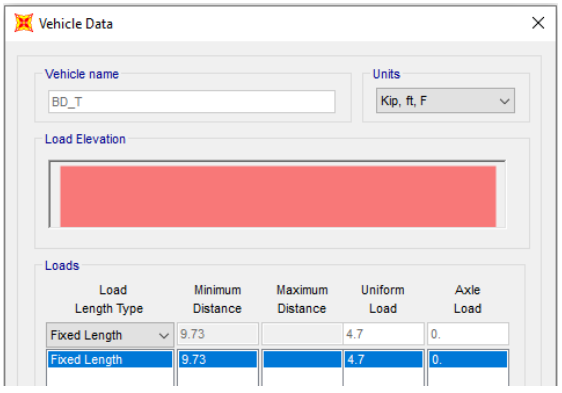
Excavator - Transverse Load Case:



Bulldozer - Longitudinal Load Case:



Bulldozer - Transverse Load Case:



the calculation for the patch load magnitudes is located at the end of this section

Slab Demands:

+Live Load Demand:

$M_{LL\_IM\_p} := 33.1\ kip \cdot ft$ Max moment at mid-span of slab

$M_{LL\_IM\_n} := 17.7\ kip \cdot ft$ Max moment at mid-span of slab

$V_{H20\_IM} := 34.4\ kip$ Max shear

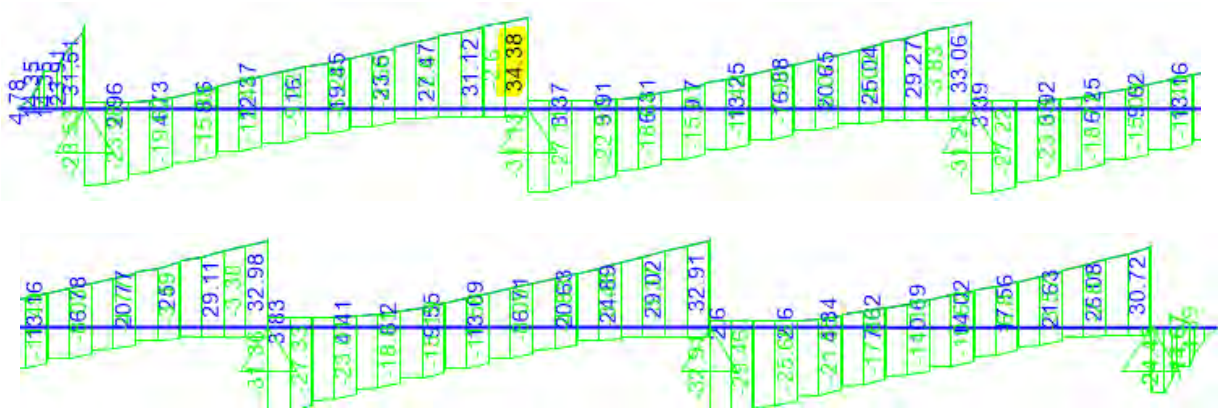
$M_p := 1.0$ Multiple presence factor (1 per design criteria report)

$M_{LL\_IM\_p} := M_p \cdot M_{LL\_IM\_p} = 33.1\ kip \cdot ft$

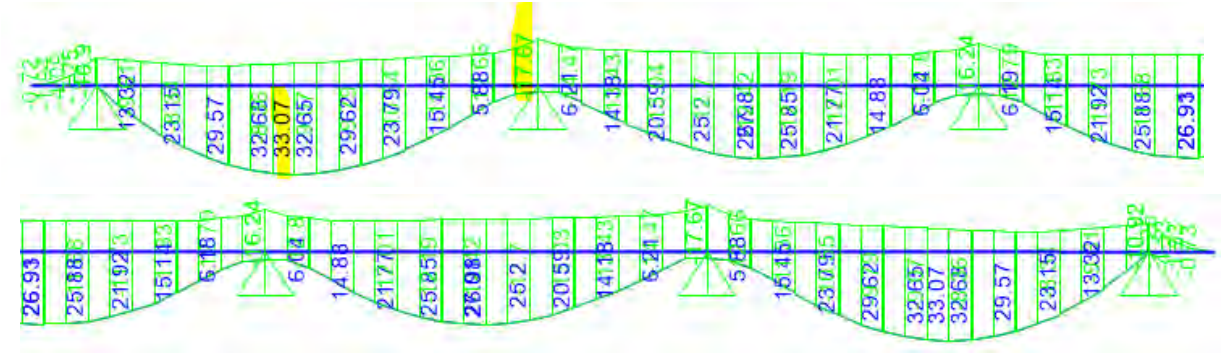
$M_{LL\_IM\_n} := M_p \cdot M_{LL\_IM\_n} = 17.7\ kip \cdot ft$

$V_{LL\_IM} := M_p \cdot \max\left(V_{H20\_IM}\right) = 34.4\ kip$

Shear Diagram from SAP2000:



Moment Diagram from SAP2000:



+Dead Load Demand:

$w_{DC} := 2.725\ klf$



$V_{DC} := 7.95\ kip$

$M_{DC\_p} := 5.11\ kip \cdot ft$

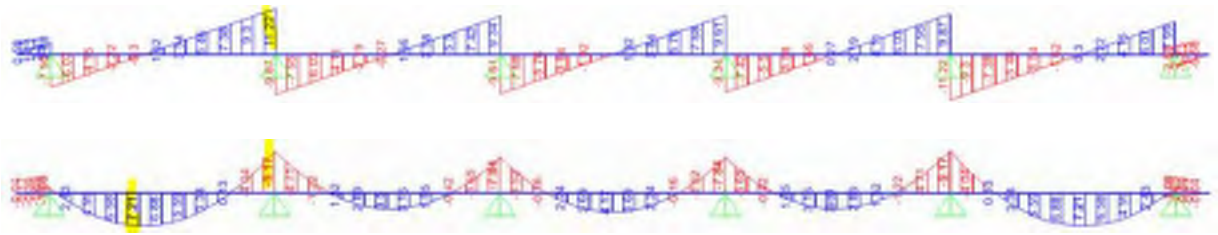
$M_{DC\_n} := 6.5\ kip \cdot ft$

+Water Demand:

$h_{w\_ser} := 3.7\ ft$

$h_{w\_str} := 5.3\ ft$

$w_{w\_ser} := 3.617\ klf$



$V_{WA\_ser} := 11.22\ kip$

$M_{WA\_ser\_p} := 7.21\ kip \cdot ft$

$M_{WA\_ser\_n} := 9.17\ kip \cdot ft$

$$V_{WA\_str} := \frac{h_{w\_str}}{h_{w\_ser}} \cdot V_{WA\_ser} = 16.072\ kip$$

$$M_{WA\_str\_p} := \frac{h_{w\_str}}{h_{w\_ser}} \cdot M_{WA\_ser\_p} = 10.328\ kip \cdot ft$$

$$M_{WA\_str\_n} := \frac{h_{w\_str}}{h_{w\_ser}} \cdot M_{WA\_ser\_n} = 13.135\ kip \cdot ft$$

Load Combinations:

$M_{sA\_p} := M_{LL\_IM\_p} + M_{DC\_p} = 38.2 \ kip \cdot ft$

$M_{sB\_p} := M_{WA\_ser\_p} + M_{DC\_p} = 12.3 \ kip \cdot ft$

$M_{sA\_n} := M_{LL\_IM\_n} + M_{DC\_n} = 24.2 \ kip \cdot ft$

$M_{sB\_n} := M_{WA\_ser\_n} + M_{DC\_n} = 15.7 \ kip \cdot ft$

$M_{uA\_p} := 1.75 \cdot M_{LL\_IM\_p} + 1.25 \cdot M_{DC\_p} = 64.3 \ kip \cdot ft$

$M_{uB\_p} := 1.0 \cdot M_{WA\_str\_p} + 1.25 \cdot M_{DC\_p} = 16.7 \ kip \cdot ft$

$M_{uA\_n} := 1.75 \cdot M_{LL\_IM\_n} + 1.25 \cdot M_{DC\_n} = 39.1 \ kip \cdot ft$

$M_{uB\_n} := 1.0 \cdot M_{WA\_str\_n} + 1.25 \cdot M_{DC\_n} = 21.3 \ kip \cdot ft$

$N_u := 0 \ kip$

$V_{uA} := 1.75 \cdot V_{LL\_IM} + 1.25 \cdot V_{DC} = 70.1 \ kip$

$V_{uB} := 1.0 \cdot V_{WA\_str} + 1.25 \cdot V_{DC} = 26 \ kip$

$M_{u\_p} := \max\left(M_{uA\_p}, M_{uB\_p}\right) = 64.3 \ kip \cdot ft$

$M_{s\_p} := \max\left(M_{sA\_p}, M_{sB\_p}\right) = 38.2 \ kip \cdot ft$

$M_{u\_n} := \max\left(M_{uA\_n}, M_{uB\_n}\right) = 39.1 \ kip \cdot ft$

$M_{s\_n} := \max\left(M_{sA\_n}, M_{sB\_n}\right) = 24.2 \ kip \cdot ft$

$V_u := \max\left(V_{uA}, V_{uB}\right) = 70.1 \ kip$

Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
(2) #7s:

$b_{sz} := 7$ — Bar size

$n_{bar} := 2$ — Number of bars

$A_s := n_{bar} \cdot A_{bar}\left(b_{sz}\right) = 1.2\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 2\ in + d_{bn}(5) = 2.625\ in$ — Cover on longitudinal reinforcement

$d_s := d - \left(d_{c1} + 0.5\ d_{ba}\left(b_{sz}\right)\right) = 14.875\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 1.84\ in$$ AASHTO 2012, 5.7.3.1.1-4

$$\varepsilon_t := \left(d_s - c\right)\ \frac{0.003}{c} = 0.02123$$

$$f_{s1} := min\left(f_y, E_s \cdot \varepsilon_t\right) = 60\ ksi$$

$$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 1.84\ in$$

$$\varepsilon_t := \left(d_s - c\right)\ \frac{0.003}{c} = 0.021$$

$$f_{s2} := min\left(f_y, E_s \cdot \varepsilon_t\right) = 60\ ksi$$

$$f_s := f_{s2}$$

$a := \beta_1 \cdot c = 1.47\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 85\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_{u\_p})}{\phi_f \cdot M_n} = 0.842$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 1.5\ ft \qquad b = 0.958\ ft \qquad f'_c = 5\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 621\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.537\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 33\ kip \cdot ft$

$M_{u\_p} = 64.3\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_{u\_p} \right), M_{cr} \right) = 33\ kip \cdot ft$

$\phi_f \cdot M_n = 76\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.437$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7):

$s_1 := 9\ in$ Spacing of flexure steel

$M_{s\_p} = 38.21\ kip \cdot ft$
$d_s = 14.875\ in$
$b = 11.5\ in$
$n = 7$
$d_c := d - d_s = 3.125\ in$
$h := d = 1.5\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.3$$

$\gamma_e := 1$ Assume Exposure Class 2, corrosion potential

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$$a_o := \frac{-b}{2}$$
$b_o := -n \cdot A_s$ $A_s = 1.2\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 3.988\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 1239\ in^4$$

$$f_{ss} := \operatorname{abs}\left(n \cdot \frac{M_{s\_p} \cdot \left(d_s - y\right)}{I_{eff}}\right) = 28.208\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 12.837\ in$$

$$DC_{CrC} := \frac{s_1}{s_{max}} = 0.701$$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 70.138\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

$A_t := A_{bar}(5) = 0.31\ in^2$ Nominal Area of Shear Reinforcement

$s := 6\ in$ Stirrup spacing at section

$Legs := 2$ Number of stirrup legs

$A_v := A_t \cdot Legs = 0.62\ in^2$ Area of steel per stirrup

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 1.2\ in^2$ $d_s = 14.875\ in$

$d_{v1} := 0.72 \cdot (d) = 12.96\ in$

$d_{v2} := 0.9 \cdot (d_s) = 13.39\ in$

$d_v := \max(d_{v1}, d_{v2}) = 13.39\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 5$ ***ksi***

$b_v := b = 11.5$ ***in***

$\theta := 45$ ***deg***

$\beta := 2.0$

$V_s := A_v \cdot f_y \cdot d_v \cdot \frac{\cot(\theta)}{s} = 83$ ***kip*** AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 22$ ***kip*** AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 173$ ***kip***

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 94$ ***kip***

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 94.3$ ***kip***

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.744$ <1, OK

+Longitudinal Reinforcement Calculation Over Supports:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_u := \max\left(V_u \cdot d_v, M_{u\_n}\right) = 78.247 \ \textit{kip} \cdot \textit{ft}$

$\phi_f = 0.9$

$D_M := \frac{\text{abs}\left(M_u\right)}{\phi_f \cdot d_v} = 78 \ \textit{kip}$

Shear/Torsion Component:

$V_u = 70.138 \ \textit{kip}$ $V_s = 83 \ \textit{kip}$ $V_p := 0 \ \textit{kip}$

$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 77.9 \ \textit{kip}$

$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 39 \ \textit{kip}$

Capacity Check:

$A_s = 1.2 \ \textit{in}^2$ $f_y = 60 \ \textit{ksi}$

$C := A_s \cdot f_y = 72 \ \textit{kip}$

$\frac{D_V}{C} = 0.541$ <1, OK

Patch Loading for Diaphragm Model:

Max Reactions From Span SAP2000 Model:

V_{H20_L}	38.2	kip
V_{H20_T}	30.3	kip
V_{Ex_L}	59.9	kip
V_{Ex_T}	65.9	kip
V_{Bd_L}	42.8	kip
V_{Bd_T}	45.7	kip

Wheel/Track Width:

$W_{wheel,H20}$	1.67	ft
$W_{wheel,Ex}$	2.00	ft
$W_{wheel,bd}$	2.00	ft

Wheel/Track Length

$L_{wheel,H20}$	0.83	ft
$L_{track,Ex}$	13.17	ft
$L_{track,bd}$	9.73	ft

Patch Load

w_{H20_L}	11.46	klf	$0.5*V_{H20\_L}/W_{wheel,H20}$
$w_{H20\_T\_front}$	7.27	klf	$8/40*V_{H20\_T}/L_{wheel,H20}$
$w_{H20\_T\_rear}$	29.09	klf	$32/40*V_{H20\_T}/L_{wheel,H20}$
w_{Ex_L}	14.98	klf	$0.5*V_{Ex\_L}/W_{wheel,Ex}$
w_{Ex_T}	5.01	klf	$V_{Ex\_T}/L_{wheel,Ex}$
w_{Bd_L}	10.70	klf	$0.5*V_{Bd\_L}/W_{wheel,Bd}$
w_{Bd_T}	4.70	klf	$V_{Bd\_T}/L_{wheel,Bd}$

PROJECT	**San Jacinto Line E Storm Drain**
BRIDGE NAME	**Crossing Over Casa Loma Barrel 1 Siphon**

6 Substructure Design

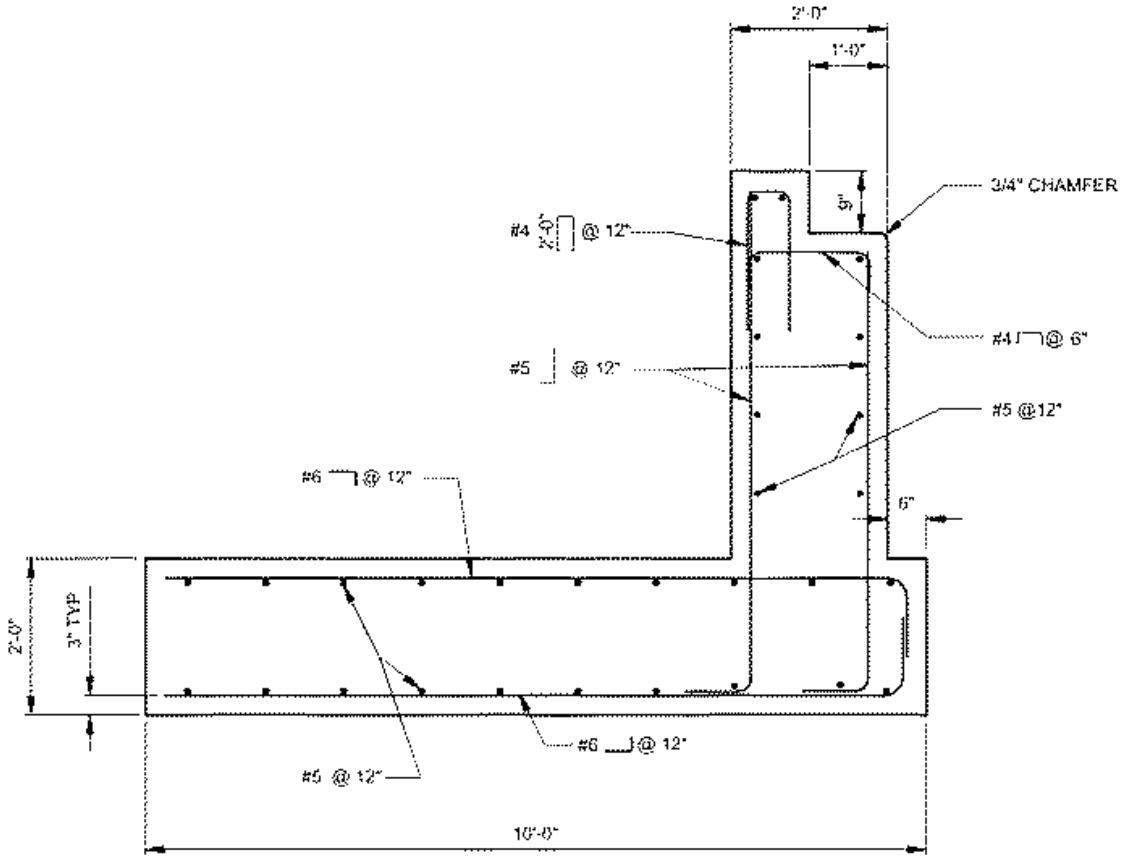
PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.1 Footing Sections

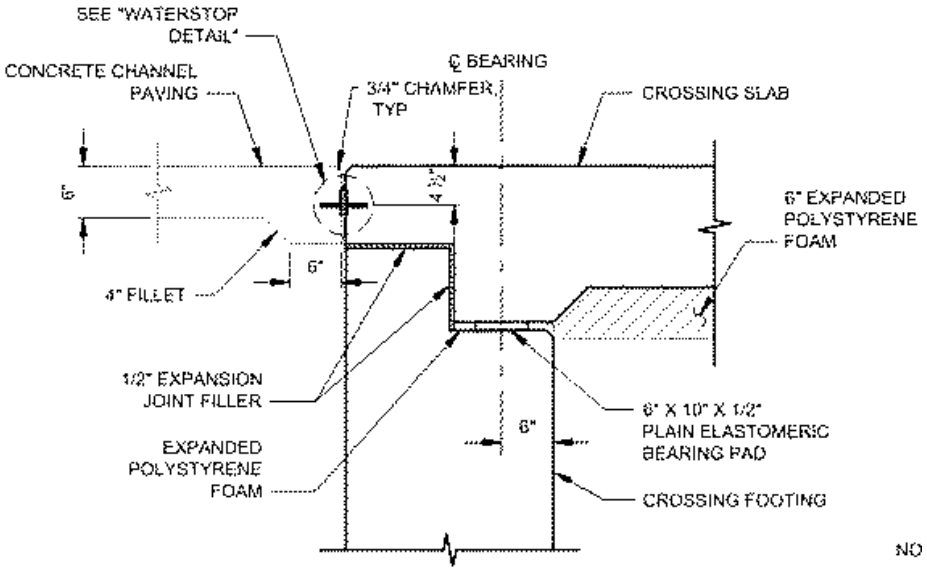
770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Footing Sections

Originator:JRM
Date: 11/7/2024



CROSSING FOOTING DETAIL



SLAB BEARING DETAIL

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.2 Substructure Loads

Substructure Loads

γ_s	85	pcf	Backfill unit weight
ϕ_f	30	deg	Backfill friction angle
k_a	0.33		Active earth pressure coefficent
k_{AE}	0.63		Seismic active earth pressure coefficent

μ	0.3		Footing to soil friction coefficient
σ_a	3	ksf	Allowable bearing pressure
$\sigma_{a,t}$	4	ksf	Allowable bearing pressure (transient loads)
$p_{passive}$	250	psf/ft	Allowable passive pressure (2500 psf/ft max)

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.3 Footing Design

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

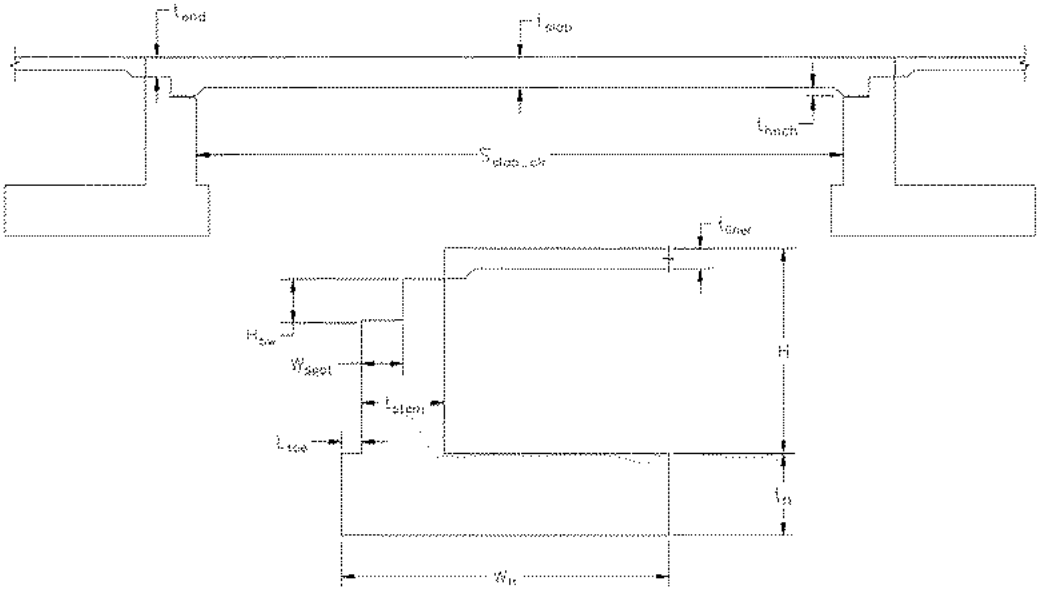
6.3.1 External Stability

Wall Global Stability Check

Typical Footing Height

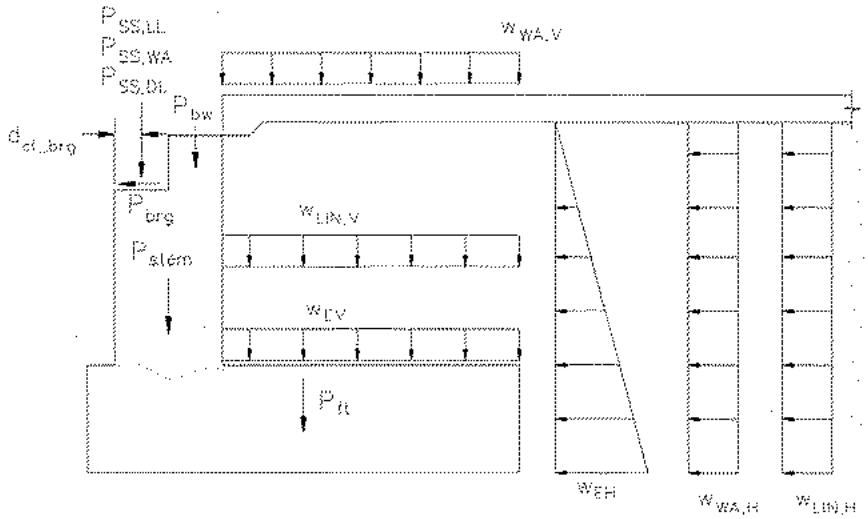
Crossing Slab Geometry:

$S_{slab\_clr} := 27.33\ ft$	Clear slab span
$t_{slab} := 14\ in$	Minimum slab depth
$t_{hnch} := 4\ in$	Depth of haunch
$t_{end} := 9\ in$	Depth slab extension



Foundation Wall Geometry:

$W_{seat} := 12\ in$	Seat width
$t_{ft} := 24\ in$	Footing thickness
$t_{stem} := 24\ in$	Stem thickness
$H := 7.75\ ft$	Wall height
$H_{bw} := t_{slab} + t_{hnch} - t_{end} = 9\ in$	Backwall height
$W_{ft} := 10\ ft$	Length of footing
$t_{liner} := 6\ in$	Liner thickness
$d_{cl\_brg} := 0.5\ ft$	Distance to centerline of bearing
$L_{toe} := 0.5\ ft$	Length of footing toe
$t_{bw} := t_{stem} - W_{seat} = 1\ ft$	Backwall thickness
$e_{brg} := 0.5 \cdot W_{ft} - d_{cl\_brg} - L_{toe} = 4\ ft$	Bearing load eccentricity from footing center



Demand:

Crossing Slab Dead Loads:

$\gamma_{c\_slab} := 150\ pcf$ Crossing slab concrete unit weight

Cross sectional area of crossing slab:

$A_{slab} := S_{slab\_clr} \cdot t_{slab} + 2\ \left(0.5 \cdot t_{hnch}{}^2 + t_{end} \cdot t_{bw} + W_{seat} \cdot \left(t_{hnch} + t_{slab}\right)\right) = 36.496\ ft^2$

$P_{SS\_DL} := \gamma_{c\_slab} \cdot \left(0.5 \cdot A_{slab}\right) = 2.737\ klf$ Tributary slab weight

$M_{SS\_DL} := P_{SS\_DL} \cdot e_{brg} = 10.949\ \frac{kip \cdot ft}{ft}$ Moment about center of footing

Crossing Slab Water Loads:

$\gamma_w := 62.4\ pcf$ Water unit weight

$h_{w\_ser} := 3.7\ ft$ Water depth service loading

$p_{WA\_ser} := \gamma_w \cdot h_{w\_ser} = 0.231\ ksf$ Pressure due to service water level

Tributary slab water loading:

$L_{slab\_trib} := 0.5\ S_{slab\_clr} + W_{seat} + t_{bw} = 15.665\ ft$

$P_{SS\_WA\_ser} := p_{WA\_ser} \cdot L_{slab\_trib} = 3.617\ klf$

Moments about center of footing

$M_{SS\_WA\_ser} := P_{SS\_WA\_ser} \cdot e_{brg} = 14.467\ \frac{kip \cdot ft}{ft}$

Crossing Slab Live Loads:

See calculations at the end of section for the calculation of the distributed live load

$P_{SS\_LL} := 3.53\ klf$ — Live load distributed load

$M_{SS\_LL} := P_{SS\_LL} \cdot e_{brg} = 14.12\ \frac{kip \cdot ft}{ft}$ — Live load Moment

Wall Dead Load:

$\gamma_c := 150\ pcf$ — Typical concrete unit weight

$P_{bw} := \gamma_c \cdot (t_{bw}) \cdot (H_{bw}) = 0.113\ klf$ — Backwall load

$e_{bw} := 0.5\ W_{ft} - (W_{seat} + 0.5\ t_{bw} + L_{toe}) = 3\ ft$ — Backwall eccentricity

$P_{stem} := \gamma_c \cdot (t_{stem})\ (H - (t_{slab} + t_{hnch}) - t_{ft}) = 1.275\ klf$ — Stem load

$e_{stem} := 0.5\ W_{ft} - (0.5\ t_{stem} + L_{toe}) = 3.5\ ft$ — Stem eccentricity

$P_{ft} := \gamma_c \cdot (t_{ft})\ (W_{ft}) = 3\ klf$ — Footing load

$e_{ft} := 0.5\ W_{ft} - 0.5\ W_{ft} = 0\ ft$ — Footing eccentricity

$P_{DC} := P_{bw} + P_{stem} + P_{ft} = 4.388\ klf$ — Dead load

$M_{DC} := P_{bw} \cdot e_{bw} + P_{stem} \cdot e_{stem} + P_{ft} \cdot e_{ft} = 4.8\ \frac{kip \cdot ft}{ft}$ — Dead moment

$e_{DC} := \frac{M_{DC}}{P_{DC}} = 1.094\ ft$ — Dead load eccentricity

Soil Loading:

$\gamma_s := 85\ pcf$ Unit weight of soil

$k_a := 0.33$ Active coefficient of soil

$L_{heel} := W_{ft} - t_{stem} - L_{toe} = 7.5\ ft$ Length of heel

$p_{EV} := \left(H - t_{liner} - t_{ft}\right) \cdot \gamma_s = 0.446\ ksf$ Vertical soil pressure on footing

$P_{EV\_heel} := L_{heel} \cdot p_{EV} = 3.347\ klf$ Vertical soil load on heel

$e_{EV\_heel} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Eccentricity of vert heel soil load

$P_{EV\_toe} := L_{toe} \cdot p_{EV} = 0.223\ klf$

$e_{EV\_toe} := 0.5\ W_{ft} - \left(0.5\ L_{toe}\right) = 4.75\ ft$

$M_{EV} := P_{EV\_heel} \cdot e_{EV\_heel} + P_{EV\_toe} \cdot e_{EV\_toe} = -3.124\ \frac{kip \cdot ft}{ft}$ Moment of Vert soil load on wall

$P_{EV} := P_{EV\_heel} + P_{EV\_toe} = 3.57\ klf$ Vertical soil load

$e_{EV} := \frac{M_{EV}}{P_{EV}} = -0.875\ ft$ Eccentricity of vertical soil load on heel

$p_{EH} := \left(H - t_{liner}\right) \cdot k_a \cdot \gamma_s = 0.203\ ksf$ Maximum hrz soil pressure

$P_{EH} := 0.5 \cdot \left(H - t_{liner}\right) \cdot p_{EH} = 0.737\ klf$ Horizontal soil load on wall

$e_{EH} := 0.333\ \left(H - t_{liner}\right) = 2.414\ ft$ Eccentricity of hrz soil load

$M_{EH} := P_{EH} \cdot e_{EH} = 1.78\ \frac{kip \cdot ft}{ft}$ Moment of hrz soil load on wall

Liner Surcharge:

$p_{LIN\_V} := \gamma_c \cdot t_{liner} = 0.075\ ksf$ Liner vertical surcharge pressure

$P_{LIN\_V} := p_{LIN\_V} \cdot L_{heel} = 0.563\ klf$ Liner vertical surcharge load

$e_{LIN\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Liner vertical surcharge eccentricity

$M_{LIN\_V} := P_{LIN\_V} \cdot e_{LIN\_V} = -0.703\ \frac{kip \cdot ft}{ft}$ Moment of liner vertical surcharge

$p_{LIN\_H} := \gamma_c \cdot t_{liner} \cdot k_a = 0.025\ ksf$ Liner hrz. surcharge pressure

$P_{LIN\_H} := p_{LIN\_H} \cdot \left(H - t_{liner}\right) = 0.179\ klf$ Liner horizontal surcharge load

$e_{LIN\_H} := 0.5\ \left(H - t_{liner}\right) = 3.625\ ft$ Liner hrz. surcharge eccentricity

$M_{LIN\_H} := P_{LIN\_H} \cdot e_{LIN\_H} = 0.65\ \frac{kip \cdot ft}{ft}$ Moment of liner hrz. surcharge

Water Surcharge:

$p_{WA\_V\_ser} := \gamma_w \cdot h_{w\_ser} = 0.231$ **ksf** — Pressure from service water level

$P_{WA\_V\_ser} := L_{heel} \cdot p_{WA\_V\_ser} = 1.732$ **klf** — Load due to service water level

$e_{WA\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25$ **ft** — Water load eccentricity

$M_{WA\_V\_ser} := P_{WA\_V\_ser} \cdot e_{WA\_V} = -2.165\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service water load

$p_{WA\_H\_ser} := \gamma_w \cdot h_{w\_ser} \cdot k_a = 0.076$ **ksf** — Hrz pressure from service water level

$P_{WA\_H\_ser} := \left(H - t_{liner}\right) \cdot p_{WA\_H\_ser} = 0.552$ **klf** — Hrz load due to service water level

$e_{WA\_H} := 0.5\ \left(H - t_{liner}\right) = 3.625$ **ft** — Hrz water load eccentricity

$M_{WA\_H\_ser} := P_{WA\_H\_ser} \cdot e_{WA\_H} = 2.002\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service hrz water load

Transverse Bearing Load:

$\mu := 0.2$ — Coefficient of friction between concrete and neoprene

$P_{SS\_DL} = 2.737$ **klf**

$P_{brg\_H} := \mu \cdot P_{SS\_DL} = 0.547$ **klf**

$e_{brg\_H} := H - t_{slab} - t_{hnch} = 6.25$ **ft**

$M_{brg\_H} := P_{brg\_H} \cdot e_{brg\_H} = 3.422\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$

Load Factors

	Combination	Initial 1	Initial 2	Permanent	Service IA	Service IB	Strength IA-a	Strength IA-b	Strength IA-c	Strength IB-a	Strength IB-a	Strength IB-c
	Description	Foundation + Backfill	Permanent - Liner	Permanent All	Vehicular	Water	Vehicular Max All	Vehicular Max Lateral	Vehicular Max Vertical	Water Max All	Water Max Lateral	Water Max Vertical
Vertical Loads	DC_{ss}	0.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	LL_{ss}	0.00	0.00	0.00	1.00	0.00	1.75	0.00	1.75	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
	DC_{wall}	1.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	EV	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
	$ES_{WA,V}$	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.35	1.00	1.35
	$ES_{liner,V}$	0.00	0.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
Lateral Loads	EH	1.00	1.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	LS	0.00	0.00	0.00	1.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.50	1.50	0.75
	$ES_{liner,H}$	0.00	0.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	Bearing	0	0	0	1.00	1.00	1.25	1.25	1.25	1.25	1.25	1.25

Factored Demand

Load Direction	Load	Force	Arm	Initial 1		Initial 2		Permanent		Service IA		Service IB	
				Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	2.74	-4.00	0.00	0.00	2.74	-10.95	2.74	-10.95	2.74	-10.95	2.74	-10.95
	LL_{ss}	3.53	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	3.53	-14.12	0.00	0.00
	WA_{ss}	3.62	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.62	-14.47
	DC_{wall}	4.39	-1.09	4.39	-4.80	4.39	-4.80	4.39	-4.80	4.39	-4.80	4.39	-4.80
	EV	3.57	0.88	3.57	3.12	3.57	3.12	3.57	3.12	3.57	3.12	3.57	3.12
	WA_V	1.73	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	2.16
	$ES_{liner,V}$	0.56	1.25	0.00	0.00	0.00	0.00	0.56	0.70	0.56	0.70	0.56	0.70
			Sum:	7.96	-1.68	10.70	-12.63	11.26	-11.92	14.79	-26.04	16.61	-24.23
Lateral Loads	EH	0.74	2.42	0.74	-1.78	0.74	-1.78	0.74	-1.78	0.74	-1.78	0.74	-1.78
	LS	0.00	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.55	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-2.00
	$ES_{liner,H}$	0.18	3.63	0.00	0.00	0.00	0.00	0.18	-0.65	0.18	-0.65	0.18	-0.65
	Bearing	0.55	6.25	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-3.42	0.55	-3.42
			Sum:	0.74	-1.78	0.74	-1.78	0.92	-2.43	1.46	-5.85	2.02	-7.86

Factored Demand

Load Direction	Load	Strength IA-a		Strength IA-b		Strength IA-c		Strength IB-a		Strength IB-b		Strength IB-c	
		Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	3.42	-13.69	2.46	-9.86	3.42	-13.69	3.42	-13.69	2.46	-9.86	3.42	-13.69
	LL_{ss}	6.18	-24.71	0.00	0.00	6.18	-24.71	0.00	0.00	0.00	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	0.00	0.00	5.18	-20.73	5.18	-20.73	5.18	-20.73
	DC_{wall}	5.48	-6.00	3.95	-4.32	5.48	-6.00	5.48	-6.00	3.95	-4.32	5.48	-6.00
	EV	4.82	4.22	3.57	3.12	4.82	4.22	4.82	4.22	3.57	3.12	4.82	4.22
	WA_V	0.00	0.00	0.00	0.00	0.00	0.00	3.35	4.19	2.48	3.10	3.35	4.19
	$ES_{liner,V}$	0.76	0.95	0.56	0.70	0.76	0.95	0.76	0.95	0.56	0.70	0.76	0.95
Sum:		20.66	-39.23	10.55	-10.35	20.66	-39.23	23.01	-31.06	18.21	-27.97	23.01	-31.06
Lateral Loads	EH	1.11	-2.67	1.11	-2.67	0.55	-1.34	1.11	-2.67	1.11	-2.67	0.55	-1.34
	LS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	0.00	0.00	1.19	-4.30	1.19	-4.30	0.59	-2.15
	$ES_{liner,H}$	0.27	-0.98	0.27	-0.98	0.13	-0.49	0.27	-0.98	0.27	-0.98	0.13	-0.49
	Bearing	0.68	-4.28	0.68	-4.28	0.68	-4.28	0.68	-4.28	0.68	-4.28	0.68	-4.28
Sum:		2.06	-7.93	2.06	-7.93	1.37	-6.10	3.25	-12.23	3.25	-12.23	1.97	-8.25

External Stability Spreadsheet Verification:

Service IB - Water Loading

$$P_{serIB\_V} := P_{SS\_DL} + P_{SS\_WA\_ser} + P_{DC} + P_{EV} + P_{LIN\_V} + P_{WA\_V\_ser} = 16.61 \ klf$$

$$M_{serIB\_V} := M_{SS\_DL} + M_{SS\_WA\_ser} + M_{DC} + M_{EV} + M_{LIN\_V} + M_{WA\_V\_ser} = 24.22 \ \frac{kip \cdot ft}{ft}$$

$$P_{serIB\_H} := P_{EH} + P_{LIN\_H} + P_{WA\_H\_ser} + P_{brg\_H} = 2.02 \ klf$$

$$M_{serIB\_H} := M_{EH} + M_{LIN\_H} + M_{WA\_H\_ser} + M_{brg\_H} = 7.85 \ \frac{kip \cdot ft}{ft}$$

$$M_{serIB} := M_{serIB\_V} + M_{serIB\_H} = 32.08 \ \frac{kip \cdot ft}{ft}$$

Eccentricity Check (AASHTO 11.6.3.3)

Load Combination	ΣV (kip)	ΣM (kip-ft)	e (ft)	Limit (ft)	Check	DCR
Initial 1	8.0	-3.46	-0.43	3.33	OK	0.13
Initial 2	10.7	-14.41	-1.35	3.33	OK	0.40
Permanent	11.3	-14.36	-1.28	3.33	OK	0.38
Service IA	14.8	-31.90	-2.16	3.33	OK	0.65
Service IB	16.6	-32.08	-1.93	3.33	OK	**0.58**
Strength IA-a	20.7	-47.16	-2.28	3.33	OK	0.68
Strength IA-b	10.5	-18.27	-1.73	3.33	OK	0.52
Strength IA-c	20.7	-45.33	-2.19	3.33	OK	0.66
Strength IB-a	23.0	-43.29	-1.88	3.33	OK	0.56
Strength IB-b	18.2	-40.20	-2.21	3.33	OK	0.66
Strength IB-c	23.0	-39.31	-1.71	3.33	OK	0.51

$$e := \frac{M_{serIB}}{P_{serIB\_V}} = 1.932 \ ft$$ Total eccentricity

$$e_{max} := \frac{W_{ft}}{3} = 3.333 \ ft$$ Maximum eccentricity

$$DCR_{ecc} := \frac{e}{e_{max}} = 0.58$$ <1, OK

Bearing Check (AASHTO 11.6.3.2)

Check allowable bearing pressure of 3 ksf according to geotechnical report. Note that since it is an allowable capacity it will be compared to unfactored loading (service).

Load Combination	e (ft)	B' (ft)	ΣV (kip)	σ (ksf)	q_a (ksf)	Check	DCR
Initial 1	-0.43	9.13	8.0	0.87	3.00	OK	0.29
Initial 2	-1.35	7.31	10.7	1.46	3.00	OK	0.49
Permanent	-1.28	7.45	11.3	1.51	3.00	OK	0.50
Service IA	-2.16	5.69	14.8	2.60	3.00	OK	0.87
Service IB	-1.93	6.14	16.6	2.71	3.00	OK	**0.90**

$B'_{serIB} := W_{ft} - 2 \cdot e = 6.1364\ ft$ Effective bearing width

$\sigma_{serIB} := \frac{P_{serIB\_V}}{B'_{serIB}} = 2.7061\ ksf$ Bearing stress

$q_a := 3\ ksf$ Factored bearing resistance

$DCR_{bearing} := \frac{\sigma_{serIB}}{q_a} = 0.902$ <1, OK

Sliding Check (AASHTO 11.6.3.6 & 10.6.3.4)

Conservatively ignore passive resistance

μ =	0.3	Friction Coefficient
ϕ_τ =	0.80	Resistance Factor for Shear Resistance Between Soil and Foundation
γ =	0 pcf	Passive Earth Pressure <-Ignore
ϕ_{ep} =	0	Passive Earth Pressure Component of Sliding Resistance

Load Combination	ΣH (kips)	ΣV (kip)	$\phi\tau R_\tau$ (kip)	$\phi_{ep}R_{ep}$ (kip)	R_R (kip)	Check	DCR
Service IA	1.46	14.8	3.55	0.00	3.5	OK	0.41
Service IB	2.02	16.6	3.99	0.00	4.0	OK	**0.51**
Strength IA-a	2.06	20.7	4.96	0.00	5.0	OK	0.42
Strength IA-b	2.06	10.5	2.53	0.00	2.5	OK	0.81
Strength IA-c	1.37	20.7	4.96	0.00	5.0	OK	0.28
Strength IB-a	3.25	23.0	5.52	0.00	5.5	OK	0.59
Strength IB-b	3.25	18.2	4.37	0.00	4.4	OK	0.74
Strength IB-c	1.97	23.0	5.52	0.00	5.5	OK	0.36

$\mu := 0.3$ From preliminary foundation report

$\phi_T := 0.8$ AASHTO Table 10.5.5.2.2-1 CIP Concrete on cohesionless soil

$R_{r\_slide} := \phi_T \cdot P_{serIB\_V} \cdot \mu \cdot 1\ ft = 3.985\ kip$

$P_u := P_{serIB\_H} \cdot 1\ ft = 2.016\ kip$

$DCR_{sliding} := \frac{P_u}{R_{r\_slide}} = 0.506$ <1, OK

Live Load Bearing Distribution - Typical Footing Depth

H_{wall}	7.75	ft	Wall Height
V_{H20_L}	38.2	kip	Max H-20 live load reaction from Longitudinal slab sap model
V_{H20_T}	30.3	kip	Max H-20 live load reaction from Transverse slab sap model
V_{Ex_L}	59.9	kip	Max Excavator live load reaction from Longitudinal slab sap model
V_{Ex_T}	65.9	kip	Max Excavator live load reaction from Transverse slab sap model
V_{Bd_L}	42.8	kip	Max Bulldozer live load reaction from Longitudinal slab sap model
V_{Bd_T}	45.7	kip	Max Bulldozer live load reaction from Transverse slab sap model
$S_{wheel,H20}$	6.00	ft	Transverse H-20 wheel spacing
$S_{wheel,Ex}$	8.50	ft	Transverse Excavator track spacing
$S_{wheel,bd}$	6.33	ft	Transverse Bulldozer track spacing
$W_{wheel,H20}$	20.00	in	Width of H-20 wheel
$W_{wheel,Ex}$	24.00	in	Width of Excavator track
$W_{wheel,bd}$	24.00	in	Width of Bulldozer track
$L_{wheel,H20}$	10.00	in	Length of H-20 wheel
$L_{track,Ex}$	158.00	in	Length of Excavator track
$L_{track,bd}$	116.70	in	Length of Bulldozer track

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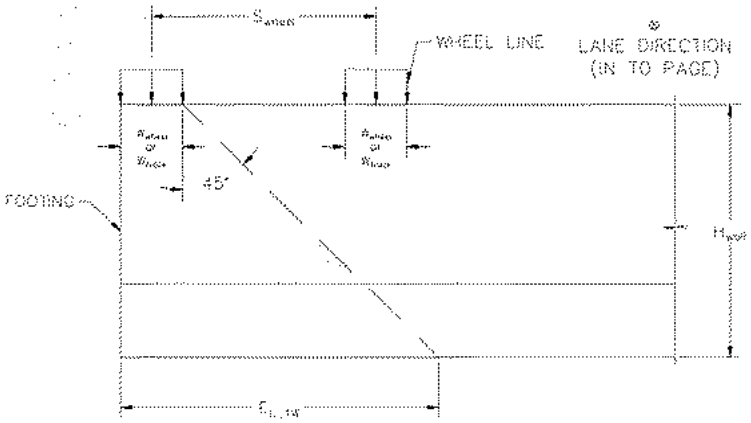
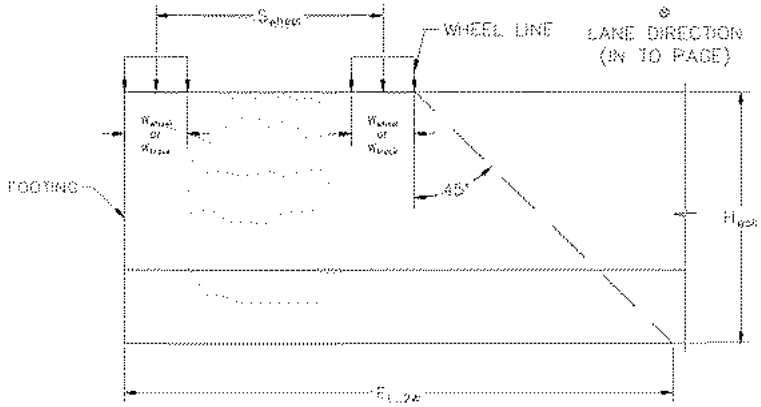
Project #: 24002328
By: JRM
Date: Nov-24

Live Load Bearing Distribution - Longitudinal Distribution



Longitudinal Single Wheel Distribution Sketch



Longitudinal 2-Wheel Distribution Sketch

$E_{H20\_L\_1W}$	9.42	ft	H20 longitudinal distribution Length for 1 wheel
$E_{H20\_L\_2W}$	15.42	ft	H20 longitudinal distribution Length for 2 wheel
$w_{LL\_H20\_L}$	2.48	kip/ft	$Max(V_{H20\_L}/(2*E_{H20\_L\_1W}),V_{H20\_L}/(E_{H20\_L\_2W}))$
$E_{Ex\_L\_1W}$	9.75	ft	Excavator longitudinal distribution Length for 1 Track
$E_{Ex\_L\_2W}$	18.25	ft	Excavator longitudinal distribution Length for 2Track
$w_{LL\_Ex\_L}$	3.28	kip/ft	$Max(V_{EX\_L}/(2*E_{EX\_L\_1W}),V_{H20\_L}/(E_{EX\_L\_2W}))$
$E_{Bd\_L\_1W}$	9.75	ft	Bulldozer longitudinal distribution Length for 1 Track
$E_{Bd\_L\_2W}$	16.08	ft	Bulldozer longitudinal distribution Length for 2Track
$w_{LL\_Bd\_L}$	2.66	kip/ft	$Max(V_{BD\_L}/(2*E_{BD\_L\_1W}),V_{H20\_L}/(E_{BD\_L\_2W}))$

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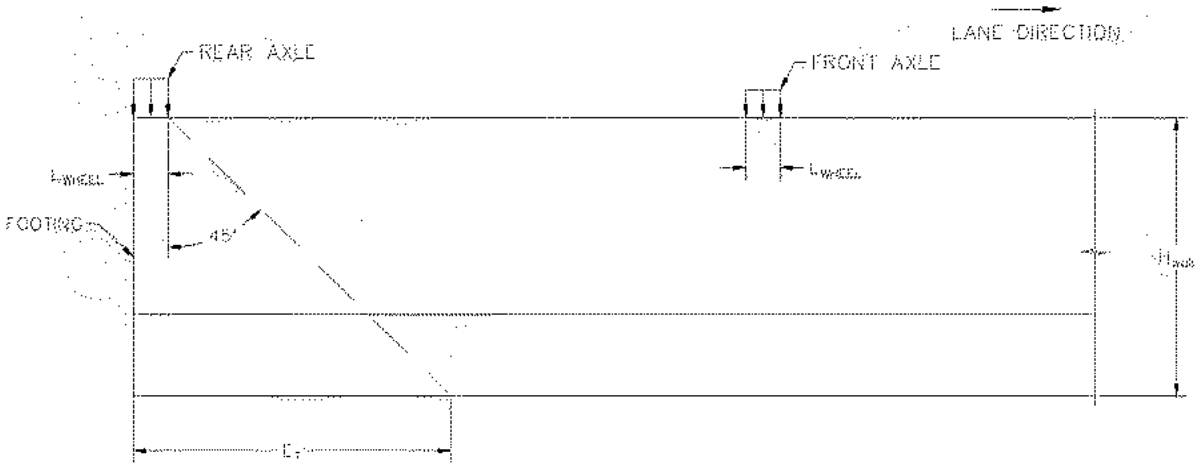
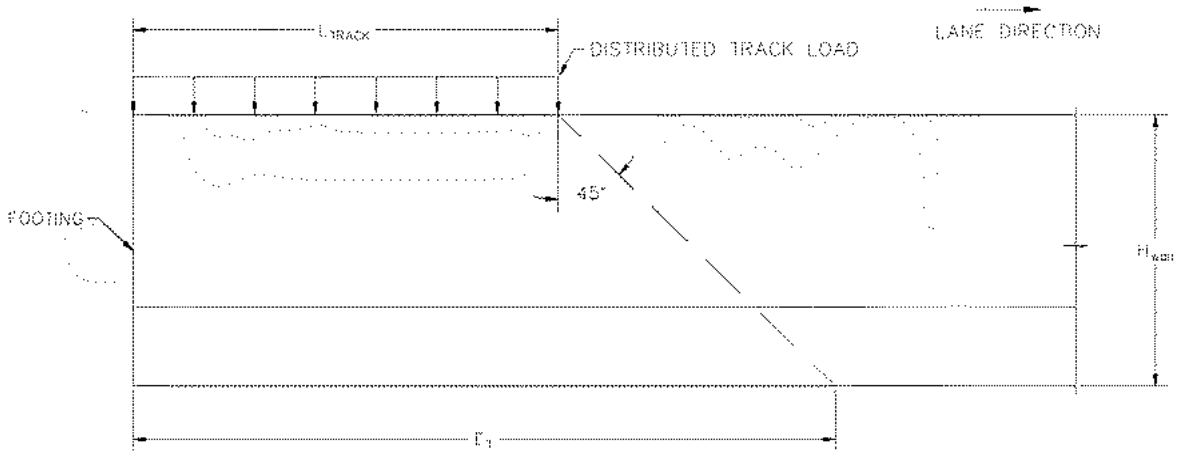
Live Load Bearing Distribution - Transverse Distribution



Transverse H20 Distribution Sketch



Transverse Excavator/Bulldozer Distribution Sketch

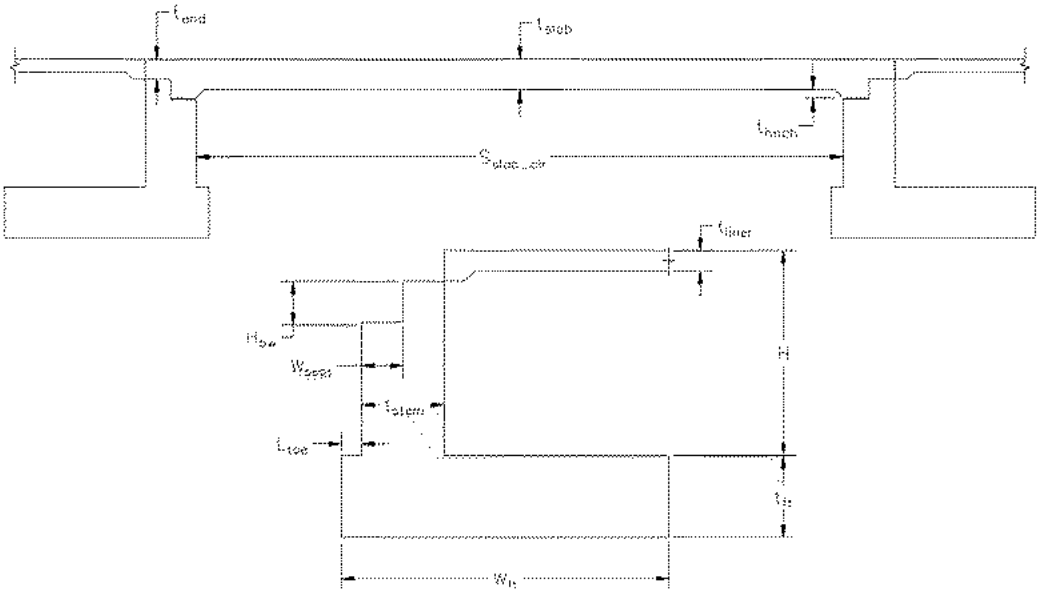
E_{H20_T}	8.58	ft	H20 Transverse distribution length
$w_{LL\_H20\_T}$	3.53	kip/ft	V_{H20_T}/E_{H20_T}
E_{Ex_T}	20.92	ft	Excavator Transverse distribution Length
$w_{LL\_Ex\_T}$	3.15	kip/ft	V_{EX_T}/E_{EX_T}
E_{Bd_T}	17.48	ft	Bulldozer Transverse distribution Length
$w_{LL\_Bd\_T}$	2.62	kip/ft	V_{BD_T}/E_{BD_T}
w_{LL}	**3.53**	kip/ft	Maximum live load distributed load

Wall Global Stability Check

Maximum Footing Height

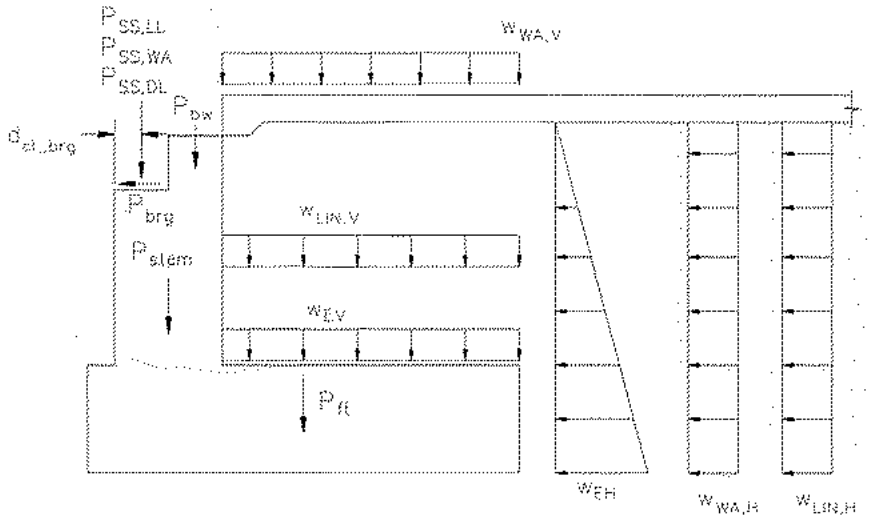
Crossing Slab Geometry:

$S_{slab\_clr} := 27.33\ ft$	Clear slab span
$t_{slab} := 14\ in$	Minimum slab depth
$t_{hnch} := 4\ in$	Depth of haunch
$t_{end} := 9\ in$	Depth slab extension



Foundation Wall Geometry:

$W_{seat} := 12\ in$	Seat width
$t_{ft} := 24\ in$	Footing thickness
$t_{stem} := 24\ in$	Stem thickness
$H := 9.25\ ft$	Wall height
$H_{bw} := t_{slab} + t_{hnch} - t_{end} = 9\ in$	Backwall height
$W_{ft} := 10\ ft$	Length of footing
$t_{liner} := 6\ in$	Liner thickness
$d_{cl\_brg} := 0.5\ ft$	Distance to centerline of bearing
$L_{toe} := 0.5\ ft$	Length of footing toe
$t_{bw} := t_{stem} - W_{seat} = 1\ ft$	Backwall thickness
$e_{brg} := 0.5 \cdot W_{ft} - d_{cl\_brg} - L_{toe} = 4\ ft$	Bearing load eccentricity from footing center



Demand:

Crossing Slab Dead Loads:

$\gamma_{c\_slab} := 150\ pcf$ Crossing slab concrete unit weight

Cross sectional area of crossing slab:

$A_{slab} := S_{slab\_clr} \cdot t_{slab} + 2\ \left(0.5 \cdot t_{hnch}{}^2 + t_{end} \cdot t_{bw} + W_{seat} \cdot \left(t_{hnch} + t_{slab}\right)\right) = 36.496\ ft^2$

$P_{SS\_DL} := \gamma_{c\_slab} \cdot \left(0.5 \cdot A_{slab}\right) = 2.737\ klf$ Tributary slab weight

$M_{SS\_DL} := P_{SS\_DL} \cdot e_{brg} = 10.949\ \frac{kip \cdot ft}{ft}$ Moment about center of footing

Crossing Slab Water Loads:

$\gamma_w := 62.4\ pcf$ Water unit weight

$h_{w\_ser} := 2.2\ ft$ Water depth service loading

$p_{WA\_ser} := \gamma_w \cdot h_{w\_ser} = 0.137\ ksf$ Pressure due to service water level

Tributary slab water loading:

$L_{slab\_trib} := 0.5\ S_{slab\_clr} + W_{seat} + t_{bw} = 15.665\ ft$

$P_{SS\_WA\_ser} := p_{WA\_ser} \cdot L_{slab\_trib} = 2.15\ klf$

Moments about center of footing

$M_{SS\_WA\_ser} := P_{SS\_WA\_ser} \cdot e_{brg} = 8.602\ \frac{kip \cdot ft}{ft}$

Crossing Slab Live Loads:

See calculations at the end of section for the calculation of the distributed live load

$P_{SS\_LL} := 3.03\ klf$ — Live load distributed load

$M_{SS\_LL} := P_{SS\_LL} \cdot e_{brg} = 12.12\ \frac{kip \cdot ft}{ft}$ — Live load Moment

Wall Dead Load:

$\gamma_c := 150\ pcf$ — Typical concrete unit weight

$P_{bw} := \gamma_c \cdot (t_{bw}) \cdot (H_{bw}) = 0.113\ klf$ — Backwall load

$e_{bw} := 0.5\ W_{ft} - (W_{seat} + 0.5\ t_{bw} + L_{toe}) = 3\ ft$ — Backwall eccentricity

$P_{stem} := \gamma_c \cdot (t_{stem})\ (H - (t_{slab} + t_{hnch}) - t_{ft}) = 1.725\ klf$ — Stem load

$e_{stem} := 0.5\ W_{ft} - (0.5\ t_{stem} + L_{toe}) = 3.5\ ft$ — Stem eccentricity

$P_{ft} := \gamma_c \cdot (t_{ft})\ (W_{ft}) = 3\ klf$ — Footing load

$e_{ft} := 0.5\ W_{ft} - 0.5\ W_{ft} = 0\ ft$ — Footing eccentricity

$P_{DC} := P_{bw} + P_{stem} + P_{ft} = 4.838\ klf$ — Dead load

$M_{DC} := P_{bw} \cdot e_{bw} + P_{stem} \cdot e_{stem} + P_{ft} \cdot e_{ft} = 6.375\ \frac{kip \cdot ft}{ft}$ — Dead moment

$e_{DC} := \frac{M_{DC}}{P_{DC}} = 1.318\ ft$ — Dead load eccentricity

Soil Loading:

$\gamma_s := 85\ pcf$ Unit weight of soil

$k_a := 0.33$ Active coefficient of soil

$L_{heel} := W_{ft} - t_{stem} - L_{toe} = 7.5\ ft$ Length of heel

$p_{EV} := \left(H - t_{liner} - t_{ft}\right) \cdot \gamma_s = 0.574\ ksf$ Vertical soil pressure on footing

$P_{EV\_heel} := L_{heel} \cdot p_{EV} = 4.303\ klf$ Vertical soil load on heel

$e_{EV\_heel} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Eccentricity of vert heel soil load

$P_{EV\_toe} := L_{toe} \cdot p_{EV} = 0.287\ klf$

$e_{EV\_toe} := 0.5\ W_{ft} - \left(0.5\ L_{toe}\right) = 4.75\ ft$

$M_{EV} := P_{EV\_heel} \cdot e_{EV\_heel} + P_{EV\_toe} \cdot e_{EV\_toe} = -4.016\ \frac{kip \cdot ft}{ft}$ Moment of Vert soil load on wall

$P_{EV} := P_{EV\_heel} + P_{EV\_toe} = 4.59\ klf$ Vertical soil load

$e_{EV} := \frac{M_{EV}}{P_{EV}} = -0.875\ ft$ Eccentricity of vertical soil load on heel

$p_{EH} := \left(H - t_{liner}\right) \cdot k_a \cdot \gamma_s = 0.245\ ksf$ Maximum hrz soil pressure

$P_{EH} := 0.5 \cdot \left(H - t_{liner}\right) \cdot p_{EH} = 1.074\ klf$ Horizontal soil load on wall

$e_{EH} := 0.333\ \left(H - t_{liner}\right) = 2.914\ ft$ Eccentricity of hrz soil load

$M_{EH} := P_{EH} \cdot e_{EH} = 3.129\ \frac{kip \cdot ft}{ft}$ Moment of hrz soil load on wall

Liner Surcharge:

$p_{LIN\_V} := \gamma_c \cdot t_{liner} = 0.075\ ksf$ Liner vertical surcharge pressure

$P_{LIN\_V} := p_{LIN\_V} \cdot L_{heel} = 0.563\ klf$ Liner vertical surcharge load

$e_{LIN\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Liner vertical surcharge eccentricity

$M_{LIN\_V} := P_{LIN\_V} \cdot e_{LIN\_V} = -0.703\ \frac{kip \cdot ft}{ft}$ Moment of liner vertical surcharge

$p_{LIN\_H} := \gamma_c \cdot t_{liner} \cdot k_a = 0.025\ ksf$ Liner hrz. surcharge pressure

$P_{LIN\_H} := p_{LIN\_H} \cdot \left(H - t_{liner}\right) = 0.217\ klf$ Liner horizontal surcharge load

$e_{LIN\_H} := 0.5\ \left(H - t_{liner}\right) = 4.375\ ft$ Liner hrz. surcharge eccentricity

$M_{LIN\_H} := P_{LIN\_H} \cdot e_{LIN\_H} = 0.947\ \frac{kip \cdot ft}{ft}$ Moment of liner hrz. surcharge

Water Surcharge:

$p_{WA\_V\_ser} := \gamma_w \cdot h_{w\_ser} = 0.137$ **ksf** — Pressure from service water level

$P_{WA\_V\_ser} := L_{heel} \cdot p_{WA\_V\_ser} = 1.03$ **klf** — Load due to service water level

$e_{WA\_V} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25$ **ft** — Water load eccentricity

$M_{WA\_V\_ser} := P_{WA\_V\_ser} \cdot e_{WA\_V} = -1.287\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service water load

$p_{WA\_H\_ser} := \gamma_w \cdot h_{w\_ser} \cdot k_a = 0.045$ **ksf** — Hrz pressure from service water level

$P_{WA\_H\_ser} := \left(H - t_{liner}\right) \cdot p_{WA\_H\_ser} = 0.396$ **klf** — Hrz load due to service water level

$e_{WA\_H} := 0.5\ \left(H - t_{liner}\right) = 4.375$ **ft** — Hrz water load eccentricity

$M_{WA\_H\_ser} := P_{WA\_H\_ser} \cdot e_{WA\_H} = 1.734\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$ — Moment due to service hrz water load

Transverse Bearing Load:

$\mu := 0.2$ — Coefficient of friction between concrete and neoprene

$P_{SS\_DL} = 2.737$ **klf**

$P_{brg\_H} := \mu \cdot P_{SS\_DL} = 0.547$ **klf**

$e_{brg\_H} := H - t_{slab} - t_{hnch} = 7.75$ **ft**

$M_{brg\_H} := P_{brg\_H} \cdot e_{brg\_H} = 4.243\ \frac{\textbf{kip} \cdot \textbf{ft}}{\textbf{ft}}$

Load Factors

	Combination	Initial 1	Initial 2	Permanent	Service IA	Service IB	Strength IA-a	Strength IA-b	Strength IA-c	Strength IB-a	Strength IB-a	Strength IB-c
	Description	Foundation + Backfill	Permanent - Liner	Permanent All	Vehicular	Water	Vehicular Max All	Vehicular Max Lateral	Vehicular Max Vertical	Water Max All	Water Max Lateral	Water Max Vertical
Vertical Loads	DC_{ss}	0.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	LL_{ss}	0.00	0.00	0.00	1.00	0.00	1.75	0.00	1.75	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00
	DC_{wall}	1.00	1.00	1.00	1.00	1.00	1.25	0.90	1.25	1.25	0.90	1.25
	EV	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
	$ES_{soil,V}$	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.35	1.00	1.35
	$ES_{Impl,V}$	0.00	0.00	1.00	1.00	1.00	1.35	1.00	1.35	1.35	1.00	1.35
Lateral Loads	EH	1.00	1.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	LS	0.00	0.00	0.00	1.00	0.00	1.75	1.75	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.50	1.50	0.75
	$ES_{Impl,H}$	0.00	0.00	1.00	1.00	1.00	1.50	1.50	0.75	1.50	1.50	0.75
	Bearing	0	0	0	1.00	1.00	1.25	1.25	1.25	1.25	1.25	1.25

Factored Demand

Load Direction	Load	Force	Arm	Initial 1		Initial 2		Permanent		Service IA		Service IB	
				Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	2.74	-4.00	0.00	0.00	2.74	-10.95	2.74	-10.95	2.74	-10.95	2.74	-10.95
	LL_{ss}	3.03	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	3.03	-12.13	0.00	0.00
	WA_{ss}	2.15	-4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	-8.60
	DC_{wall}	4.84	-1.32	4.84	-6.38	4.84	-6.38	4.84	-6.38	4.84	-6.38	4.84	-6.38
	EV	4.59	0.88	4.59	4.02	4.59	4.02	4.59	4.02	4.59	4.02	4.59	4.02
	WA_v	1.03	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	1.29
	$ES_{Impl,V}$	0.56	1.25	0.00	0.00	0.00	0.00	0.56	0.70	0.56	0.70	0.56	0.70
			Sum:	9.43	-2.36	12.17	-13.31	12.73	-12.61	15.76	-24.74	15.91	-19.92
Lateral Loads	EH	1.07	2.92	1.07	-3.13	1.07	-3.13	1.07	-3.13	1.07	-3.13	1.07	-3.13
	LS	0.00	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.40	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	-1.73
	$ES_{Impl,H}$	0.22	4.38	0.00	0.00	0.00	0.00	0.22	-0.95	0.22	-0.95	0.22	-0.95
	Bearing	0.55	7.75	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-4.24	0.55	-4.24
			Sum:	1.07	-3.13	1.07	-3.13	1.29	-4.08	1.84	-8.32	2.23	-10.06

Factored Demand

Load Direction	Load	Strength IA-a		Strength IA-b		Strength IA-c		Strength IB-a		Strength IB-b		Strength IB-c	
		Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Vertical Loads	DC_{ss}	3.42	-13.69	2.46	-9.86	3.42	-13.69	3.42	-13.69	2.46	-9.86	3.42	-13.69
	LL_{ss}	5.31	-21.23	0.00	0.00	5.31	-21.23	0.00	0.00	0.00	0.00	0.00	0.00
	WA_{ss}	0.00	0.00	0.00	0.00	0.00	0.00	3.71	-14.86	3.71	-14.86	3.71	-14.86
	DC_{wall}	6.05	-7.97	4.35	-5.74	6.05	-7.97	6.05	-7.97	4.35	-5.74	6.05	-7.97
	EV	6.20	5.42	4.59	4.02	6.20	5.42	6.20	5.42	4.59	4.02	6.20	5.42
	WA_v	0.00	0.00	0.00	0.00	0.00	0.00	2.40	3.00	1.78	2.22	2.40	3.00
	$ES_{Impl,V}$	0.76	0.95	0.56	0.70	0.76	0.95	0.76	0.95	0.56	0.70	0.76	0.95
	Sum:	21.73	-36.52	11.97	-10.87	21.73	-36.52	22.54	-27.14	17.46	-23.51	22.54	-27.14
Lateral Loads	EH	1.61	-4.70	1.61	-4.70	0.81	-2.35	1.61	-4.70	1.61	-4.70	0.81	-2.35
	LS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WA_H	0.00	0.00	0.00	0.00	0.00	0.00	1.03	-4.49	1.03	-4.49	0.51	-2.25
	$ES_{Impl,H}$	0.32	-1.42	0.32	-1.42	0.16	-0.71	0.32	-1.42	0.32	-1.42	0.16	-0.71
	Bearing	0.68	-5.30	0.68	-5.30	0.68	-5.30	0.68	-5.30	0.68	-5.30	0.68	-5.30
	Sum:	2.62	-11.42	2.62	-11.42	1.65	-8.36	3.65	-15.92	3.65	-15.92	2.17	-10.61

External Stability Spreadsheet Verification:

Service IB - Water Loading

$$P_{serIB\_V} := P_{SS\_DL} + P_{SS\_WA\_ser} + P_{DC} + P_{EV} + P_{LIN\_V} + P_{WA\_V\_ser} = 15.91 \ klf$$

$$M_{serIB\_V} := M_{SS\_DL} + M_{SS\_WA\_ser} + M_{DC} + M_{EV} + M_{LIN\_V} + M_{WA\_V\_ser} = 19.92 \ \frac{kip \cdot ft}{ft}$$

$$P_{serIB\_H} := P_{EH} + P_{LIN\_H} + P_{WA\_H\_ser} + P_{brg\_H} = 2.23 \ klf$$

$$M_{serIB\_H} := M_{EH} + M_{LIN\_H} + M_{WA\_H\_ser} + M_{brg\_H} = 10.05 \ \frac{kip \cdot ft}{ft}$$

$$M_{serIB} := M_{serIB\_V} + M_{serIB\_H} = 29.97 \ \frac{kip \cdot ft}{ft}$$

Eccentricity Check (AASHTO 11.6.3.3)

Load Combination	ΣV (kip)	ΣM (kip-ft)	e (ft)	Limit (ft)	Check	DCR
Initial 1	9.4	-5.49	-0.58	3.33	OK	0.17
Initial 2	12.2	-16.44	-1.35	3.33	OK	0.41
Permanent	12.7	-16.68	-1.31	3.33	OK	0.39
Service IA	15.8	-33.06	-2.10	3.33	OK	0.63
Service IB	15.9	-29.98	-1.88	3.33	OK	**0.57**
Strength IA-a	21.7	-47.94	-2.21	3.33	OK	0.66
Strength IA-b	12.0	-22.30	-1.86	3.33	OK	0.56
Strength IA-c	21.7	-44.88	-2.07	3.33	OK	0.62
Strength IB-a	22.5	-43.06	-1.91	3.33	OK	0.57
Strength IB-b	17.5	-39.43	-2.26	3.33	OK	0.68
Strength IB-c	22.5	-37.75	-1.67	3.33	OK	0.50

$$e := \frac{M_{serIB}}{P_{serIB\_V}} = 1.884 \ ft$$ Total eccentricity

$$e_{max} := \frac{W_{ft}}{3} = 3.333 \ ft$$ Maximum eccentricity

$$DCR_{ecc} := \frac{e}{e_{max}} = 0.565$$ <1, OK

Bearing Check (AASHTO 11.6.3.2)

Check allowable bearing pressure of 3 ksf according to geotechnical report. Note that since it is an allowable capacity it will be compared to unfactored loading (service).

Load Combination	e (ft)	B' (ft)	ΣV (kip)	σ (ksf)	q_a (ksf)	Check	DCR
Initial 1	-0.58	8.84	9.4	1.07	3.00	OK	0.36
Initial 2	-1.35	7.30	12.2	1.67	3.00	OK	0.56
Permanent	-1.31	7.38	12.7	1.73	3.00	OK	0.58
Service IA	-2.10	5.80	15.8	2.72	3.00	OK	0.91
Service IB	-1.88	6.23	15.9	2.55	3.00	OK	**0.85**

$B'_{serIB} := W_{ft} - 2 \cdot e = 6.2316\ ft$ Effective bearing width

$\sigma_{serIB} := \frac{P_{serIB\_V}}{B'_{serIB}} = 2.5527\ ksf$ Bearing stress

$q_a := 3\ ksf$ Factored bearing resistance

$DCR_{bearing} := \frac{\sigma_{serIB}}{q_a} = 0.851$ <1, OK

Sliding Check (AASHTO 11.6.3.6 & 10.6.3.4)

Conservatively ignore passive resistance

μ =	0.3	Friction Coefficient
ϕ_t =	0.80	Resistance Factor for Shear Resistance Between Soil and Foundation
γ =	0 pcf	Passive Earth Pressure <-Ignore
ϕ_{ep} =	0	Passive Earth Pressure Component of Sliding Resistance

Load Combination	ΣH (kips)	ΣV (kip)	$\phi_t R_t$ (kip)	$\phi_{ep} R_{ep}$ (kip)	R_s (kip)	Check	DCR
Service IA	1.84	15.8	3.78	0.00	3.8	OK	0.49
Service IB	2.23	15.9	3.82	0.00	3.8	OK	**0.59**
Strength IA-a	2.62	21.7	5.22	0.00	5.2	OK	0.50
Strength IA-b	2.62	12.0	2.87	0.00	2.9	OK	0.91
Strength IA-c	1.65	21.7	5.22	0.00	5.2	OK	0.32
Strength IB-a	3.65	22.5	5.41	0.00	5.4	OK	0.67
Strength IB-b	3.65	17.5	4.19	0.00	4.2	OK	0.87
Strength IB-c	2.17	22.5	5.41	0.00	5.4	OK	0.40

$\mu := 0.3$ From preliminary foundation report

$\phi_T := 0.8$ AASHTO Table 10.5.5.2.2-1 CIP Concrete on cohesionless soil

$R_{r\_slide} := \phi_T \cdot P_{serIB\_V} \cdot \mu \cdot 1\ ft = 3.818\ kip$

$P_u := P_{serIB\_H} \cdot 1\ ft = 2.234\ kip$

$DCR_{sliding} := \frac{P_u}{R_{r\_slide}} = 0.585$ <1, OK

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By: JRM
Date: Nov-24

Live Load Bearing Distribution - Maximum Footing Depth

H_{wall}	9.25	ft	Wall Height
V_{H20_L}	38.2	kip	Max H-20 live load reaction from Longitudinal slab sap model
V_{H20_T}	30.3	kip	Max H-20 live load reaction from Transverse slab sap model
V_{Ex_L}	59.9	kip	Max Excavator live load reaction from Longitudinal slab sap model
V_{Ex_T}	65.9	kip	Max Excavator live load reaction from Transverse slab sap model
V_{Bd_L}	42.8	kip	Max Bulldozer live load reaction from Longitudinal slab sap model
V_{Bd_T}	45.7	kip	Max Bulldozer live load reaction from Transverse slab sap model
$S_{wheel,H20}$	6.0	ft	Transverse H-20 wheel spacing
$S_{wheel,Ex}$	8.5	ft	Transverse Excavator track spacing
$S_{wheel,bd}$	6.3	ft	Transverse Bulldozer track spacing
$W_{wheel,H20}$	20.0	in	Width of H-20 wheel
$W_{wheel,Ex}$	24.0	in	Width of Excavator track
$W_{wheel,bd}$	24.0	in	Width of Bulldozer track
$L_{wheel,H20}$	10.0	in	Length of H-20 wheel
$L_{track,Ex}$	158.0	in	Length of Excavator track
$L_{track,bd}$	116.7	in	Length of Bulldozer track

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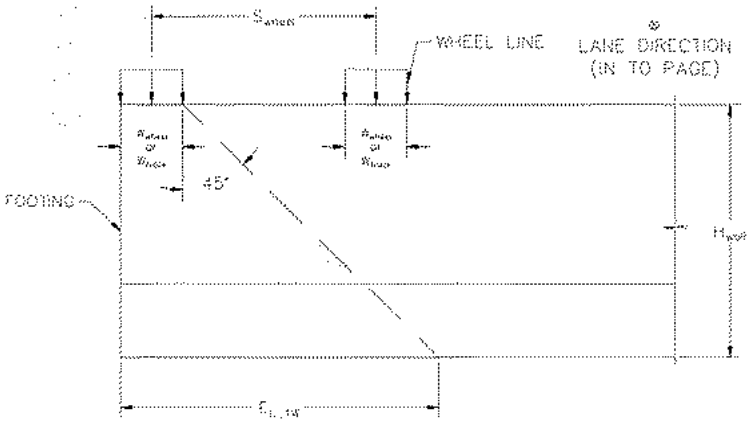
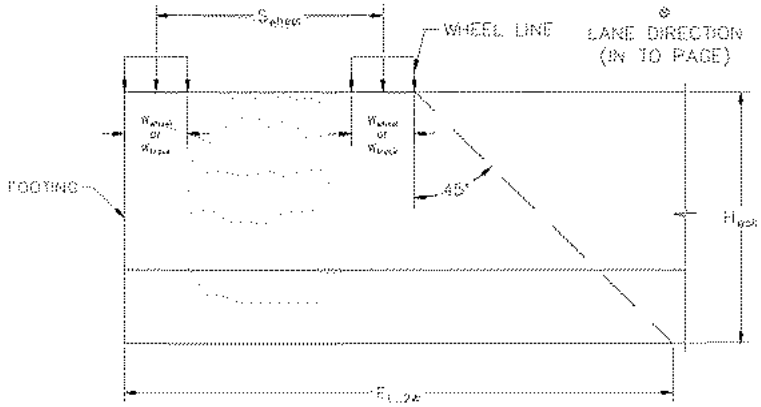
Live Load Bearing Distribution - Longitudinal Distribution - Deep Footing



Longitudinal Single Wheel Distribution Sketch



Longitudinal 2-Wheel Distribution Sketch

$E_{H20\_L\_1W}$	10.92	ft	H20 longitudinal distribution Length for 1 wheel
$E_{H20\_L\_2W}$	16.92	ft	H20 longitudinal distribution Length for 2 wheel
$w_{LL\_H20\_L}$	2.26	kip/ft	$Max(V_{H20\_L}/(2*E_{H20\_L\_1W}),V_{H20\_L}/(E_{H20\_L\_2W}))$
$E_{Ex\_L\_1W}$	11.25	ft	Excavator longitudinal distribution Length for 1 Track
$E_{Ex\_L\_2W}$	19.75	ft	Excavator longitudinal distribution Length for 2Track
$w_{LL\_Ex\_L}$	3.03	kip/ft	$Max(V_{EX\_L}/(2*E_{EX\_L\_1W}),V_{H20\_L}/(E_{EX\_L\_2W}))$
$E_{Bd\_L\_1W}$	11.25	ft	Bulldozer longitudinal distribution Length for 1 Track
$E_{Bd\_L\_2W}$	17.58	ft	Bulldozer longitudinal distribution Length for 2Track
$w_{LL\_Bd\_L}$	2.43	kip/ft	$Max(V_{BD\_L}/(2*E_{BD\_L\_1W}),V_{H20\_L}/(E_{BD\_L\_2W}))$

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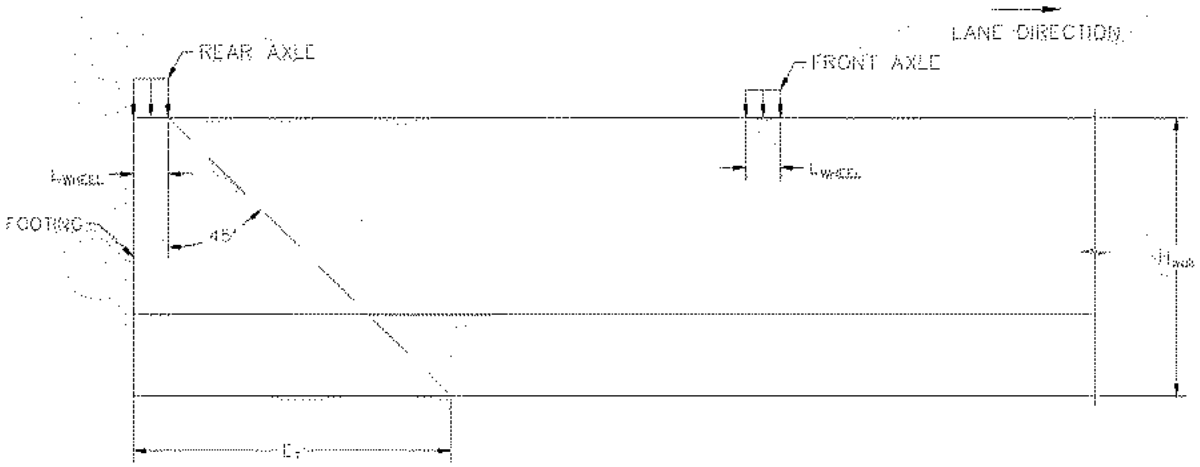
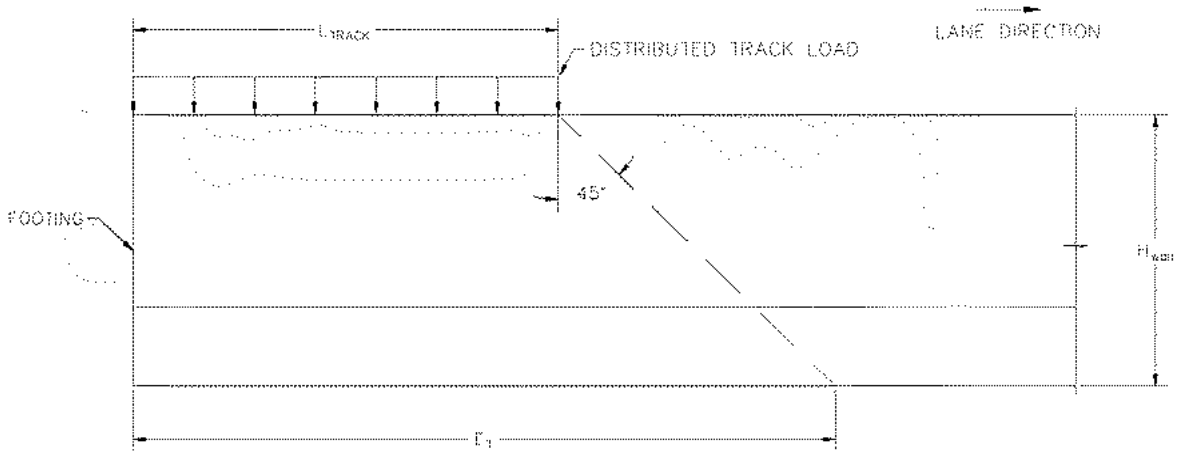
Project #: 24002328
By: JRM
Date: Nov-24

Live Load Bearing Distribution - Transverse Distribution - Deep Footing



Transverse H20 Distribution Sketch



Transverse Excavator/Bulldozer Distribution Sketch

E_{H20_T}	10.08	ft	H20 Transverse distribution length
$w_{LL\_H20\_T}$	3.01	kip/ft	V_{H20_T}/E_{H20_T}
E_{Ex_T}	22.42	ft	Excavator Transverse distribution Length
$w_{LL\_Ex\_T}$	2.94	kip/ft	V_{EX_T}/E_{EX_T}
E_{Bd_T}	18.98	ft	Bulldozer Transverse distribution Length
$w_{LL\_Bd\_T}$	2.41	kip/ft	V_{BD_T}/E_{BD_T}
w_{LL}	**3.03**	kip/ft	Maximum live load distributed load

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.3.2 Stem and Footing Design

Stem Structural Check

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Section:

$b := 1\ ft$ Footing strip width

$d := 24\ in$ Footing depth

Material Properties:

$f'_c := 3.6\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ AASHTO 2017, 5.6.2.2

$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 3457\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 8$

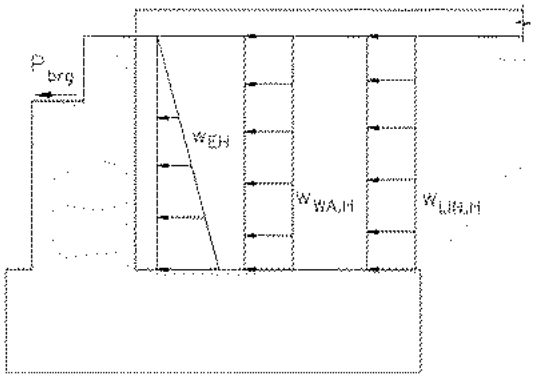
Resistance Factors:

$\phi_f := 0.9$

$\phi_c := 0.75$

$\phi_v := 0.9$

Footing Demands:



Factored Demand													
Load Direction	Load	Force	Arm	Initial 1		Initial 2		Permanent		Service IA		Service IB	
				Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Lateral Loads	EH	1.07	2.25	1.07	-2.42	1.07	-2.42	1.07	-2.42	1.07	-2.42	1.07	-2.42
	WA_H	0.40	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	-1.34
	$ES_{liner,H}$	0.22	3.38	0.00	0.00	0.00	0.00	0.22	-0.73	0.22	-0.73	0.22	-0.73
	Bearing	0.55	5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.55	-3.15	0.55	-3.15
			Sum:	1.07	-2.42	1.07	-2.42	1.29	-3.15	1.84	-6.30	2.23	-7.63

Factored Demand													
Load Direction	Load	Strength IA-a		Strength IA-b		Strength IA-c		Strength IB-a		Strength IB-b		Strength IB-c	
		Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment	Force	Moment
		kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft	kip	kip-ft
Lateral Loads	EH	1.61	-3.62	1.61	-3.62	0.81	-1.81	1.61	-3.62	1.61	-3.62	0.81	-1.81
	WA_H	0.00	0.00	0.00	0.00	0.00	0.00	1.03	-3.47	1.03	-3.47	0.51	-1.73
	$ES_{liner,H}$	0.32	-1.10	0.32	-1.10	0.16	-0.55	0.32	-1.10	0.32	-1.10	0.16	-0.55
	Bearing	0.68	-3.94	0.68	-3.94	0.68	-3.94	0.68	-3.94	0.68	-3.94	0.68	-3.94
	Sum:	2.62	-8.66	2.62	-8.66	1.65	-6.30	3.65	-12.12	3.65	-12.12	2.17	-8.03

Load Combination	V_u (kip)	M_u (kip-ft)
Initial 1	1.1	2.42
Initial 2	1.1	2.42
Permanent	1.3	3.15
Service IA	1.8	6.30
Service IB	2.2	**7.63**
Strength IA-a	2.6	8.66
Strength IA-b	2.6	8.66
Strength IA-c	1.7	6.30
Strength IB-a	**3.6**	**12.12**
Strength IB-b	**3.6**	**12.12**
Strength IB-c	2.2	8.03

$M_u := 12.12 \ kip \cdot ft$

$M_s := 7.63 \ kip \cdot ft$

$V_u := 3.6 \ kip$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#5s @ 12":

$b_{sz} := 5$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.31\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.655\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.6\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.10098$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.6\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.101$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.51\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 32\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.426$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 2\ ft$ $b = 1\ ft$ $f'_c = 3.6\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 1152\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.455\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 52\ kip \cdot ft$

$M_u = 12.1\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 16\ kip \cdot ft$

$\phi_f \cdot M_n = 28\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.566$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7):

$s_1 := s = 12\ in$ Spacing of flexure steel

$M_s = 7.63\ kip \cdot ft$
$d_s = 20.655\ in$
$b = 12\ in$
$n = 8$
$d_c := d - d_s = 3.345\ in$
$h := d = 2\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.231$$

$\gamma_e := 1$ Assume Exposure Class 1, low visibility

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$
$b_o := -n \cdot A_s$ $A_s = 0.31\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 2.723\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 878\ in^4$$

$$f_{ss} := \operatorname{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 14.957\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 31.319\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.383$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 3.6\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 0.31\ in^2$ $d_s = 20.655\ in$

$d_{v1} := 0.72 \cdot (d) = 17.28\ in$

$d_{v2} := 0.9 \cdot (d_s) = 18.59\ in$

$d_v := \max(d_{v1}, d_{v2}) = 18.59\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6\ ksi$
$b_v := b = 12\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27\ kip$ AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 181\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 24\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 24.1\ kip$

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.15$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_u = 12.12\ \textit{kip} \cdot \textit{ft}$ $d_v = 18.59\ \textit{in}$ $\phi_f = 0.9$

$$D_M := \frac{\text{abs}\left(M_u\right)}{\phi_f \cdot d_v} = 9\ \textit{kip}$$

Shear/Torsion Component:

$V_u = 3.6\ \textit{kip}$ $V_s = 0\ \textit{kip}$ $V_p := 0\ \textit{kip}$

$$V_s := min\left(\frac{\text{abs}\left(V_u\right)}{\phi_v}, V_s\right) = 0\ \textit{kip}$$

$$D_V := \cot\left(\theta\right) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 4\ \textit{kip}$$

Capacity Check:

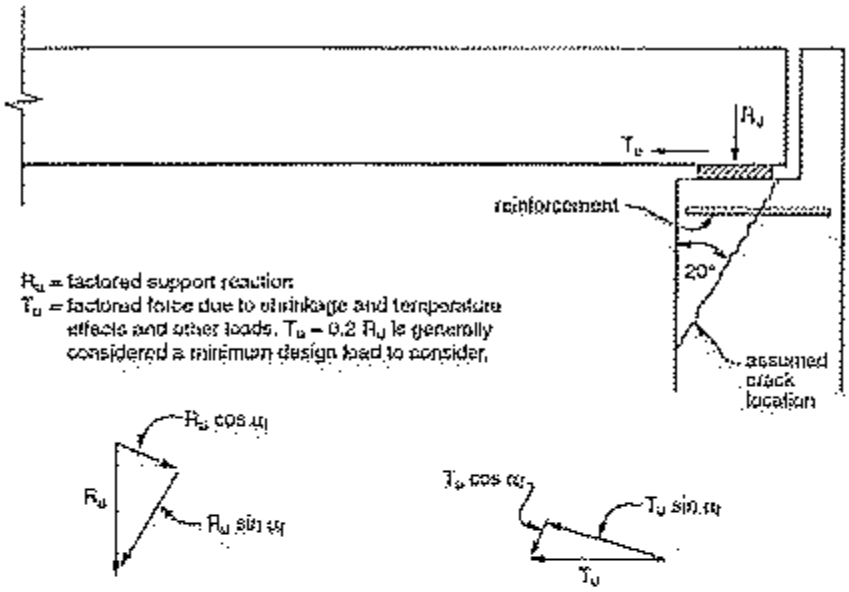
$A_s = 0.31\ \textit{in}^2$ $f_y = 60\ \textit{ksi}$

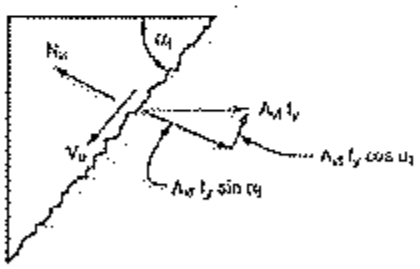
$$C := A_s \cdot f_y = 19\ \textit{kip}$$

$$\frac{D_M + D_V}{C} = 0.68$$ <1, OK

Stem Longitudinal Top Reinforcement (BDP 1994, 2-143)

Check the longitudinal reinforcement underneath the bearings.





Applied Forces

$V_u = R_u \sin\alpha_f + T_u \cos\alpha_f$

$N_u = T_u \sin\alpha_f - R_u \cos\alpha_f$

Resisting Forces

$V_n = A_{vf} f_y (\mu \sin\alpha_f + \cos\alpha_f)$ If N_u = tensile force

$V_n = A_{vf} f_y (\mu \sin\alpha_f + \cos\alpha_f) + \mu N_u$ If N_u = compressive force

$N_n = A_{vf} f_y \sin\alpha_f$ = nominal tensile strength

Total required steel, $A_s = A_{vf} + A_h$

Distribute steel uniformly along potential crack plane.

$R_u := 67.25\ \textit{kip}$

$R_{perm\_fact} := 13.2\ \textit{kip}$

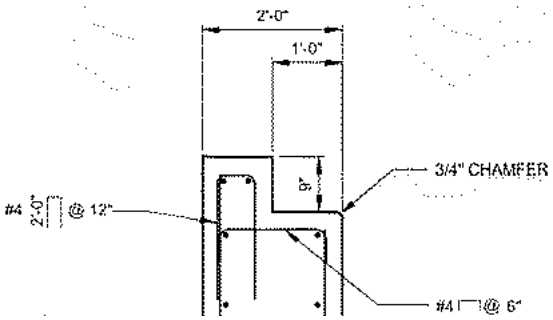
$T_u := 0.2\ (R_{perm\_fact}) = 2.64\ \textit{kip}$

$\alpha_f := 70\ \textit{deg}$

$V_u := R_u \cdot \sin(\alpha_f) + T_u \cdot \cos(\alpha_f) = 64.097\ \textit{kip}$ Shear load along failure plane

$N_u := T_u \cdot \sin(\alpha_f) - R_u \cdot \cos(\alpha_f) = -20.52\ \textit{kip}$ Load perpendicular to failure plane (Negative = Compression)

There are #4 @ 6" along the seat, assume a minimum of three fall within failure plane under the 10" long bearing pad



$A_s := 3 \cdot A_{bar}(4) = 0.6\ in^2$

$f_y := 60\ ksi$

$\mu := 1.4$ AASHTO 2017, 5.7.4.4. Monolithically placed concrete

$\phi_v := 0.9$

$l_{d\_avail} := 6\ in$

$l_{dh} := 0.67\ ft$

$A_{s\_eff} := A_s \cdot \frac{l_{d\_avail}}{l_{dh}} = 0.448\ in^2$

$$A_v := \frac{\frac{V_u}{\phi_v} - \max(-\mu \cdot N_u, 0)}{f_y \cdot (\mu \cdot \sin(\alpha_f) + \cos(\alpha_f))} = 0.427\ in^2$$

$$A_n := \max\left(\frac{N_u}{\phi_v\ f_y \cdot \sin(\alpha_f)}, 0\ in^2\right) = 0\ in^2$$

$A_{s\_req} := A_v + A_n = 0.43\ in^2$

$\frac{A_{s\_req}}{A_{s\_eff}} = 0.95$ <1 OK

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770 First Avenue, Suite 400
San Diego, CA 92101

Project: Shea Properties
Project #: 24002328
By: JM
Date: Nov-24

Hooked Reinforcing Development (AASHTO 2017, 5.10.8.2.4)

Bar Location: #5 Stem Bars

Bar Size	#5		
A_{bar}	0.31	in^2	Area of Bar
d_b	0.63	in	Diameter of Bar
N_{bundle}	1		Number of Bars in Bundle
A_{total}	0.31	in^2	Total Bundle Area
$d_{b,eq}$	0.63	in	Equivalent Diameter
f_y	60	ksi	Rebar Yield Stress
f'_c	3.6		Concrete Ultimate Stress
l_{hb} (ft)	**1.04**	ft	Basic Development Length
λ	**1.0**		Light Weight Aggregate Factor (1 or 1.3)
λ_{cw}	**1.0**		Coating Factor (1 or 1.2)
λ_{rc}	**0.8**		Confinement Factor (1 or 0.8)
λ_{er}	**1.0**		Excess Reinforcement Factor
l_d	**0.83**	ft	Modified Development Length

$$l_{db} = \frac{38 * d_b}{60} * \frac{f_y}{\sqrt{f'_c}}$$

$$l_d = \frac{l_{hb} * \lambda_{cw} * \lambda_{rc}}{\lambda}$$

Note: the excess reinforcement factor (λ_{er}) can be appied on a case by case basis. Development length can still not be less than $8d_b$ or 6"

Footing Structural Check

Included in these calculations are checks for:

+Flexure
+Minimum Reinforcement
+Crack Control
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Section:

$b := 1\ ft$ Footing strip width

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$\gamma_{c\_ur} := \max\left(\left(0.14 + 0.001 \cdot \frac{f'_c}{ksi}\right), 0.145\right)\ kip \cdot ft^{-3} = 145\ pcf$ Concrete unit weight (AASHTO 2017, Table 3.5.1-1):

$E_c := 33000 \cdot \left(\frac{\gamma_{c\_ur}}{kip \cdot ft^{-3}}\right)^{1.5} \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 3457\ ksi$ AASHTO 2017, EQ 5.4.2.4-1 Concrete modulus of elasticity

$E_s := 29000\ ksi$ Steel modulus of elasticity

$n := \text{round}\left(\frac{E_s}{E_c}\right) = 8$

Resistance Factors:

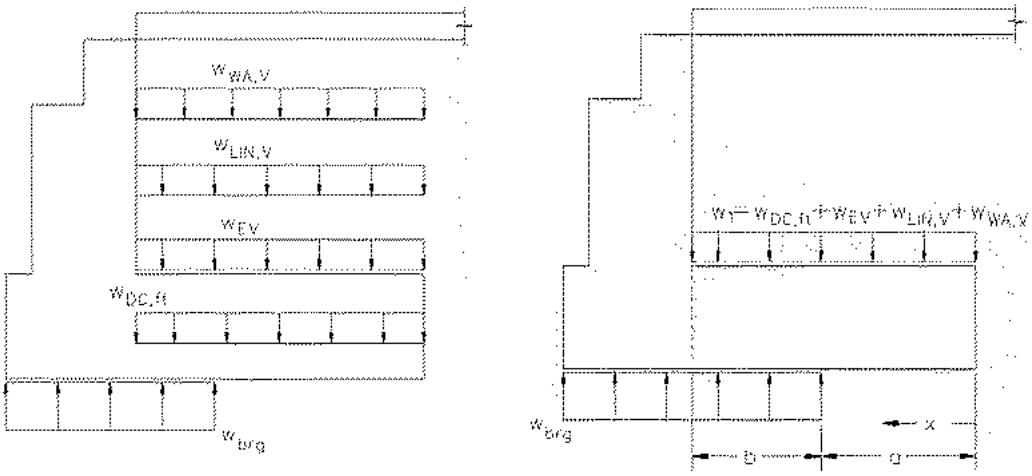
$\phi_f := 0.9$

$\phi_c := 0.75$

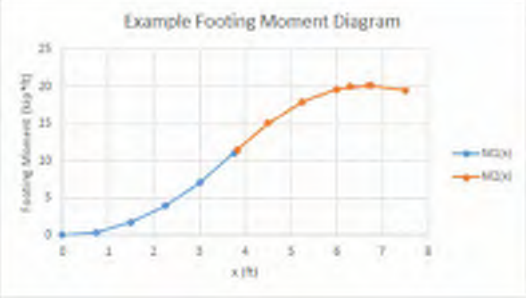
$\phi_v := 0.9$

Footing Demands:

By inspection the max footing depth will control.



Factored Demand														
Load	Dist Load	Initial 1 Force	Initial 2 Force	Permanent Force	Service IA Force	Service IB Force	Strength IA-a Force	Strength IA-b Force	Strength IA-c Force	Strength IB-a Force	Strength IB-b Force	Strength IB-c Force	Extreme I Force	Extreme I Force
	klf	klf	kip	klf	klf	klf	klf	klf	klf	klf	klf	klf	klf	klf
DC_{ft}	0.30	0.30	0.30	0.30	0.30	0.30	0.38	0.27	0.38	0.38	0.27	0.38	0.30	0.30
EV	0.57	0.57	0.57	0.57	0.57	0.57	0.77	0.57	0.77	0.77	0.57	0.77	0.57	0.57
WA_v	0.14	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.32	0.24	0.32	0.24	0.24
$ES_{liner,V}$	0.08	0.00	0.00	0.08	0.08	0.08	0.10	0.08	0.10	0.10	0.08	0.10	0.08	0.08
	Sum:	0.87	0.87	0.95	0.95	1.09	1.25	0.92	1.25	1.57	1.16	1.57	1.19	1.19



$$M_1(x) = \frac{w_1 * x^2}{2}$$

$$M_2(x) = w_1 * a * (x - 0.5a) + \frac{w_2 * (x-a)^2}{2}$$

$$x_{M2max} = \frac{a * w_2 - a * w_1}{w_2}$$

$$w_2 = w_1 + w_{brg}$$

Load Combination	b ft	a ft	w_{brg} klf	$w_{ft} = w_1$ klf	w_2 klf	M_{stem} kip*ft	M_{1max} kip*ft	$x_{M2,max}$ ft	M_{2max} kip*ft	$V_{u,max}$ kip	$M_{u,max}$ kip*ft
Initial 1	6.34	1.16	-1.07	0.87	-0.19	3.16	0.59	6.43	3.27	1.02	3.27
Initial 2	4.80	2.70	-1.67	0.87	-0.79	5.39	3.19	5.68	6.71	2.36	6.71
Permanent	4.88	2.62	-1.73	0.95	-0.78	6.16	3.26	5.83	7.25	2.49	7.25
Service IA	3.30	4.20	-2.72	0.95	-1.77	11.86	8.35	6.45	12.83	3.98	12.83
Service IB	3.73	3.77	-2.55	1.09	-1.47	12.78	7.71	6.56	13.42	4.09	**13.42**
Strength IA-a	3.09	4.41	-3.89	1.25	-2.64	16.63	12.17	6.50	17.94	5.52	17.94
Strength IA-b	3.77	3.73	-1.91	0.92	-0.99	12.25	6.38	7.19	12.30	3.42	12.30
Strength IA-c	3.37	4.13	-3.70	1.25	-2.45	14.16	10.67	6.24	16.11	5.17	16.11
Strength IB-a	3.68	3.82	-3.65	1.57	-2.08	19.49	11.47	6.71	20.14	**6.00**	**20.14**
Strength IB-b	2.98	4.52	-3.18	1.16	-2.03	18.33	11.78	7.09	18.50	5.22	18.50
Strength IB-c	4.15	3.35	-3.39	1.57	-1.82	14.99	8.81	6.24	16.43	5.26	16.43

$M_u := 20.14\ kip \cdot ft$ Maximum factored footing moment

$M_s := 13.42\ kip \cdot ft$ Maximum service footing moment

$V_u := 6\ kip$ Maximum factored footing shear

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#6s @ 12":

$b_{sz} := 6$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.44\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.56\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.85\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.06992$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.85\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.07$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.72\ in$ — Depth of equivalent stress block.

Flexural Resistance Factor (AASHTO 2017, 5.5.4.2 & 5.6.2.1)

$$\varepsilon_{cl} := 0.002 + (0.004 - 0.002) \cdot \frac{(f_y - 60\ ksi)}{(100\ ksi - 60\ ksi)} = 0.002$$

$$\varepsilon_{tl} := 0.005 + (0.008 - 0.005) \cdot \frac{(f_y - 75\ ksi)}{(100\ ksi - 75\ ksi)} = 0.0032$$

$$\phi_f := \max\left(min\left(0.75 + \frac{0.15\ (\varepsilon_t - \varepsilon_{cl})}{\varepsilon_{tl} - \varepsilon_{cl}}, 0.9\right), 0.75\right) = 0.9$$

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 44\ kip \cdot ft$$

$$DC_{M3} := \frac{\text{abs}(M_u)}{\phi_f \cdot M_n} = 0.504$$ <1, OK

Minimum Reinforcement (AASHTO 2017, 5.6.3.3):

$d = 2\ ft$ $b = 1\ ft$ $f'_c = 3.6\ ksi$

$\gamma_1 := 1.6$ Flexural Cracking Variability Factor (All other concrete structures)

$\gamma_2 := 0$ Prestress Variability Factor (N/A)

$\gamma_3 := 0.75$ Yield:Ultimate Ratio (A706, Gr.60)

$S_c := \frac{d^2 \cdot b}{6} = 1152\ in^3$ Gross Section Modulus

$S_{nc} := S_c$ Full Section is Monolithic

$f_r := 0.24 \cdot \sqrt{f'_c} \cdot ksi^{0.5} = 0.455\ ksi$

$f_{cpe\_btm} := 0\ ksi$

$M_{cr} := \gamma_3 \cdot \left(\left(\gamma_1 \cdot f_r + \gamma_2 \cdot f_{cpe\_btm} \right) \cdot S_c \right) = 52\ kip \cdot ft$

$M_u = 20.1\ kip \cdot ft$

$M_{r\_min} := min\left(\text{abs}\left(1.33 \cdot M_u \right), M_{cr} \right) = 27\ kip \cdot ft$

$\phi_f \cdot M_n = 40\ kip \cdot ft$

$DC_{MinR\_neg} := \frac{M_{r\_min}}{\phi_f \cdot M_n} = 0.67$ <1, OK

Crack Control by Distribution of Reinforcing (AASHTO 2017, 5.6.7):

$s_1 := s = 12\ in$ Spacing of flexure steel

$M_s = 13.42\ kip \cdot ft$
$d_s = 20.56\ in$
$b = 12\ in$
$n = 8$
$d_c := d - d_s = 3.44\ in$
$h := d = 2\ ft$

$$\beta_s := 1 + \frac{d_c}{0.7\ (h - d_c)} = 1.239$$

$\gamma_e := 1$ Assume Exposure Class 1, low visibility

for rectangular sections: $\frac{-b_{cap} \cdot y_{rec}^{\ 2}}{2} + n \cdot A_{s1}\left(d_{s1\_n} - y_{rec}\right) + n \cdot A_{s2}\left(d_{s2\_n} - y_{rec}\right) = 0$

$a_o := \frac{-b}{2}$
$b_o := -n \cdot A_s$ $A_s = 0.44\ in^2$
$c_o := n \cdot \left(A_s \cdot d_s\right)$

$$y := \frac{-b_o - \sqrt{b_o^{\ 2} - 4 \cdot a_o \cdot c_o}}{2 \cdot a_o} = 3.192\ in$$

$$I_{eff} := \frac{b \cdot y^3}{3} + n \cdot \left(A_s \cdot \left(d_s - y\right)^2\right) = 1192\ in^4$$

$$f_{ss} := \text{abs}\left(n \cdot \frac{M_s \cdot \left(d_s - y\right)}{I_{eff}}\right) = 18.773\ ksi$$ Stress in flexure steel at service loading

$$s_{max} := \left(\frac{700\ \gamma_e \cdot ksi}{\beta_s \cdot f_{ss}} - 2\ \frac{d_c}{1\ in}\right) in = 23.214\ in$$

$DC_{CrC} := \frac{s_1}{s_{max}} = 0.517$ <1, OK

Maximum Shear:

Demands at Section:

$V_u = 6$ *kip* Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60$ *ksi* $A_s = 0.44$ *in*^{2} $d_s = 20.56$ *in*

$d_{v1} := 0.72 \cdot (d) = 17.28$ *in*

$d_{v2} := 0.9 \cdot (d_s) = 18.5$ *in*

$d_v := \max(d_{v1}, d_{v2}) = 18.5$ *in*

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6$ *ksi*
$b_v := b = 12$ *in*

$\theta := 45$ *deg*

$\beta := 2.0$

$V_s := 0$ *kip* AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27$ *kip* AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 180$ *kip*

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 24$ *kip*

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 24$ *kip*

$DCR := \frac{\text{abs}(V_u)}{\phi V_n} = 0.25$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_u = 20.14\ kip \cdot ft$ $d_v = 18.5\ in$ $\phi_f = 0.9$

$$D_M := \frac{\text{abs}(M_u)}{\phi_f \cdot d_v} = 15\ kip$$

Shear/Torsion Component:

$V_u = 6\ kip$ $V_s = 0\ kip$ $V_p := 0\ kip$

$$V_s := min\left(\frac{\text{abs}(V_u)}{\phi_v}, V_s\right) = 0\ kip$$

$$D_V := \cot(\theta) \cdot \left(\left|\frac{V_u}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 7\ kip$$

Capacity Check:

$A_s = 0.44\ in^2$ $f_y = 60\ ksi$

$$C := A_s \cdot f_y = 26\ kip$$

$$\frac{D_M + D_V}{C} = 0.8$$ <1, OK

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San Diego, CA 92101

Project: Shea Properties
Project #: 24002328
By: JM
Date: Nov-24

Hooked Reinforcing Development (AASHTO 2017, 5.10.8.2.4)

Bar Location: #6 Footing Bars

Bar Size	#6		
A_{bar}	0.44	in^2	Area of Bar
d_b	0.75	in	Diameter of Bar
N_{bundle}	1		Number of Bars in Bundle
A_{total}	0.44	in^2	Total Bundle Area
$d_{b,eq}$	0.75	in	Equivalent Diameter
f_y	60	ksi	Rebar Yield Stress
f'_c	3.6		Concrete Ultimate Stress
l_{hb} (ft)	**1.25**	ft	Basic Development Length
λ	**1.0**		Light Weight Aggregate Factor (1 or 1.3)
λ_{cw}	**1.0**		Coating Factor (1 or 1.2)
λ_{rc}	**0.8**		Confinement Factor (1 or 0.8)
λ_{er}	**1.0**		Excess Reinforcement Factor
l_d	**1.00**	ft	Modified Development Length

$$l_{db} = \frac{38 * d_b}{60} * \frac{f_y}{\sqrt{f'_c}}$$

$$l_d = \frac{l_{hb} * \lambda_{cw} * \lambda_{rc}}{\lambda}$$

Note: the excess reinforcement factor (λ_{er}) can be appied on a case by case basis. Development length can still not be less than $8d_b$ or 6"

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

6.4 Bearing Design

ELASTOMERIC BEARING PAD DESIGN RC STRUCTURE

	Width	Length	Area
Trial Pad =	6.0	10.0	60.0
Shape Factor =	3.75		

Number of Pads =	1		
Contributory length RC =	14.2		
D.L. Reaction - Service Load =	13.20	13.20	
L.L. Reaction - Service Load =	29.00	29.00	<- Peak bearing reaction from diaphragm model
Temperature Rise and Fall =	35	*deg*	excluding impact
Temperature Movement =	0.054	in	
P/S Shortening & Shrinkage =	0.00	in	
Concrete Shrinkage =	0.01	in	
Σ=	0.062	in	
Minimum Thickness of Pad =	0.12		
Try Pad =	0.5	OK	

Steel Reinforced

From Figure 4B Compute the Compressive Strain

Compressive Strain =	6.95%	extrapolate figure		
Initial Thickness =	0.4653	in	OK	
Final Thickness After Creep =	0.4566	in		

Calculate the Maximum Shear Force at Slippage

Fsmax =	2.64	allowable		
Actual Design Shear Force =	1.26	Kips	< Fsmax	OK

Max Pad Thickness =	2.00	OK	
Compressive Stress =	703	< 800	OK
Compressive Stress D.L. =	220	> 200	OK

Diaphragm Live Load Reactions

H20 - Longitudinal



H20 - Transverse



Excavator - Longitudinal



Excavator - Transverse



Bulldozer - Longitudinal



Bulldozer - Transverse



PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

7 Seismic Design

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

7.1 Seismic Parameters

770 First Avenue, Suite 400,
Sand Diego CA 92101

Project: Shea Properties
Project #: 24002328
Subject: Seismic Parameters

Originator:JRM
Date: 11/7/2024

From the Geotechnical Report dated 11/7/2024:

DESIGN PARAMETER	RECOMMENDED VALUE
Site Class	D
S_s (g)	2.138
S_1 (g)	0.866
F_a	1.0
F_v	N/A*
S_{MS} (g)	2.138
S_{M1} (g)	N/A
S_{DS} (g)	1.425
S_{D1} (g)	N/A
PGA_M (g)	1.062

DRAFT

PROJECT	San Jacinto Line E Storm Drain
BRIDGE NAME	Crossing Over Casa Loma Barrel 1 Siphon

7.2 Structural Period

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San Diego, CA 92101

Project: Shea Properties
Project #: 24002328
By: JRM
Date: Feb-25

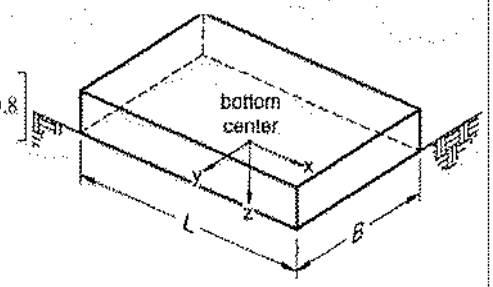
Structure Period Calculation

Determine structure stiffness according to ASCE 41-17 Section 8.4.2.3 (Method 1). Assume only one footing is effective under seismic loading

v_{s0}	400	ft/s2	Shear wave velocity
γ	85	pcf	Soil unit weight
g	32.17	ft/s^2	Acceleration of gravity
G_0	422.8	ksf	Initial shear modulus (ASCE 41-17, EQ8-4)
v	0.3	Poison's ratio	
S_s	2.138	g	See Geotechnical Investigation Report
F_a	1		See Geotechnical Investigation Report
S_{xs}	2.138	Fa*Ss	
G_0/G	0.1		Effective shear modulus ratio (ASCE 41-17, Table 8-2)
G	42.27541	ksf	Effective shear modulus

$$G_0 = \frac{\gamma * v_{s0}^2}{g}$$

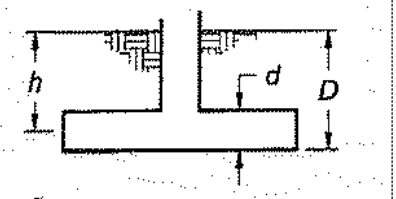
Degree of Freedom	Stiffness of Foundation at Surface	Note
Translation along x-axis	$K_{x,sur} = \frac{GB}{2-\nu}\left[3.4\left(\frac{L}{B}\right)^{0.65} + 1.2\right]$	
Translation along y-axis	$K_{y,sur} = \frac{GB}{2-\nu}\left[3.4\left(\frac{L}{B}\right)^{0.65} + 0.4\frac{L}{B} + 0.8\right]$	
Translation along z-axis	$K_{z,sur} = \frac{GB}{1-\nu}\left[1.55\left(\frac{L}{B}\right)^{0.75} + 0.8\right]$	
Rocking about x-axis	$K_{xx,sur} = \frac{GB^3}{1-\nu}\left[0.4\left(\frac{L}{B}\right) + 0.1\right]$	



B	10	ft	Footing width
L	203	ft	Footing length
D	7.75	ft	Footing depth
d	2	ft	Footing thickness
h	6.75	ft	

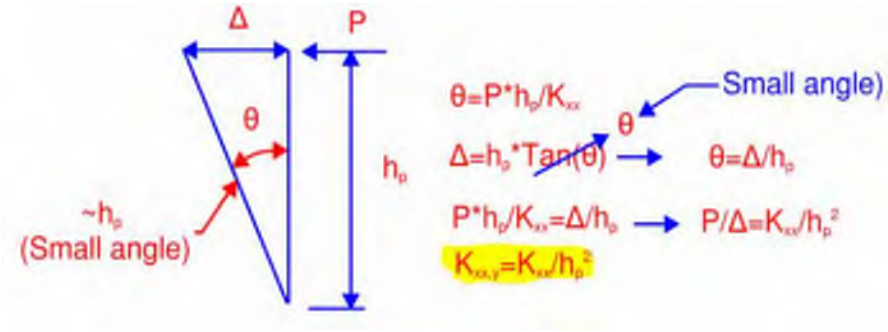
K_y	8.20E+03	kip/ft	Translational stiffness
K_{xx}	4.96E+05	kip*ft/rad	Rocking stiffness

Degree of Freedom	Correction Factor for Embedment
Translation along *x*-axis	$\beta_x = \left(1+0.21\sqrt{\frac{D}{B}}\right)\cdot\left[1+1.6\left(\frac{hd(B+L)}{BL^2}\right)^{0.4}\right]$
Translation along *y*-axis	$\beta_y = \left(1+0.21\sqrt{\frac{D}{L}}\right)\cdot\left[1+1.6\left(\frac{hd(B+L)}{LB^2}\right)^{0.4}\right]$
Translation along *z*-axis	$\beta_z = \left[1+\frac{1}{21}\frac{D}{B}\left(2+2.6\frac{B}{L}\right)\right]\cdot\left[1+0.32\left(\frac{d(B+L)}{BL}\right)^{2/3}\right]$
Rocking about *x*-axis	$\beta_{xx} = 1+2.5\frac{d}{B}\left[1+\frac{2d}{B}\left(\frac{d}{D}\right)^{-0.2}\sqrt{\frac{B}{L}}\right]$



d = height of effective

β_y	1.803		Embedment correction factor (Translation)
β_{xx}	1.558		Embedment correction factor (Rotation)
$K_{y,mod}$	1.48E+04	kip/ft	$\beta_y * K_y$
$K_{xx,mod}$	7.74E+05	kip*ft/rad	$\beta_{xx} * K_{xx}$



h_p	6.625	ft	Distance from btm of footing to center of backwall
$K_{xx,y}$	1.76E+04	kip/ft	$(K_{xx,mod}/h_p^2)$
K	8.04E+03	kip/ft	$1/(1/K_{y,mod}+1/K_{xx,y})$
w_{slab}	5.48	kip*ft	Slab weight per foot
W	1111.63	kip	Slab seismic
T	**0.41**	sec	$2\pi*(W/(g*K))^{0.5}$
	Less than 0.5 sec, OK		

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7.3 Slab Seismic Design

Slab Seismic Design

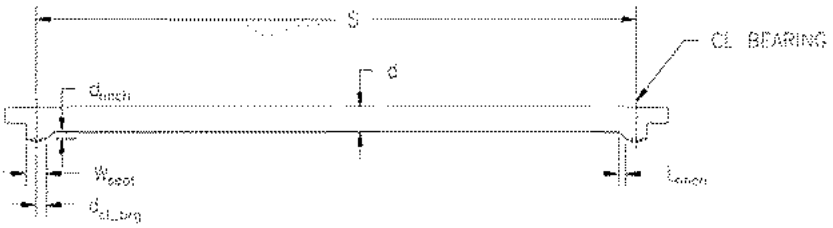
According Caltrans SDC 2.0 section Article 7.2.2 where peak ground accelerations greater than or equal to 0.6g the superstructure shall be design for vertical ground excitation. According to this article these superstructures shall be designed for a uniform load equal to 25% of the superstructes dead load upward or downward. By inspection the strength load case will control for the downward verticle load. This section checks the top mat of reinforcing to resist this upward seismic force.

Section:

$S := 28\ ft + 4\ in = 28.33\ ft$ Span length

$d := 14\ in$ Slab depth

$b := 1\ ft$ Equivalent strip width



Material Properties:

$f'_c := 5\ ksi$ Nominal Concrete strength

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.8$ AASHTO 2017, 5.6.2.2

$\gamma_c := \max\left(145\ pcf + 0.005\ kip \cdot ft^{-3}, 150\ pcf\right) = 150\ pcf$ Concrete modulus of elasticity

$E_s := 29000\ ksi$ Steel modulus of elasticity

Vertical Earthquake Load:

$a_v := 0.25$ Vertical excition coefficent

$w_{EQ\_v} := a_v \cdot d \cdot b \cdot \gamma_c = 0.044\ klf$ Load due to vertical siesmic load

$M_{EQ\_v} := \frac{w_{EQ\_v} \cdot S^2}{8} = 4.39\ kip \cdot ft$ Moment due to vertical siesmic load

Resistance Factors:

$\phi_f := 1$ SDC 2.0, 3.6

+Flexural Calculations:

Longitudinal Reinforcement:

#5s @ 12":

$b_{sz} := 5$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.31\ in^2$ — Area of longitudinal reinforcement

$f_y := 60\ ksi$ — Nominal yield stress of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 10.655\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_y}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.46\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.06712$

$f_{s1} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.46\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.067$

$f_{s2} := min(f_y, E_s \cdot \varepsilon_t) = 60\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.36\ in$ — Depth of equivalent stress block.

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$\phi_f = 1$

$M_{EQ\_v} = 4.39 \ \boldsymbol{kip \cdot ft}$

$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2} \right) = 16 \ \boldsymbol{kip \cdot ft}$

$DC_{M3} := \frac{\mathrm{abs}\left(M_{EQ\_v}\right)}{\phi_f \cdot M_n} = 0.27$ <1, OK

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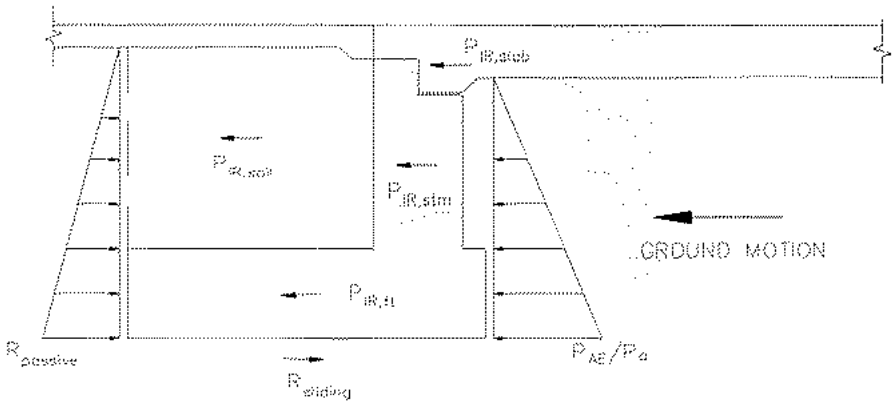
7.4 Footing Seismic Design

Footing Seismic Design

In a seismic event it is anticipated that the joint between the crossing slab and the footing it is moving towards will close transfering the inertial force from the crossing slab to the footing. This section will check the footings capacity to resist this inertial load

Section:

$S_{slab\_clr} := 27.33\ ft$	Clear slab span
$H_{wall} := 9.25\ ft$	Max wall height
$t_{stem} := 2\ ft$	Stem thickness
$t_{ft} := 2\ ft$	Footing thickness
$t_{hnch} := 4\ in$	Haunch thickness
$t_{end} := 9\ in$	Depth slab extension
$\gamma_c := 150\ pcf$	Concrete unit weight
$\gamma_s := 85\ pcf$	Soil unit weight
$L_{toe} := 0.5\ ft$	Length of toe
$W_{ft} := 10\ ft$	Width of footing
$W_{seat} := 1\ ft$	Seat width
$t_{liner} := 6\ in$	Liner thickness
$t_{slab} := 14\ in$	Slab thickness
$b := 1\ ft$	Equivalent strip width
$t_{bw} := 1\ ft$	Backwall thickness
$H_{bw} := 9\ in$	Backwall height
$PGA := 1.062$	Peak ground acceleration



External Stability Checks

The following section will check the external stability of the footing (sliding and bearing checks) to resist the inertial loads of the slab in addition to the the inetials of the footing and the surrounding retained soils.

Vertical Dead Load:

$t_{ft} := 2\ ft$ — Footing thickness

$L_{heel} := W_{ft} - L_{toe} - t_{stem} = 7.5\ ft$ — Heel Length

$d_{cl\_brg} := 0.5\ ft$ — Distance to centerline of bearing

Cross sectional area of crossing slab:

$A_{slab} := S_{slab\_clr} \cdot t_{slab} + 2\ \left(0.5 \cdot t_{hnch}{}^2 + t_{end} \cdot t_{bw} + W_{seat} \cdot \left(t_{hnch} + t_{slab}\right)\right) = 36.496\ ft^2$

$e_{brg} := 0.5 \cdot W_{ft} - d_{cl\_brg} - L_{toe} = 4\ ft$ — Bearing eccentricity

$P_{DL\_slab} := \gamma_c \cdot \left(0.5 \cdot A_{slab}\right) \cdot b = 2.737\ kip$ — Slab weight

$M_{DL\_slab} := P_{DL\_slab} \cdot e_{brg} = 10.949\ kip \cdot ft$ — Moment due to slab

$P_{DL\_bw} := \gamma_c \cdot \left(t_{bw}\right) \cdot \left(H_{bw}\right) \cdot b = 0.113\ kip$ — Backwall load

$e_{DL\_bw} := 0.5\ W_{ft} - \left(W_{seat} + 0.5\ t_{bw} + L_{toe}\right) = 3\ ft$ — Backwall eccentricity

$M_{DL\_bw} := P_{DL\_bw} \cdot e_{DL\_bw} = 0.338\ kip \cdot ft$ — Moment due to backwall

$P_{DL\_stm} := \gamma_c \cdot t_{stem}\ \left(H_{wall} - \left(t_{slab} + t_{hnch}\right) - t_{ft}\right) \cdot b = 1.725\ kip$ — Stem load

$e_{DL\_stm} := 0.5\ W_{ft} - \left(0.5\ t_{stem} + L_{toe}\right) = 3.5\ ft$ — Stem eccentricity

$M_{DL\_stm} := P_{DL\_stm} \cdot e_{DL\_stm} = 6.038\ kip \cdot ft$ — Moment due to stem

$P_{DL\_ft} := \gamma_c \cdot \left(t_{ft}\right)\ \left(W_{ft}\right) \cdot b = 3\ ft \cdot klf$ — Footing load

$e_{DL\_ft} := 0.5\ W_{ft} - 0.5\ W_{ft} = 0\ ft$ — Footing eccentricity

$P_{DC} := P_{DL\_slab} + P_{DL\_bw} + P_{DL\_stm} + P_{DL\_ft} = 7.575\ kip$ — Dead load

$M_{DC} := M_{DL\_slab} + M_{DL\_bw} + M_{DL\_stm} = 17.324\ kip \cdot ft$ — Moment due to dead load

Liner Surcharge:

$t_{liner} = 6\ in$

$\gamma_c = 150\ pcf$

$P_{ES} := \gamma_c \cdot t_{liner} \cdot b \cdot L_{heel} = 0.563\ kip$

$e_{ES} := 0.5\ L_{heel} - 0.5\ W_{ft} = -1.25\ ft$

$M_{ES} := P_{ES} \cdot e_{ES} = -0.703\ kip \cdot ft$

Vertical Soil Load:

$\gamma_s = 85\ pcf$ Unit weight of soil

$L_{heel} := W_{ft} - t_{stem} - L_{toe} = 7.5\ ft$ Length of heel

$p_{EV} := \left(H_{wall} - t_{liner} - t_{ft}\right) \cdot \gamma_s = 0.574\ ksf$ Vertical soil pressure on footing

$P_{EV\_heel} := L_{heel} \cdot p_{EV} \cdot b = 4.303\ kip$ Vertical soil load on heel

$e_{EV\_heel} := 0.5\ W_{ft} - \left(L_{toe} + t_{stem} + 0.5\ L_{heel}\right) = -1.25\ ft$ Eccentricity of vert heel soil load

$P_{EV\_toe} := L_{toe} \cdot p_{EV} \cdot b = 0.287\ kip$

$e_{EV\_toe} := 0.5\ W_{ft} - \left(0.5\ L_{toe}\right) = 4.75\ ft$

$M_{EV} := P_{EV\_heel} \cdot e_{EV\_heel} + P_{EV\_toe} \cdot e_{EV\_toe} = -4.016\ kip \cdot ft$ Moment of Vert soil load on wall

$P_{EV} := P_{EV\_heel} + P_{EV\_toe} = 4.59\ kip$ Vertical soil load

$e_{EV} := \frac{M_{EV}}{P_{EV}} = -0.875\ ft$ Eccentricity of vertical soil load

$P_{perm} := P_{DC} + P_{ES} + P_{EV} = 12.73\ kip$

$M_{perm} := M_{EV} + M_{DC} + M_{ES} = 12.6\ kip \cdot ft$

Horizontal Inertial Load:

$PGA = 1.062$ Peak ground acceleration

$k_h := 0.5 \cdot PGA = 0.531$ Caltrans STP 11.29

Backwall inertial loads:

$P_{IR\_bw} := -k_h \cdot P_{DL\_bw} = -0.06$ **kip**

$e_{IR\_bw} := H_{wall} - t_{liner} - 0.5 \cdot H_{bw} = 8.375$ **ft**

$M_{IR\_bw} := P_{IR\_bw} \cdot e_{IR\_bw} = -0.5$ **kip·ft**

Stem inertial loads:

$P_{IR\_stm} := -k_h \cdot P_{DL\_stm} = -0.916$ **kip**

$e_{IR\_stm} := 0.5 \left(H_{wall} - t_{ft} - H_{bw}\right) + t_{ft} = 5.25$ **ft**

$M_{IR\_stm} := P_{IR\_stm} \cdot e_{IR\_stm} = -4.809$ **kip·ft**

Footing inertial loads:

$P_{IR\_ft} := -k_h \cdot P_{DL\_ft} = -1.593$ **kip**

$e_{IR\_ft} := 0.5 \cdot t_{ft} = 1$ **ft**

$M_{IR\_ft} := P_{IR\_ft} \cdot e_{IR\_ft} = -1.593$ **kip·ft**

Soil inertial loads:

$P_{IR\_soil} := -k_h \cdot P_{EV} = -2.437$ **kip**

$e_{IR\_soil} := e_{IR\_stm}$

$M_{IR\_soil} := P_{IR\_soil} \cdot e_{IR\_soil}$

Slab inertial loads:

$P_{IR\_slab} := -2 \cdot P_{DL\_slab} \cdot PGA = -5.814$ **kip**

$e_{IR\_slab} := e_{IR\_bw} = 8.375$ **ft**

$M_{IR\_slab} := P_{IR\_slab} \cdot e_{IR\_slab} = -48.691$ **kip·ft**

$P_{IR} := P_{IR\_slab} + P_{IR\_stm} + P_{IR\_ft} + P_{IR\_soil} + P_{IR\_bw} = -10.82$ **kip**

$M_{IR} := M_{IR\_slab} + M_{IR\_stm} + M_{IR\_ft} + M_{IR\_soil} + M_{IR\_bw} = -68.39$ **kip·ft**

Active Earth Load:

$\gamma_s := 85\ pcf$ Unit weight of soil

$k_a := 0.33$ Active coefficient of soil

$t_{slab} := 14\ in$ Liner thickness

$p_a := -(H_{wall} - t_{slab}) \cdot k_a \cdot \gamma_s = -0.227\ ksf$ Maximum hrz soil pressure

$P_a := 0.5 \cdot (H_{wall} - t_{slab}) \cdot p_a \cdot b = -0.916\ kip$ Active soil load on wall

$e_a := \frac{H_{wall} - t_{slab}}{3} = 2.694\ ft$ Eccentricity of active earth pressure

$M_a := P_a \cdot e_a = -2.469\ kip \cdot ft$ Active soil moment

Seismic Active Earth Load:

$\gamma_s = 85\ pcf$ Unit weight of soil

$k_{AE} := 0.63$ Seismic active coefficient of soil

$t_{slab} = 14\ in$ Liner thickness

$p_{AE} := -(H_{wall} - t_{slab}) \cdot k_{AE} \cdot \gamma_s = -0.433\ ksf$ Maximum hrz soil pressure

$P_{AE} := 0.5 \cdot (H_{wall} - t_{slab}) \cdot p_{AE} \cdot b = -1.749\ kip$ Seisimc soil load

$e_{AE} := e_a = 2.694\ ft$ Eccentricity of Seisimc soil load

$M_{AE} := P_{AE} \cdot e_{AE} = -4.714\ kip \cdot ft$ Seisimc soil moment

Passive Resistance:

$p_{pas} := 250\ \frac{psf}{ft}$

$p_{pas\_mx} := min\left(p_{pas} \cdot (H_{wall} - t_{liner}), 2500\ psf\right) = 2.188\ ksf$

$R_{passive} := 0.5\ p_{pas\_mx} \cdot (H_{wall} - t_{liner}) \cdot b = 9.57\ kip$ Passive soil resistance

$e_{pas} := \frac{H_{wall} - t_{liner}}{3} = 2.917\ ft$ Passive resistance eccentricity

$M_{pas} := R_{passive} \cdot e_{pas} = 27.913\ kip \cdot ft$ Passive soil moment

Bearing Check:

According to Caltrans STP 11.29:

$M_{EQ1} := M_{IR} + 0.5\ M_{AE} = -70.746\ kip \cdot ft$

$M_{EQ2} := 0.5\ M_{IR} + M_{AE} = -38.908\ kip \cdot ft$

$M_{EQ3} := M_{IR} + M_a = -70.858\ kip \cdot ft$

$M_{EQ} := min\left(M_{EQ1}, M_{EQ2}, M_{EQ3}\right) = -70.858\ kip \cdot ft$

$M_{EX} := M_{perm} + M_{pas} + M_{EQ} = -30.34\ kip \cdot ft$ Combined seismic moment

$P_{perm} = 12.727\ kip$ Permenant vertical load

$e := \frac{M_{EX}}{P_{perm}} = -2.384\ ft$ Combined seismic eccentricity

$B' := W_{ft} - \left|2 \cdot e\right| = 5.232\ ft$ Effective footing width

$\sigma_{EX} := \frac{P_{perm}}{B' \cdot b} = 2.432\ ksf$ Seismic bearing pressure

$\sigma_{a\_tran} := 4\ ksf$ Allowable bearing pressure for transient loading

$DCR := \frac{\sigma_{EX}}{\sigma_{a\_tran}} = 0.608$ <1, OK

Sliding Check:

Friction Resistance:

$P_{perm} = 12.73$ ***kip***

$\mu_s := 0.3$ Coefficent of friction

$R_{sliding} := \mu_s \cdot P_{perm} = 3.82$ ***kip*** Sliding resistance

Sliding Demand:

$P_{IR} = -10.82$ ***kip*** $P_a = -0.916$ ***kip*** $P_{AE} = -1.749$ ***kip***

According to Caltrans STP 11.29:

$P_{seis\_1} := P_{IR} + 0.5 \cdot P_{AE} = -11.69$ ***kip***

$P_{seis\_2} := 0.5 \cdot P_{IR} + P_{AE} = -7.16$ ***kip***

$P_{seis\_3} := P_{IR} + P_a = -11.74$ ***kip***

$P_{seis} := min\left(P_{seis\_1}, P_{seis\_2}, P_{seis\_3}\right) = -11.74$ ***kip***

$$\frac{-P_{seis}}{R_{passive} + R_{sliding}} = 0.877$$ <1, OK

Stem Check

Check stem capacity to resist the slab inertial loads in addition to the stem inertia loads and active seismic soil loads.

Slab Inertial Load:

$P_{IR\_slab} = -5.814\ kip$ — Slab inertial load

$e_{IR\_slab} := H_{wall} - 9\ in - \frac{9\ in}{2} - t_{ft} = 6.125\ ft$ — Center of backwall to top of footing

$M_{IR\_slab} := P_{IR\_slab} \cdot e_{IR\_slab} = -35.61\ kip \cdot ft$ — Stem moment due to Slab inertial load

Stem Inertial Load:

$P_{IR\_stm} = -0.916\ kip$ — Stem inertial load

$e_{IR\_stm} := 0.5 \cdot \left(H_{wall} - t_{ft}\right) = 3.625\ ft$ — Stem inertial eccentricity

$M_{IR\_stm} := P_{IR\_stm} \cdot e_{IR\_stm} = -3.32\ kip \cdot ft$ — Stem inertial moment

Active Earth Load:

$\gamma_s = 85\ pcf$ — Unit weight of soil

$k_a = 0.33$ — Active coefficient of soil

$t_{slab} = 14\ in$ — Slab thickness

$p_a := \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot k_a \cdot \gamma_s = 0.171\ ksf$ — Maximum hrz soil pressure

$P_a := -0.5 \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot p_a \cdot b = -0.519\ kip$ — Horizontal soil load

$e_a := \frac{1}{3} \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) = 2.028\ ft$ — Eccentricity of soil load

$M_a := P_a \cdot e_a = -1.052\ kip \cdot ft$ — Moment due to soil load

Seismic Active Earth Load:

$k_{AE} = 0.63$ — Seismic active coefficient of soil

$p_{AE} := \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot k_{AE} \cdot \gamma_s = 0.326\ ksf$ — Maximum hrz soil pressure

$P_{AE} := -0.5 \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) \cdot p_{AE} \cdot b = -0.991\ kip$ — Horizontal soil load

$e_{AE} := \frac{1}{3} \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) = 2.028\ ft$ — Eccentricity of soil load

$M_{AE} := P_{AE} \cdot e_{AE} = -2.009\ kip \cdot ft$ — Moment due to soil load

Passive Resistance:

$p_{pas} := 250 \ \frac{psf}{ft}$

$p_{pas\_mx} := min\left(p_{pas} \cdot \left(H_{wall} - t_{liner} - t_{ft}\right), 2500 \ psf\right) = 1.69 \ ksf$ Maximum hrz soil pressure

$R_{passive} := 0.5 \ p_{pas\_mx} \cdot \left(H_{wall} - t_{liner} - t_{ft}\right) \cdot b = 5.7 \ kip$ Horizontal soil load

$e_{passive} := \frac{1}{3} \cdot \left(H_{wall} - t_{slab} - t_{ft}\right) = 2.03 \ ft$ Eccentricity of soil load

$M_{passive} := R_{passive} \cdot e_{passive} = 11.55 \ kip \cdot ft$ Moment due to soil load

Stem Demand (Caltrans STP 11.29):

$V_{EQ\_1} := P_{IR\_slab} + P_{IR\_stm} + 0.5 \ P_{AE} + R_{passive} = -1.53 \ kip$

$M_{EQ\_1} := M_{IR\_slab} + M_{IR\_stm} + 0.5 \ M_{AE} + M_{passive} = -28.39 \ kip \cdot ft$

$V_{EQ\_2} := 0.5 \ P_{IR\_slab} + 0.5 \ P_{IR\_stm} + P_{AE} + R_{passive} = 1.34 \ kip$

$M_{EQ\_2} := 0.5 \ M_{IR\_slab} + 0.5 \ M_{IR\_stm} + M_{AE} + M_{passive} = -9.93 \ kip \cdot ft$

$V_{EQ\_3} := P_{IR\_slab} + P_{IR\_stm} + P_a + R_{passive} = -1.55 \ kip$

$M_{EQ\_3} := M_{IR\_slab} + M_{IR\_stm} + M_a + M_{passive} = -28.43 \ kip \cdot ft$

$V_{EQ\_stm} := \max\left(V_{EQ\_1}, V_{EQ\_3}, V_{EQ\_3}\right) = -1.53 \ kip$

$M_{EQ\_stm} := \max\left(M_{EQ\_1}, M_{EQ\_3}, M_{EQ\_3}\right) = -28.39 \ kip \cdot ft$

Stem Structural Check

Included in these calculations are checks for:

+Flexure
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Demand:

$V_{EQ\_stm} = -1.53\ kip$

$M_{EQ\_stm} = -28.39\ kip \cdot ft$

Section:

$b := 1\ ft$ Footing strip width

$d := 24\ in$ Footing depth

Material Properties:

$f'_c := 3.6\ ksi$ Nominal Concrete strength

$f'_{ce} := min\left(1.3 \cdot f'_c, 5\ ksi\right) = \left(4.68 \cdot 10^3\right)\ psi$ Expected Concrete strength
SDC 2.0, 3.3.6

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ AASHTO 2017, 5.6.2.2

$E_s := 29000\ ksi$ Steel modulus of elasticity

$f_y := 60\ ksi$ Nominal reinforcement yield stress

$f_{ye} := 68\ ksi$ Expected reinforcement yield stress
SDC 2.0, 3.3.3

Resistance Factors (SDC 2.0, 3.6):

$\phi_f := 1.0$

$\phi_v := 1.0$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#5s @ 12":

$b_{sz} := 5$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.31\ in^2$ — Area of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.655\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_{ye}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.68\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.08875$

$f_{s1} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_{ce} \cdot \beta_1 \cdot b} = 0.52\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.116$

$f_{s2} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.44\ in$ — Depth of equivalent stress block.

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 36\ kip \cdot ft$

$DC_{M3} := \frac{\text{abs}(M_{EQ\_stm})}{\phi_f \cdot M_n} = 0.791$ <1, OK

Maximum Shear:

Demands at Section:

$V_{EQ\_stm} = -1.53\ kip$ Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60\ ksi$ $A_s = 0.31\ in^2$ $d_s = 20.655\ in$

$d_{v1} := 0.72 \cdot (d) = 17.28\ in$

$d_{v2} := 0.9 \cdot (d_s) = 18.59\ in$

$d_v := \max(d_{v1}, d_{v2}) = 18.59\ in$

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6\ ksi$

$b_v := b = 12\ in$

$\theta := 45\ deg$

$\beta := 2.0$

$V_s := 0\ kip$ AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot ksi^{0.5} \cdot b_v \cdot d_v = 27\ kip$ AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 201\ kip$

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 27\ kip$

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 26.7\ kip$

$DCR := \frac{\text{abs}(V_{EQ\_stm})}{\phi V_n} = 0.057$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_{EQ\_stm} = -28.386\ kip \cdot ft \quad d_v = 18.59\ in \quad \phi_f = 1$

$D_M := \frac{\text{abs}\left(M_{EQ\_stm}\right)}{\phi_f \cdot d_v} = 18\ kip$

Shear/Torsion Component:

$V_{EQ\_stm} = -1.53\ kip \quad V_s = 0\ kip \quad V_p := 0\ kip$

$V_s := min\left(\frac{\text{abs}\left(V_{EQ\_stm}\right)}{\phi_v}, V_s\right) = 0\ kip$

$D_V := \cot(\theta) \cdot \left(\left|\frac{V_{EQ\_stm}}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 2\ kip$

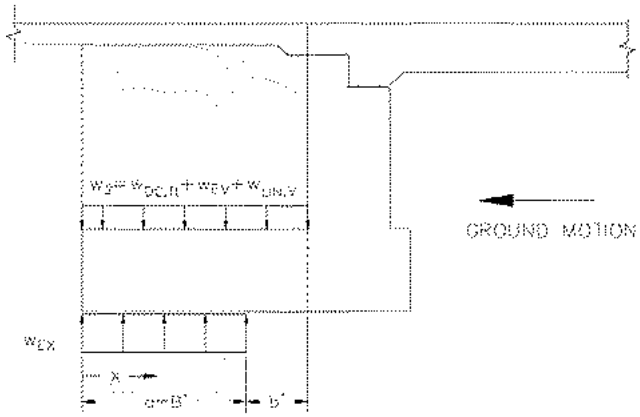
Capacity Check:

$A_s = 0.31\ in^2 \quad f_y = 60\ ksi$

$C := A_s \cdot f_{ye} = 21\ kip$

$\frac{D_M + D_V}{C} = 0.94$ <1, OK

Footing Check



$w_{EX} := -\sigma_{EX} \cdot b = -2.432$ ***klf***

$w_{DC\_ft} := \gamma_c \cdot t_{ft} \cdot b = 0.3$ ***klf***

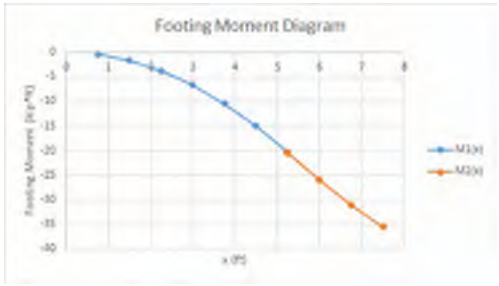
$w_{EV} := \gamma_s \cdot \left(H_{wall} - t_{ft} - t_{liner}\right)\ b = 0.574$ ***klf***

$w_{LIN\_V} := \gamma_c \cdot t_{liner} \cdot b = 0.075$ ***klf***

$w_2 := w_{DC\_ft} + w_{EV} + w_{LIN\_V} = 0.949$ ***klf***

$w_1 := w_2 + w_{EX} = -1.484$ ***klf***

$a := B' = 5.232$ ***ft***



$$M_1 = \frac{w_1 * x^2}{2}$$

$$M_2 = w_1 * a * (x - 0.5a) + \frac{w_2 * (x - a)^2}{2}$$

Max moment is at face of stem

$M_{EQ\_ft} := \frac{w_2 \cdot L_{heel}^{\ 2}}{2} + w_{EX} \cdot B' \cdot \left(L_{heel} - 0.5\ B'\right) = -35.5$ ***kip·ft***

$V_{EQ\_ft} := w_2 \cdot L_{heel} + w_{EX} \cdot B' = -5.6$ ***kip***

Footing Structural Check

Included in these calculations are checks for:

+Flexure
+Shear
+Longitudinal Reinforcement (Combined Shear-Flexure)

Demand:

$V_{EQ\_ft} = -5.612\ kip$

$M_{EQ\_ft} = -35.47\ kip \cdot ft$

Section:

$b := 1\ ft$ — Footing strip width

$d := 24\ in$ — Footing depth

Material Properties:

$f'_c := 3.6\ ksi$ — Nominal Concrete strength

$f'_{ce} := min\left(1.3 \cdot f'_c, 5\ ksi\right) = \left(4.68 \cdot 10^3\right)\ psi$ — Expected Concrete strength
SDC 2.0, 3.3.6

$\beta_1 := min\left(0.85, 0.85 - 0.05\left(\frac{f'_c}{ksi} - 4\right)\right) = 0.85$ — AASHTO 2017, 5.6.2.2

$E_s := 29000\ ksi$ — Steel modulus of elasticity

$f_y := 60\ ksi$ — Nominal reinforcement yield stress

$f_{ye} := 68\ ksi$ — Expected reinforcement yield stress
SDC 2.0, 3.3.3

Resistance Factors (SDC 2.0, 3.6):

$\phi_f := 1.0$

$\phi_v := 1.0$

+In-Plane Flexural Calculations:

Longitudinal Reinforcement:
#6s @ 12":

$b_{sz} := 6$ — Bar size

$s := 12\ in$ — Bar spacing

$A_s := b \cdot \frac{A_{bar}(b_{sz})}{s} = 0.44\ in^2$ — Area of longitudinal reinforcement

$d_{c1} := 3\ in$ — Cover on longitudinal reinforcement

$d_s := d - (d_{c1} + 0.5\ d_{ba}(b_{sz})) = 20.56\ in$ — Depth to CG of reinforcement layers.

Concrete Compression Block (AASHTO 2017, 5.6.3.1.1):

$c := \frac{A_s \cdot f_{ye}}{0.85 \cdot f'_c \cdot \beta_1 \cdot b} = 0.96\ in$ — AASHTO 2012, 5.7.3.1.1-4

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.06134$

$f_{s1} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$c := \frac{A_s \cdot f_{s1}}{0.85 \cdot f'_{ce} \cdot \beta_1 \cdot b} = 0.74\ in$

$\varepsilon_t := (d_s - c)\ \frac{0.003}{c} = 0.081$

$f_{s2} := min(f_{ye}, E_s \cdot \varepsilon_t) = 68\ ksi$

$f_s := f_{s2}$

$a := \beta_1 \cdot c = 0.63\ in$ — Depth of equivalent stress block.

Flexural Resistance (AASHTO 2017, 5.6.3.2):

$M_n := A_s \cdot f_s \cdot \left(d_s - \frac{a}{2}\right) = 50\ kip \cdot ft$

$DC_{M3} := \frac{\text{abs}(M_{EQ\_ft})}{\phi_f \cdot M_n} = 0.703$ — <1, OK

Maximum Shear:

Demands at Section:

$V_{EQ\_ft} = -5.612$ *kip* Vertical shear force on section

+ Shear Calculations:

Transverse Steel:

No steel provided

d_v Calculation:

$f_y = 60$ *ksi* $A_s = 0.44$ *in*^{2} $d_s = 20.56$ *in*

$d_{v1} := 0.72 \cdot (d) = 17.28$ *in*

$d_{v2} := 0.9 \cdot (d_s) = 18.5$ *in*

$d_v := \max(d_{v1}, d_{v2}) = 18.5$ *in*

Vc and Vs calculations (AASHTO 2017, 5.7.3.3):

$f'_c = 3.6$ *ksi*

$b_v := b = 12$ *in*

$\theta := 45$ *deg*

$\beta := 2.0$

$V_s := 0$ *kip* AASHTO 2017, (5.7.3.3-4)

$V_c := 0.0316 \cdot \beta \cdot \sqrt{f'_c} \cdot \text{ksi}^{0.5} \cdot b_v \cdot d_v = 27$ *kip* AASHTO 2017, (5.7.3.3-3)

Shear Capacity Calculation (AASHTO 2017, 5.7.3.3):

$\phi V_{n1} := \phi_v \cdot 0.25 \cdot f'_c \cdot b_v \cdot d_v = 200$ *kip*

$\phi V_{n2} := \phi_v \cdot (V_s + V_c) = 27$ *kip*

$\phi V_n := min(\phi V_{n1}, \phi V_{n2}) = 26.6$ *kip*

$DCR := \frac{\text{abs}(V_{EQ\_ft})}{\phi V_n} = 0.211$ <1, OK

+Longitudinal Reinforcement Calculation:

Longitudinal Reinforcement (AASHTO 2017, 5.7.3.5):

Flexural Component:

$M_{EQ\_ft} = -35.475\ kip \cdot ft\ \ d_v = 18.5\ in \qquad \phi_f = 1$

$D_M := \frac{\text{abs}\left(M_{EQ\_ft}\right)}{\phi_f \cdot d_v} = 23\ kip$

Shear/Torsion Component:

$V_{EQ\_ft} = -5.612\ kip \quad V_s = 0\ kip \qquad V_p := 0\ kip$

$V_s := min\left(\frac{\text{abs}\left(V_{EQ\_ft}\right)}{\phi_v}, V_s\right) = 0\ kip$

$D_V := \cot(\theta) \cdot \left(\left|\frac{V_{EQ\_ft}}{\phi_v} + V_p\right| - 0.5 \cdot V_s\right) = 6\ kip$

Capacity Check:

$A_s = 0.44\ in^2 \qquad f_y = 60\ ksi$

$C := A_s \cdot f_{ye} = 30\ kip$

$\frac{D_M + D_V}{C} = 0.96$ <1, OK

Backwall Check

In a seismic event it is anticipated that the joint between the crossing slab will close transfering the inertial force from the crossing slab to one of the footings. This force will transfer to the footing through the backwall of the footing. This section will check that the backwall is capable transfering this load

Material Properties:

$f'_c := 3.6\ ksi$ — Nominal Concrete strength

$\gamma_c := 150\ pcf = 150\ pcf$ — Concrete modulus of elasticity

$f_y = (6 \cdot 10^4)\ psi$ — Reinforcing steel stress

Resistance Factors (Caltrans SDC 2.0, 3.6):

$\phi_f = 1$

$\phi_v := 1$

Demand:

$A_{slab} := 36.5\ ft^2$ — Slab cross section area (from footing design)

$P_{slab} := 2 \cdot P_{DL\_slab} = 5.474\ kip$

$PGA = 1.062$ — Peak ground acceleration

$P_{IR\_slab} := PGA \cdot P_{slab} = 5.814\ kip$ — Load due to vertical siesmic load

$P_{IR\_bw} := P_{IR\_slab} = 5.814\ kip$

Interface Shear (AASHTO 2017, 5.7.4):

Miminimum Area of Interface Shear Reinforcement (AASHTO 2017, 5.7.4.2)

$t_{bw} = 1\ ft$ $f_y = 60\ ksi$

$b = 1\ ft$

$A_{cv} := t_{bw} \cdot b = 1\ ft^2$

$A_{vf\_min} := \frac{0.05 \cdot A_{cv} \cdot ksi}{f_y} = 0.12\ in^2$

use (2) #4s @ 12"

$n := 2$

$s := 12\ in$

$b_{sz} := 4$

$A_{vf} := \frac{n \cdot A_{bar}(b_{sz})}{s} \cdot b = 0.4\ in^2$

Check Interface Shear (AASHTO 2017, 5.7.4.3)

Normal weight concrete placed monolithically:

$c := 0.4\ ksi$	Cohesion factor
$\mu := 1.4$	Friction factor
$K_1 := 0.25$	Fraction of concrete strength available
$K_2 := 1.5\ ksi$	Limiting interface shear resistance
$P_c := 0\ kip$	Compression on interface

$V_{ni\_1} := c \cdot A_{cv} + \mu \cdot (A_{vf} \cdot f_y + P_c) = 91.2\ kip$

$V_{ni\_2} := K_1 \cdot f'_c \cdot A_{cv} = 129.6\ kip$

$V_{ni\_3} := K_2 \cdot A_{cv} = 216\ kip$

$V_{ni} := min(V_{ni\_1}, V_{ni\_2}, V_{ni\_3}) = 91.2\ kip$

$DCR := \frac{\phi_v \cdot P_{IR\_bw}}{V_{ni}} = 0.064$ <1, OK

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Shea San Jacinto – Casa Loma Barrel Shallow Foundation Work Plan

The Casa Loma Barrel No. 1 will have a shallow foundation constructed per the attached concept. Prior to excavation and construction, the existing line will be located. A vactor truck will slot trench and expose the top of the entire length of the pipeline within the work zone. The work zone will be cleared and grubbed and all vegetation removed and disposed of. The foundation will be constructed in three separate phases per the highlighted plan on the attachment. Each phase will follow the same sequence.

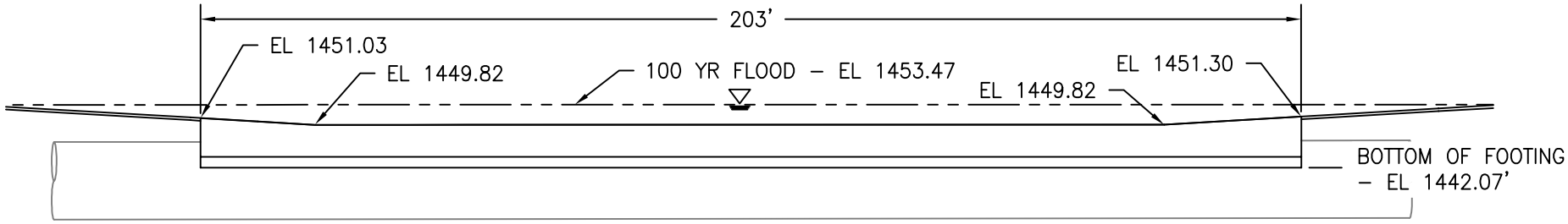
No more than one phase will be excavated to the bottom of the footing at a time. Both sides are to have the same sequence number completed prior to continuing to the next step. Concrete will be placed using a boom pump. No concrete trucks will be permitted to drive within the barrel protection zone.

1. The footings will be excavated from North and South concurrently with two Linkbelt 350x excavators. Excavators will be set away from the barrel and each will have a spotter for guidance. The entire footing will not be excavated all at one time on one side. Both sides will be excavated in equal lifts. The excavation will be 10’ wide and 7.75’ deep. Excavated materials will be spoiled behind the excavators and away from the barrel. Spoils will be pushed using a John Deere 644 wheel loader. The temporary excavation will be sloped 1.5:1.
2. The 10’ wide x 2’ high spread footing will be formed and poured first on both sides. The footing will have a 6” starter wall for the next pour.
3. The 5.75’ high footing wall will be formed and poured.

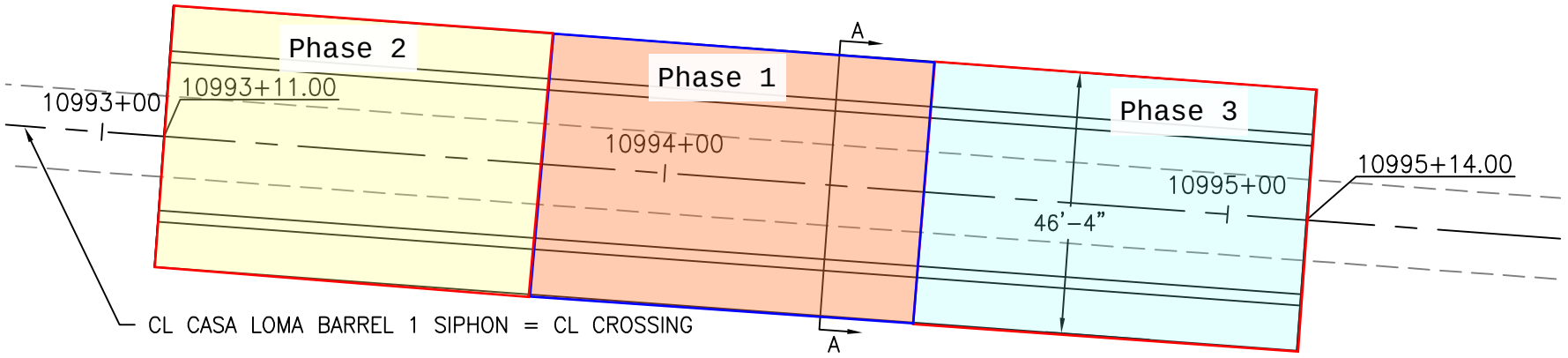
Once sufficient concrete strength has been reached for all footings, the footing will be backfilled with flowable fill to meet the unit weight and strength criteria in the Geotech report.

The top slab over the barrel will be graded using a John Deere 210LE skip loader after which 6” thick polystyrene foam boards will be placed. The top slab will be formed and poured.

ATTACHMENT 6 - PRELIMINARY FOUNDATION WORK PLAN



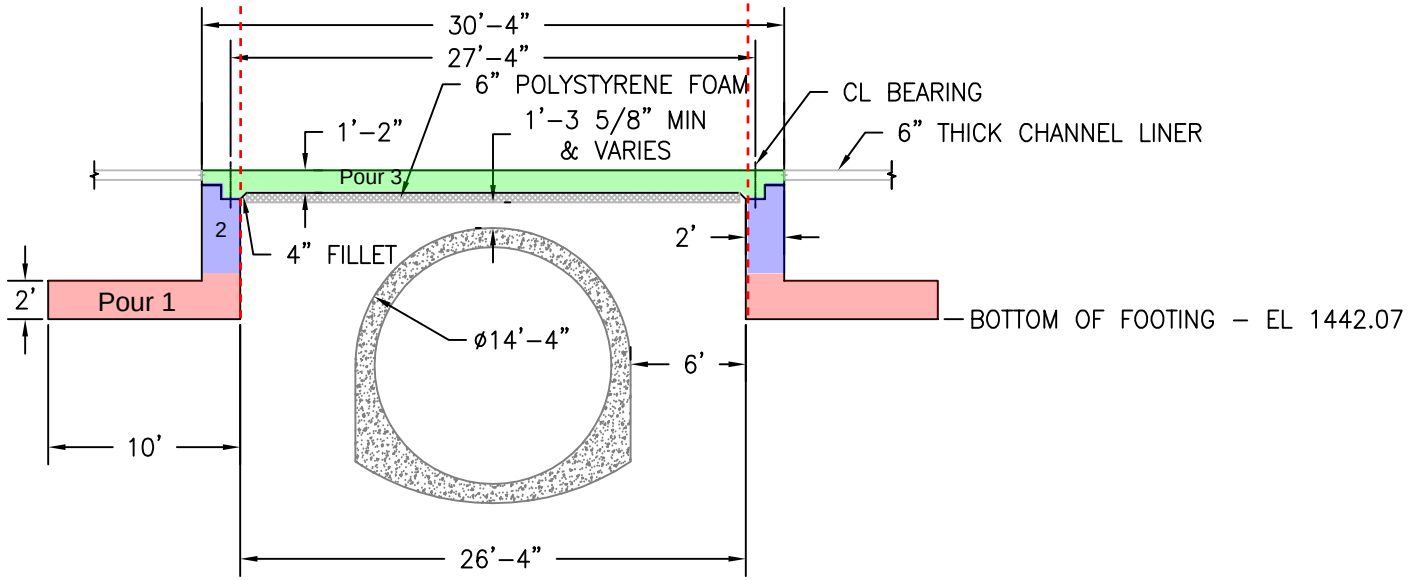
PROFILE – CONCEPT 1



Protected Zone

PLAN – CONCEPT 1

Protected Zone - No equipment heavier than John Deere 210LE Skip Loader to be used.



SECTION A–A – CONCEPT 1

Appendix C Hydrology

ORIGINAL MDP DATA

San Jacinto Valley MDP
Subarea - Hydrology Exhibit
WEST AREA

N

Confluence
A=262 AC
L= 5556 FT
Lc= 603 FT
△=14 FT
n = 0.015
1446 ELE
1460 ELE
340

D-North-C
A=266 AC
L= 4970 FT
Lc= 2050 FT
△=22 FT
n = 0.015
1448 ELE
1460 ELE
190
170

W10
A=84 AC
L= 2060 FT
Lc= 1570 FT
△=4 FT
n = 0.015
330

E-North-G
A=172 AC
L= 3740 FT
Lc= 1540 FT
△=17 FT
n = 0.015
1472 ELE
160

G-Downstream
A=351 AC
L= 6885 FT
Lc= 3730 FT
△=29 FT
n = 0.015
1489 ELE
1488 ELE

1476 ELE
1476 ELE
320

D-North-B
A=79 AC
L= 3700 FT
Lc= 1870 FT
△=30 FT
n = 0.015
1462 ELE
1465 ELE
136

W9
A=198 AC
L= 5105 FT
Lc= 2230 FT
△=6 FT
n = 0.015

D-North-A
A=216 AC
L= 4250 FT
Lc= 2125 FT
△=35 FT
n = 0.015
1470 ELE
134
132

E-North
A=206 AC
L= 4430 FT
Lc= 2050 FT
△=15 FT
n = 0.015
1477 ELE

G-South
A=149 AC
L= 6800 FT
Lc= 3160 FT
△=25 FT
n = 0.015

2640 ELE

1480 ELE
1482 ELE
310

W8
A=253 AC
L= 5565 FT
Lc= 2620 FT
△=12 FT
n = 0.015

City
A=440 AC
L= 6610 FT
Lc= 2915 FT
△=38 FT
n = 0.015
150

1484 ELE
1492 ELE
1500 ELE
1485 ELE

SJ-RES

1526 ELE
1497 ELE
120
110
140

W5-Cove
A=717 AC
L= 10275 FT
Lc= 4290 FT
△=1148 FT
n = 0.035
300

W7
A=199 AC
L= 3875 FT
Lc= 1820 FT
△=12 FT
n = 0.015
290

D4
240

1492 ELE
1496 ELE
280
250

A=184 AC
L= 6360 FT
Lc= 2050 FT
△=8 FT
n = 0.015

1492 ELE
W6
270

G-3

DT

1462 ELE
230

E-2

D3

2480 ELE
A=114 AC
L= 4040 FT
Lc= 1720 FT
△=1018 FT
n = 0.025
2472 ELE
W4

A=145 AC
L= 4010 FT
Lc= 1945 FT
△=972 FT
n = 0.042
260
W3

A=673 AC
L= 7105 FT
Lc= 3485 FT
△=13 FT
n =0.02
W2
220

SJR-US

D2
215

1500 ELE
1500 ELE
1500 ELE
1509 ELE
200
210

100

BVB-US

W1
A=290 AC
L= 4660 FT
Lc= 2570 FT
△=492 FT
n = 0.022

SCHOOL

D1

A=276 AC
L= 2680 FT
Lc= 500 FT
△=448 FT
n = 0.020
214

1992 ELE

LEGEND

1500 ELE	Node Elevations
	Centroid
	Route Points
	Flow Path
	Hydrology Subarea Boundary
NGVD 29	Vertical Datum

0 800 1,600 Feet

SHEET 2/2

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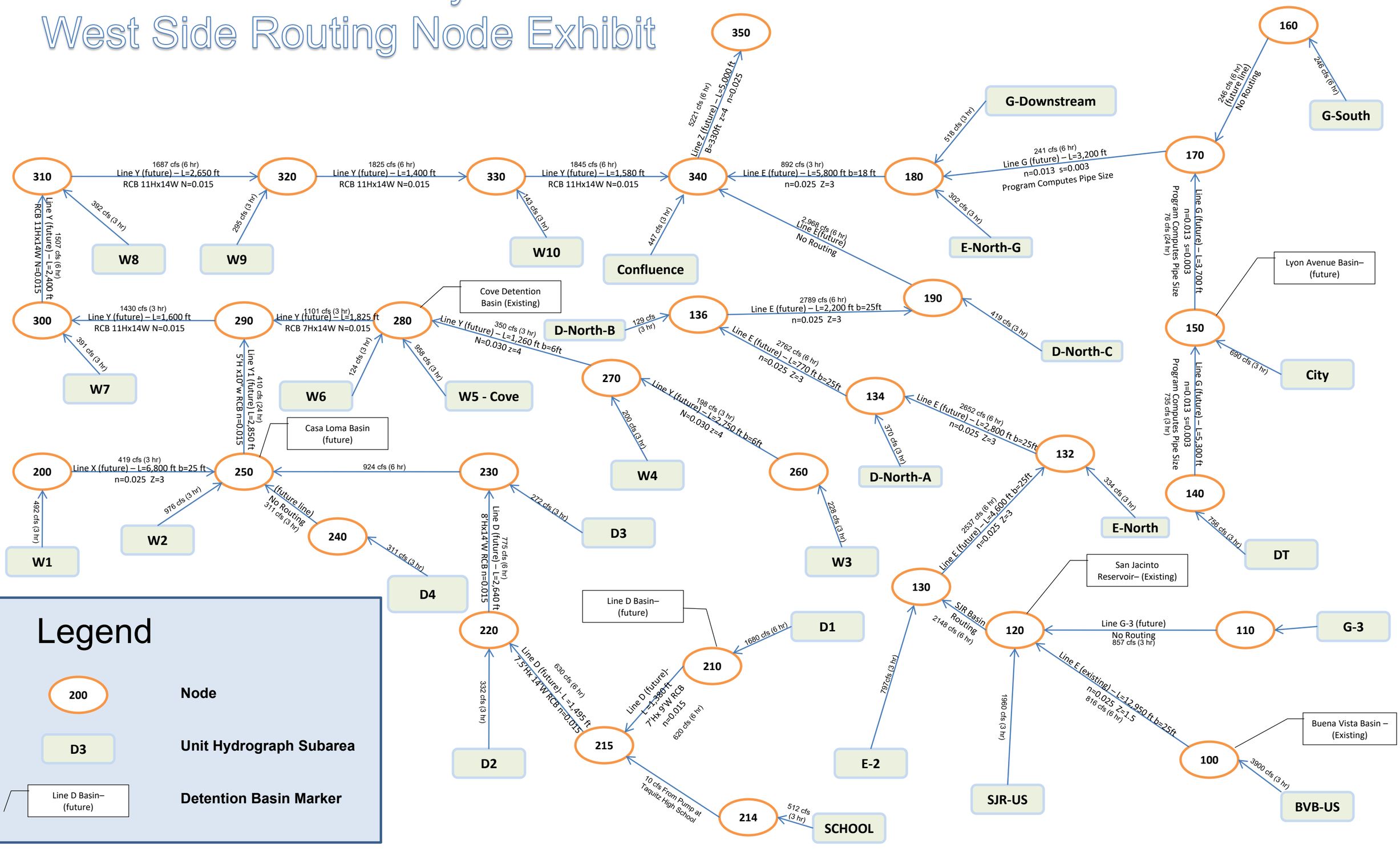
G:\000000-0019\Hydro\Hydrology\SJV\Sheets\Hydrology Subarea Exhibit_overall_GE_ODAVA_sht2.mxd

San Jacinto Valley MDP
West Side Routing Node Exhibit



Legend

200	Node
D3	Unit Hydrograph Subarea
Line D Basin– (future)	Detention Basin Marker

San Jacinto Valley MDP West Area

Routing Summary Table

Point/Station	Description	3-Hour 100-Year CFS	6-Hour 100-Year CFS	24-Hour 100-Year CFS	MDP FLOW CFS
100-100	Flow Into BeuN/A Vista Basin	**3899**	3636	1527	N/A
100-100	BueN/A Vista Basin Routing	792	**816**	740	N/A
100-120	Line E Flow To SJ Reservoir	790	**814**	739	N/A
100-120	Add SJRUS	**2640**	2571	1399	N/A
110-120	Add G-3 - Flow Into SJ Reservoir	**3395**	3315	1702	N/A
120-130	SJ Reservoir Routing	1983	**2148**	1520	N/A
130-130	Add E-2	2349	**2598**	1710	**2600**
130-132	Line E Flow	2298	**2537**	1709	N/A
132-132	Add E-North	2428	**2676**	1774	**2680**
132-134	Line E Flow	2415	**2652**	1774	N/A
134-134	Add D North A	2528	**2763**	1848	**2765**
134-136	Line E Flow	2521	**2762**	1848	N/A
136-136	Add D North B	2557	**2801**	1868	**2805**
136-190	Line E Flow	2549	**2789**	1868	N/A
190-190	Add D North C	2674	**2968**	1943	**2970**
190-190	Store Hydrograph as Stream 1				
140-140	DT Subarea	**756**	692	280	N/A
140-150	Line G Flow	**735**	680	277	N/A
150-150	Add City - Inflow Into Lyon Basin	**1244**	1205	498	N/A
150-150	Lyon Basin Routing	71	74	**76**	N/A
150-170	Line-G Flow	71	74	**76**	N/A
160-170	Add G-South	236	**246**	121	N/A
170-180	Line- G Flow	235	**241**	121	N/A
180-180	Add G-Downstream	**705**	677	276	**705**
180-180	Add E North G	**973**	947	372	**975**
180-340	Line- G Flow	**892**	853	360	N/A
190-340	Add Stream 1	3566	**3812**	2252	
340-340	Add Confluence	3786	**4040**	2338	N/A
340-340	Store Hydrograph as Stream 2				
200-200	Area W1	**492**	442	157	N/A
200-250	Line X Flow	**419**	394	150	N/A
200-250	Add W2	**1386**	1288	514	N/A
250-250	Store Hydrograph As Stream 3				
210-210	Area D1 - Inflow Into Line D Basin	**1680**	1539	622	N/A
210-210	Line D Basin Routing	615	**620**	431	**620**
210-215	Line D Flow	615	**620**	431	N/A
215-215	Store Hydrograph as Stream 5				
214-214	School Subarea	**512**	476	149	N/A
214-215	Store Hydrograph as Stream 4				
214-215	Add Stream 4 at Constant Rate of 10 cfs to Simulate Pump in Taquitz High School Basin				
215-215	Add Stream 5	625	**630**	441	N/A
215-220	Line D Flow	625	**629**	441	N/A
220-220	Add D2	735	**775**	511	**775**
220-230	Line D Flow	722	**766**	511	N/A
230-230	Add D3	902	**924**	566	**925**
230-250	Add Stream 3	**2288**	2194	999	N/A
240-250	Add D4 - Total Flow into Casa Loma Basin	**2551**	2459	1093	N/A
250-250	Casa Loma Basin Routing	395	409	**410**	**410**
250-290	Line Y-1 Flow	395	409	**410**	**410**
290-290	Store Hydrograph as Stream 4				
260-260	Add W3	**228**	210	75	N/A
260-270	Improved Channel (Line Y) Flow	**198**	183	72	N/A
270-270	Add W4	**350**	336	131	N/A
270-280	Improved Channel (Line Y) Flow	**350**	321	127	N/A
280-280	Store Hydrograph as Stream 5				
280-280	W5cove Inflow to Cove Basin	**958**	879	362	N/A
280-280	Cove Basin Routing	**718**	703	336	N/A
280-280	Add Stream 5	**1047**	1024	464	
280-280	Add W6	**1106**	1074	496	**1110**
280-290	Line Y Flow	**1101**	1073	494	N/A
290-290	Add Stream 4	**1439**	1430	811	**1440**
290-300	Line Y Flow	**1430**	1418	809	N/A
300-300	Add W7	**1513**	1486	887	**1515**
300-310	Line Y Flow	**1507**	1478	886	N/A
310-310	Add W8	1653	**1708**	975	**1710**
310-320	Line Y Flow	1649	**1687**	974	N/A
320-320	Add W9	1798	**1827**	1044	**1830**
320-330	Line Y Flow	1794	**1825**	1043	N/A
330-330	Add W10	1826	**1849**	1073	**1850**
330-340	Line Y Flow	1823	**1845**	1072	N/A
340-340	Add Stream 2	5380	**5699**	3373	**5700**
340-350	Line Z Flow	5269	**5551**	3370	N/A

UNIT HYDROGRAPH MAP & FIGURES

MDP LINE E Hydrology Refinement
Subarea - Hydrology Exhibit

N

Confluence — A=262 AC, L= 5556 FT, Lc= 603 FT, △=14 FT, n = 0.015
1446 ELE, 1448 ELE, 1460 ELE

W10 — A=84 AC, L= 2060 FT, Lc= 1570 FT, △=4 FT, n = 0.015
1476 ELE, 1476 ELE

W9 — A=198 AC, L= 5105 FT, Lc= 2230 FT, △=6 FT, n = 0.015
1462 ELE, 1463 ELE

D-North-A — A=523 AC, L= 6800 FT, Lc= 3600 FT, △=14 FT, n = 0.015
1462 ELE

D-North-B — A=79 AC, L= 3700 FT, Lc= 1870 FT, △=30 FT, n = 0.015
1482 ELE

W8 — A=253 AC, L= 5565 FT, Lc= 2620 FT, △=12 FT, n = 0.015
1480 ELE, 1484 ELE, 1492 ELE

W7 — A=199 AC, L= 3875 FT, Lc= 1820 FT, △=12 FT, n = 0.015
1492 ELE, 1496 ELE

W6 — A=184 AC, L= 6360 FT, Lc= 2050 FT, △=8 FT, n = 0.015
1492 ELE, 1462 ELE

W5-Cove — A=717 AC, L= 10275 FT, Lc= 4290 FT, △=1148 FT, n = 0.035
2640 ELE

W4 — A=114 AC, L= 4040 FT, Lc= 1720 FT, △=1018 FT, n = 0.025
2480 ELE, 2472 ELE

W3 — A=145 AC, L= 4010 FT, Lc= 1945 FT, △=972 FT, n = 0.042

W2 — A=673 AC, L= 7105 FT, Lc= 3485 FT, △=13 FT, n =0.02
1500 ELE, 1500 ELE, 1500 ELE

W1 — A=280 AC, L= 4660 FT, Lc= 2570 FT, △=492 FT, n = 0.022
1992 ELE

E-North-G — A=120 AC, L= 2500 FT, Lc= 1200 FT, △=2 FT, n = 0.015
1470 ELE, 1462 ELE

E-North — A=159 AC, L= 3800 FT, Lc= 1500 FT, △=14 FT, n = 0.015
1471 ELE, 1472 ELE, 1485 ELE

G-Downstream — A=351 AC, L= 6885 FT, Lc= 3730 FT, △=29 FT, n = 0.015
1489 ELE, 1488 ELE

G-South — A=149 AC, L= 6800 FT, Lc= 3160 FT, △=25 FT, n = 0.015

City — A=440 AC, L= 6610 FT, Lc= 2915 FT, △=38 FT, n = 0.015
1526 ELE

SJ-RES — A=615 AC, L= 10250 FT, Lc= 4800 FT, =35 FT, n = 0.015
1497 ELE

D4
D3
D2
D1
E-2
G-3
DT
SJR-US
SJR-US
BVB-US
E-2A

SCHOOL — A=276 AC, L= 2680 FT, Lc= 500 FT, △=448 FT, n = 0.020
SCHOOL

LEGEND

- 1500 ELE — Node Elevations
- Centroid
- Route Points
- Flow Path
- Hydrology Subarea Boundary
- NGVD 29 — Vertical Datum

0 800 1,600 Feet

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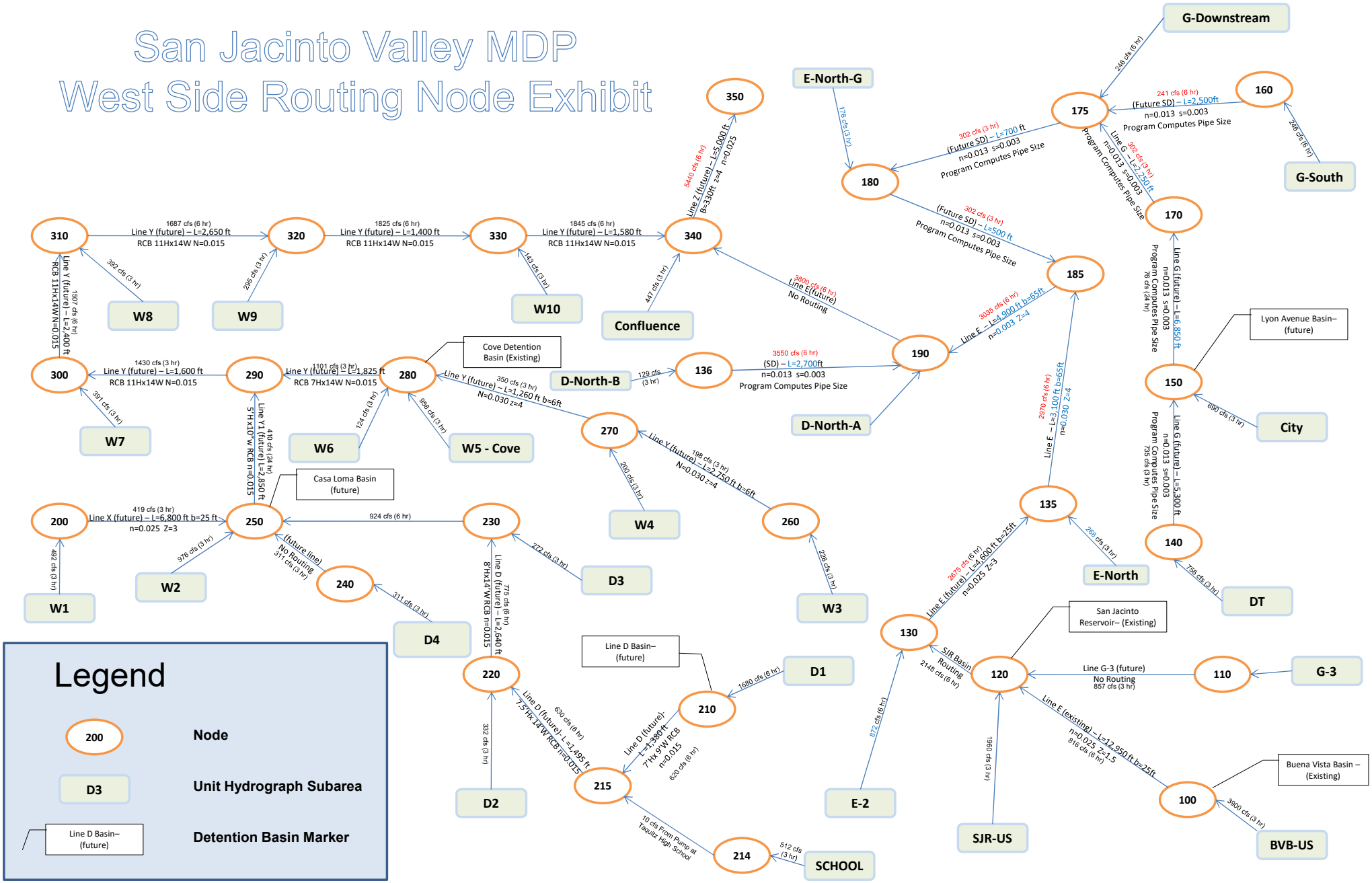
San Jacinto Valley MDP
West Side Routing Node Exhibit



San Jacinto Valley MDP West Area

Routing Summary Table

Point/Station	Description	3-Hour 100-Year CFS	6-Hour 100-Year CFS	24-Hour 100-Year CFS	MDP FLOW CFS
100-100	**Flow Into BeuN/A Vista Basin**	**3899**	3636	1527	**N/A**
100-100	**BueN/A Vista Basin Routing**	792	**816**	740	**N/A**
100-120	**Line E Flow To SJ Reservoir**	790	**814**	739	**N/A**
100-120	**Add SJRUS**	**2640**	2571	1399	**N/A**
110-120	**Add G-3 - Flow Into SJ Reservoir**	**3395**	3315	1702	**N/A**
120-130	**SJ Reservoir Routing**	1983	**2148**	1520	**N/A**
130-130	**Add E-2**	2431	**2671**	1732	**2675**
130-135	**Line E Flow**	2419	**2658**	1732	**N/A**
	MDP LINE E FLOW INFLOW				
135-135	**Add E-North**	2507	**2739**	1782	***2740***
135-185	**Line E Flow**	2499	**2695**	1780	**N/A**
185-185	**Store Hydrograph as Stream 1**				
140-140	**DT Subarea**	**756**	692	280	**N/A**
140-150	**Line G Flow**	**735**	680	277	**N/A**
150-150	**Add City - Inflow Into Lyon Basin**	**1244**	1205	498	**N/A**
150-150	**Lyon Basin Routing**	71	74	**76**	**N/A**
150-170	**Line-G Flow**	71	74	**76**	**N/A**
170-175	**Line G Flow**	71	74	**76**	**N/A**
175-175	**Store Hydrograph as Stream 2**				
160-160	**Add G-South**	**220**	204	73	**N/A**
160-175	**Storm Drain Routing**	**216**	197	73	
175-175	**Add G-Downstream**	**224**	223	119	**N/A**
175-175	**Add Stream 2**	**225**	223	119	
175-180	**Line G Flow**	219	**220**	119	**N/A**
180-180	**Add E North G**	**378**	365	149	**N/A**
180-185	**Line G Flow**	**377**	360	149	**380**
	MDP LINE E FLOW WEST OF SANDERSON AVE CROSSING				
185-185	**Line- E Flow**	2741	**2968**	1925	***2970***
185-190		2662	**2893**	1923	**N/A**
190-190	**Store Hydrograph as Stream 5**				
136-136	**Add D North B**	**129**	114	37	**N/A**
136-190	**SD Route**	**125**	111	36	
190-190	**Add D North A**	**936**	863	359	**N/A**
	MDP LINE E FLOW PARALLEL TO RECORD RD				
190-190	**Add Stream 5**	3281	**3545**	2172	***3550***
	MDP LINE E FLOW FROM CONFLUENCE BASIN TO NORTH OF RECORD RD				
190-340	**Add Confluence**	3518	**3778**	2256	***3800***
340-340	**Store Hydrograph as Stream 2**				
200-200	**Area W1**	**492**	442	157	**N/A**
200-250	**Line X Flow**	**419**	394	150	**N/A**
200-250	**Add W2**	**1386**	1288	514	**N/A**
250-250	**Store Hydrograph As Stream 3**				
210-210	**Area D1 - Inflow Into Line D Basin**	**1680**	1539	622	**N/A**
210-210	**Line D Basin Routing**	615	**620**	431	**620**
210-215	**Line D Flow**	615	**620**	431	**N/A**
215-215	**Store Hydrograph as Stream 5**				
214-214	**School Subarea**	**512**	476	149	**N/A**
214-215	**Store Hydrograph as Stream 4**				
214-215	**Add Stream 4 at Constant Rate of 10 cfs to Simulate Pump in Taquitz High School Basin**				
215-215	**Add Stream 5**	625	**630**	441	**N/A**
215-220	**Line D Flow**	625	**629**	441	**N/A**
220-220	**Add D2**	735	**775**	511	**775**
220-230	**Line D Flow**	722	**766**	511	**N/A**
230-230	**Add D3**	902	**924**	566	**925**
230-250	**Add Stream 3**	**2288**	2194	999	**N/A**
240-250	**Add D4 - Total Flow into Casa Loma Basin**	**2551**	2459	1093	**N/A**
250-250	**Casa Loma Basin Routing**	395	409	**410**	**410**
250-290	**Line Y-1 Flow**	395	409	**410**	**410**
290-290	**Store Hydrograph as Stream 4**				
260-260	**Add W3**	**228**	210	75	**N/A**
260-270	**Improved Channel (Line Y) Flow**	**198**	183	72	**N/A**
270-270	**Add W4**	**350**	336	131	**N/A**
270-280	**Improved Channel (Line Y) Flow**	**330**	321	127	**N/A**
280-280	**Store Hydrograph as Stream 5**				
280-280	**W5cove Inflow to Cove Basin**	**958**	879	362	**N/A**
280-280	**Cove Basin Routing**	**718**	703	336	**N/A**
280-280	**Add Stream 5**	**1047**	1024	464	
280-280	**Add W6**	**1107**	1074	496	**1110**
280-290	**Line Y Flow**	**1101**	1073	494	**N/A**
290-290	**Add Stream 4**	**1439**	1430	811	**1440**
290-300	**Line Y Flow**	**1430**	1418	809	**N/A**
300-300	**Add W7**	**1513**	1486	887	**1515**
300-310	**Line Y Flow**	**1507**	1478	886	**N/A**
310-310	**Add W8**	1653	**1708**	975	**1710**
310-320	**Line Y Flow**	1649	**1687**	974	**N/A**
320-320	**Add W9**	1798	**1827**	1044	**1830**
320-330	**Line Y Flow**	1794	**1825**	1043	**N/A**
330-330	**Add W10**	1826	**1849**	1073	**1850**
330-340	**Line Y Flow**	1823	**1845**	1072	**N/A**
	MDP LINE E FLOW OVER MWD RW				
340-340	**Add Stream 2**	5083	**5431**	3291	***5440***
340-350	**Line Z Flow**	4972	**5266**	3289	**N/A**